

**AIR QUALITY IN NEW YORK CITY AFTER THE  
SEPTEMBER 11, 2001 ATTACKS**

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**FIELD HEARING**  
BEFORE THE  
SUBCOMMITTEE ON CLEAN AIR, WETLANDS, AND  
CLIMATE CHANGE  
OF THE  
COMMITTEE ON  
ENVIRONMENT AND PUBLIC WORKS  
UNITED STATES SENATE  
ONE HUNDRED SEVENTH CONGRESS  
SECOND SESSION  
ON  
AIR QUALITY IN NEW YORK CITY AFTER THE SEPTEMBER 11, 2001  
ATTACKS

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FEBRUARY 11, 2002—NEW YORK CITY  
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Printed for the use of the Committee on Environment and Public Works



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## **AIR QUALITY IN NEW YORK CITY AFTER THE SEPTEMBER 11, 2001 ATTACKS**

**MONDAY, FEBRUARY 11, 2002**

U.S. SENATE,  
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,  
SUBCOMMITTEE ON CLEAN AIR, WETLANDS,  
AND CLIMATE CHANGE,  
*New York, NY.*

The subcommittee met, pursuant to notice, at 9:30 a.m. at the Alexander Hamilton U.S. Customs House, One Bowling Green, New York, NY, Hon. Joseph Lieberman (chairman of the subcommittee) presiding.

Present: Senators Lieberman and Clinton.

Also present: Congressman Nadler.

### **OPENING STATEMENT OF HON. JOSEPH I. LIEBERMAN, U.S. SENATOR FROM THE STATE OF CONNECTICUT**

Senator LIEBERMAN. Good morning. As people are coming in, let me—I know there's a security screening which is delaying some folks, so why don't we begin because we have a full morning and a number of witnesses. I would ask the folks who are here to try to take their seats.

Senator Clinton and I will make our opening statements, then we'll go to Congressman Nadler as the first witness.

I want to call this hearing of the Senate Subcommittee on Clean Air to order. I want to begin by thanking Senator Clinton for her leadership on this problem. The fact is that this subcommittee hearing would not be occurring here this morning, were it not for Senator Clinton's concerns and for her advocacy.

Five months ago today, just blocks from this site, tragedy struck this Nation and this city like never before. This great city particularly, the center of so much life and energy and the place where so many American dreams have been born and realized, was struck at its heart. The terrible images of that day will forever be seared into our souls and into our psyches.

Now as we work together to ensure that such an attack never happens again, we know that we will never forget the 3,000 loved ones and fellow citizens we lost, nor will we ever cease to be inspired by their lives or by the lives of the rescue workers whose heroism has rewritten the word for this new century. The consequences of that day to our society, our culture and our Government are great, and they seem to be growing every day.

But today we've gathered to discuss a particular problem: the public health consequences of the attacks on the World Trade Cen-

ter for the men and women who live and work here and for the children who go to school here. Especially for the workers whose tireless efforts in the cleanup and recovery of the site have reminded so many of us of what's best in America.

We return to the scene of the crime, a horrific war crime, to examine its consequences, continuing consequences, on the people of New York City. Because the fact is that we cannot allow the lingering consequences of September 11th to do any more damage to the health and well-being of the people of New York. When those two towers tumbled down, they brought tons and tons of building materials with them, releasing large quantities of dangerous chemicals into the air.

I know that there are serious concerns about the level of asbestos and benzene and heavy metals at and around the site. Workers at Ground Zero, from firefighters to police officers, to the construction workers and the sanitation workers and so many others, have reported respiratory ailments, mostly complaining of the newly-named "World Trade Center cough." According to the Firefighters Union, nearly 750 firefighters have taken medical leave since the cleanup began.

The air conditions in the surrounding neighborhood also have raised the community's anxiety. With private studies sometimes contradicting the Government, people don't know what to believe. I know there was a survey in October of local residents and nearly 35 percent said they did not feel that their homes were safe to live in, and about 80 percent wanted more information about their neighborhood's air quality. Parents of school children are understandably the most concerned, with the parents of some children apparently refusing to send their kids to school in the vicinity of Ground Zero.

If this great part of this great city is to begin to get back to normal, this situation has got to be clarified and resolved. That is why Senator Clinton asked me to convene this hearing today and why we are here to hear your testimony. We want to get to the truth as best we can to find out the answers to some of the questions that are on the minds of so many New Yorkers and so many others who have spent time at or around Ground Zero. Questions like what level of what contaminants were detected and where, to what were workers on the pile exposed, to what were people in the streets exposed? Are there still hazards in places of work or places of residence or places of education?

We also want to find out how our Government responded on that fateful day and thereafter. There's no debate that the overall response of Government was and has continued to be excellent. It's certainly not our intent to re-enact or second-guess every decision made in what were some of the most difficult circumstances imaginable.

But as we go forward as a Nation in the struggle against terrorism, it is our obligation to learn as much as we possibly can about the lingering consequences of the attack on New York on September 11th. It is in that spirit that we're here today.

I know there's been confusion in the press and the public about which Agency, which level of government has been responsible for what part of the air quality monitoring. That's a question we're



going to ask, too, because our citizens need to know who's responsible. Accountability starts with cleaner lines of authority, and we need to clarify how our Government has organized its response to this part, this lingering part of the attack.

Representatives of the agencies before us were on the site 5 months ago today, anticipating many of the air quality problems and working to evaluate them. This morning, we're going to assess what has been learned and consider what can be done to address the gaps and overlaps and occasional contradictions in the reporting of that data.

Finally, we've got to ensure that we do everything we can to get the necessary help to those who may have been exposed to hazards in the course of this experience. We've got to locate, register and monitor the people who might have been exposed, especially the heroic first responders, who plunged into the danger onto the pile with no regard for what toxins might lurk in the rubble, not to mention the air. This includes of course all those from New York, but all those from outside who rushed here to be of help.

As we continue to move forward from September 11th as a Nation with remarkable unity and resolve to root out those who did this to us, we cannot let its aftermath damage you or us any more through the air you have inhaled or continue to inhale.

This morning, we've got a very knowledgeable and diverse group of witnesses who can help to educate us and all New Yorkers about these pressing questions. I hope when we leave here today everyone in the room, including the U.S. Senate, as represented by Senator Clinton and me, will have a clearer understanding based on the facts of what is and is not unsafe in the air, and what we together can do to protect the health and safety of the people of New York.

I want to again thank Senator Clinton and say to you, I've known Senator Clinton for more than a few years, from her time at law school in my home city of New Haven. I'm not going to mention the years, she remains remarkably youthful and vital. She has been an extraordinary addition to the U.S. Senate, obviously very bright, extremely able, but has worked tirelessly and very effectively on behalf of the people of New York, really from the beginning of her service in January 2001, but powerfully and passionately since September 11th.

I'm honored to be here at her request and proud to introduce her to you now.

**OPENING STATEMENT OF HON. HILLARY RODHAM CLINTON,  
U.S. SENATOR FROM THE STATE OF NEW YORK**

Senator CLINTON. Thank you so much, Chairman Lieberman.

Thank you for convening this hearing, which as you so well explained, will help us answer questions, will help us determine what we don't know, so that we can ask the right questions, do the research that's needed, and most importantly, ensure that we're doing everything possible to care for the health of our residents, our workers, our children, our first responders and everyone who has been directly and indirectly affected by the disastrous events just 5 months ago today.

We're very fortunate to have our neighbor and our friend, Senator Lieberman with us today. He's not only the chairman of this Subcommittee on Clean Air that has jurisdiction over these issues, but he is a statesman and someone whom I admire and have for all those decades that we've known each other. It's a great honor for me to welcome him to the Alexander Hamilton U.S. Customs House for another piece of American history with this Senate hearing.

There are many important individuals and groups who will be testifying today, but I'm very well aware that there are many others who could not be fit into the context of a Senate hearing. I want to encourage all of you to submit written testimony, either by giving it to us today or by sending it to the committee. There is information posted about how to do that. Because we know, just looking at this audience, that there are many of you who have very specific concerns and questions. Some I'm sure will be addressed by all of the witnesses this morning, but others may not.

We want to hear from you. We'll be continuing to pursue this issue. Because as Chairman Lieberman says, "what we want to do is know what the Federal Government's response was and should be." I for one am not ready to point fingers at anyone. I think that the work and the response of September 11th and in the weeks following was heroic, was absolutely inspiring, and everyone was working as hard as they could to deal first with the rescue mission and then with recovery.

But clearly, since this had not occurred ever in our history, and there had never been the collapse of such enormous buildings with all that that means in terms of the materials that were within them and their dispersal into the air and into the ground, this was a new experience, a terrible, horrific one that all of us have to learn from.

The purpose of today's hearing is really three-fold. What we want to do is first find out what we know about the quality of air at and around Ground Zero and any related health impacts. Second, find out and be honest about what we don't know. There are questions we can't answer. It's frustrating and concerning to all of us, particularly those who live or work in the vicinity. But let's just put them on the table, and then, let's have a plan of action about what we're going to do. Not only to answer those unanswered questions insofar as possible, but to do everything we can to improve air quality, right now, going forward, and to protect the health of the people that live, work, attend school and generally call Lower Manhattan home.

I certainly don't think any of us have all the answers. The information that has been made available to us and that I have been monitoring since September 11th based on the experts, both in the private and public sectors, appears reasonably to indicate that the outdoor air quality around the World Trade Center site, not at the specific site, the so-called pile or Ground Zero, but around the site is generally meeting standards and has improved since the first few weeks following the attack.

Now, while the outdoor air quality in the general area seems to have improved and to be acceptable, there definitely was and still is cause for concern at the site, at Ground Zero. It is imperative

that the people who have worked there and are working there still have been supplied with and trained to use the proper protective gear and that they actually use it, and that they seek care when they are experiencing any symptoms, such as the so-called "World Trade Center cough."

I think it's also clear that people have been confused by the information provided by officials. Sometimes it didn't match up with the personal experience that people were having. It just didn't make sense. There has been conflicting information almost continually from different sources, which has certainly added to the confusion and concern. One of my hopes is that we will create a system that will try to at least eliminate the confusion insofar as possible.

But as little as we know and can agree upon, there is much that still remains in question. The long-term health impacts of exposure to air pollutants at and around Ground Zero is simply not yet known or certain. The information made available thus far seems to indicate that the risk of long-term health impacts to the general public, people who live and work in Lower Manhattan, is very low. But we don't know for sure. There is definite and very much warranted concern for the short- and long-term health of those who worked directly at Ground Zero.

There are also risks related to the dust and residue found inside buildings, which can be or has been airborne. This has to be appropriately addressed and we will be discussing that. It appears uncertain whether all of the buildings around Ground Zero have been adequately cleaned. Certainly some have been, and have met the available standards. Others raise questions about what was done and how well the cleanup complies.

Now, even though this is something that is unprecedented to all of us, that cannot be an excuse for not acting at the highest standards to do everything possible to meet the concerns that people have. I would like to propose, and will ask the witnesses to respond as we go through the day, five general actions that I think could help.

First, I would like to urge Congress to pass and the President to sign S. 1621, which is a bill I introduced and which this committee passed early in November, that would authorize a health monitoring program for all community members, volunteers and workers in a disaster area when there has been exposure to harmful substances.

Second, we need to immediately establish and fund a comprehensive long-term environmental health registry, referral, surveillance and education system for the World Trade Center disaster. This should be included in the Federal budget that is currently being debated in the Congress. There are a number of efforts that have been started in this regard, but we need an overarching program to pull this together and to continue it for 20 to 30 years. Because I think we owe it to our firefighters, our police officers, construction workers and others who are most at risk that we follow them for however many years it takes, and treat them for anything that might be discovered.

Third, I believe we should address the continuing unknowns regarding indoor air by establishing a World Trade Center indoor air program. This should be a joint Federal-city effort that will expand

on existing indoor air quality testing and monitoring and make the information available to the public in real time. I'm concerned that some testing was done that wasn't always immediately made public, and I don't think that that builds the kind of confidence that we should have in the information we're receiving. I look forward to working with the city on this initiative.

Fourth, while we continue to clean up from September 11th, we should make sure we don't add to our air quality concerns. There should be a clean air initiative at the site to do everything possible to keep under control the emissions from the construction equipment being used. I've heard from a number of residents that they are concerned by all the diesel trucks that are lined up that have their motors running all day. I think we could take some steps that would help to eliminate some of the emissions and allay some of the concerns. I encourage the State to work with us on that.

Finally, I think we need to capture the lessons we've learned from this experience, incorporate them into a new emergency protocol for environmental health that identifies pollutants to be measured in the aftermath of a disaster, and that establishes health-based standards to be used and sets uniform sampling and testing methods. Then, tell us what we need to do if the standards, based on the uniform testing, reveals that the standards are not being met. I think this should be a part of the Administration's homeland security initiative and I know that this committee stands ready to work with Governor Ridge's office on that important issue.

Finally, Mr. Chairman, I want to just include in the record a short statement of Senator Voinovich. I want to just read a paragraph from it, because I think it illustrates that although this is principally a New York issue, and those who live and work in the region, there were many, as you said in your remarks, who came from all over the country. Senator Voinovich from Ohio is very concerned, because after Ohio Task Force One returned home, those were the first responders sent in by FEMA to work with our firefighters, police and emergency responders, many of them experienced illnesses apparently caused by work at Ground Zero.

Thirty-seven of the seventy-four emergency responders became ill. Three people were hospitalized with viral pneumonia, eight people experienced extreme weight loss, two people have been diagnosed with adult onset asthma, one with acute bronchitis, and the rest with various respiratory disorders and rashes. Senator Voinovich expresses his concern that no Federal Agency is monitoring these workers for health problems. Clearly, the Federal Government owes them the duty to inform of their health risks and to ensure that they receive the best medical care while safeguarding their individual privacy. That's clearly something that we agree with and hope that we're going to be able to come up with some solutions to some of these issues.

Again, Mr. Chairman, thank you so much for coming to this historic site to hold this historic hearing.

[The prepared statement of Senator Voinovich follows:]

STATEMENT OF SENATOR GEORGE VOINOVICH, U.S. SENATOR FROM THE  
STATE OF OHIO

Mr. Chairman, thank you for holding today's hearing on the air quality and health impacts of the September 11th attack on the World Trade Center. I would

also like to especially thank Senator Clinton for bringing this important issue to my attention and the attention of this subcommittee and the U.S. Senate.

As I said on September 11th, our first responsibility is to secure the support the victims and their families will need in the days and the months ahead and pray that God will bless and comfort them. Today part of that support is to ensure that those who work, live and attend school in the area are safe and are not exposed to situations which put their health at risk.

In addition, we have a very important responsibility to the emergency responders and the thousands of workers and volunteers who have dealt with the ongoing tragedy at Ground Zero everyday since September 11th. Our Nation owes these brave men and women our gratitude and our thanks. Many of the workers left their families for days and weeks at a time, working long difficult hours, at emotionally difficult tasks most Americans can not image. When I toured Ground Zero shortly after the attack, I was struck with the dedication and hard work of all of the volunteers and the fact that the television coverage did not do justice to the devastation that I saw.

The bravery, professionalism, and sacrifice of the men and women of the New York Fire and Police Departments and other emergency workers is an inspiration to us all. These men and women are true heroes in every sense of the word. While all of New York and America should be proud of the quick response of the New York rescue workers, we all should be equally proud of the volunteers from across the country who responded to the call for help. I am particularly proud of the 74 members of Ohio Task Force One who were mobilized on September 11th and were among the first out-of-state FEMA teams to respond to the site, where they worked until September 20.

I am also proud of the Federal response to the tragedy by FEMA and the other Federal agencies. I think it is important as we evaluate the Federal response, in order to make improvements in the system, that we do not lose sight of the fact that the terrorism attack on September 11th was unprecedented in size, scale, and devastation. Nevertheless, some mistakes were inevitable and we must learn from them.

I am particularly concerned about the health problems of the emergency responders and what they were exposed to during their work at Ground Zero. Equally disturbing is the breakdown by the Federal Government in monitoring the health problems and treatments of the out-of-state FEMA volunteers following their work at Ground Zero.

After Ohio Task Force One returned home, many of them experienced illnesses apparently caused work at Ground Zero. Thirty-seven of the seventy-four emergency responders became ill, three people were hospitalized with viral pneumonia, eight people experienced extreme weight loss, two people have been diagnosed with adult onset asthma, one with acute bronchitis and the rest with various respiratory disorders and rashes. This data was supplied to me by Robert Hessinger, the logistics chief for Ohio Task Force One.

I was concerned, and I remain concerned, that no Federal Agency is monitoring these workers for health problems. The workers themselves are concerned because they do not know what they may have been exposed to during their work in New York. The only information they have received since returning to Ohio is from what they have read in the newspapers about potential exposure to asbestos. This is not acceptable. If these people are going to leave their families and jobs and risk their lives and health, then the Federal Government owes them the duty to inform them of their health risks and to ensure that they receive the best medical care, while at the same time safeguarding their individual privacy.

The entire FEMA response effort depends upon the willingness of volunteers pitching in from around the country. If we do not treat these volunteers with the respect they are due, then we will have a difficult time convincing people to volunteer for disasters in the future. Mr. Chairman, I look forward to working with you and Senator Clinton and others members of the subcommittee to ensure that all of the emergency responders and the residents of New York City get the most reliable health information and answers to their questions and concerns.

Thank you.

Senator LIEBERMAN. Thank you, Senator Clinton, for a very thoughtful statement and a very substantive five-point program of response which I look forward to working with you on. That first measure that you sponsored last fall, S. 1621, to provide for health monitoring, we did report out of the committee. I believe it's still

on the Floor, and I hope we can get our colleagues in the Senate to move it quickly.

Your statement and your program make the point that I think is why we're here, which is that the response of the emergency workers and the construction workers and everyone else set a standard for the rest of the country. We hope and pray that America will never have an other incident like this, but in a real world, we cannot assume that that will not be so.

Just as a standard was set by the first responders and those who continue to work to clean up at the site and to find and search for survivors, we've got to be persistent enough, and your leadership is going to make this so, to stay in there with the people who live here, who have worked at the site, who continue to work in the neighborhood, children who go to school here, to make sure that we also set a standard which judges and protects against the lingering consequences of these awful attacks.

So with that in mind, I thank you and I now call our first witness, who is our colleague and friend, Congressman Jerry Nadler.

**STATEMENT OF HON. JERROLD NADLER, U.S.  
REPRESENTATIVE FROM THE STATE OF NEW YORK**

Mr. NADLER. Good morning. Thank you, Chairman Lieberman, and thank you, Senator Clinton. I'd like to thank you for holding this field hearing today and for inviting me to testify regarding the continuing impact of the September 11th attacks on the air quality in Lower Manhattan.

As the Congressman representing Ground Zero and the surrounding area, I am deeply concerned about the environmental and health effects posed by the collapse of the World Trade Center for my constituents and for those who go to school or work in the area. It has now been exactly 5 months since the terrorist attacks. Unfortunately, the people in Lower Manhattan still do not know whether or not it is safe to live and work in the area.

Although the first responders and the emergency personnel did excellent work, the (EPA) Environmental Protection Agency, has failed in its mission to "protect human health and to safeguard the national environment" by not exercising its full authority to test and clean indoor spaces where people live and work. As such, EPA has created what can only become a full-scale crisis of public confidence.

Yet all is not lost. The EPA can and must act now to remedy the situation and to make Lower Manhattan safe and to restore public trust. Despite statements to the contrary, the Agency does currently have the authority and resources to do so, and it must do so quickly. If the EPA continues to fail New Yorkers, we will have to introduce legislation to mandate action.

I'm going to begin by being very blunt. We now know enough to be alarmed and outraged at the Federal Government's response to the environmental impact of September 11th. First, we know that EPA Administrator Christine Todd Whitman misled the public on September 18, 2001, when she said she was "glad to reassure the people of New York that their air is safe to breathe and their water is safe to drink." She made that statement without the indoor data

necessary, without any indoor testing having been done, to make such a pronouncement.

Second, we know that the EPA has made a series of conflicting comments about the presence and quality of hazardous materials and has even knowingly withheld critical data regarding the causticity of the dust.

Third, we know that the EPA delegated authority to New York City to handle indoor environments, but did nothing to assure that the city's response was adequate or appropriate. This left New Yorkers to their own uninformed devices, often without the means to take care of themselves and their families. This is true even as the EPA had its own building at 290 Broadway professionally tested and cleaned.

Finally, we know that the EPA has treated New York differently than it has treated other locales contaminated by hazardous materials. New York was at the center of one of the most calamitous events in American history, and the EPA has essentially walked away. Ms. Whitman's statement reassuring the public about the safety of air and water was based only on the EPA's outdoor tests, the results of which are still in dispute. At that time, there had been no systematic testing of indoor air or dust in residential or commercial buildings by any Government Agency, let alone by the EPA.

Ironically, the very first public testing conducted inside residences, which was commissioned by the Ground Zero Elected Official Task Force, which I formed, commenced on the very day Ms. Whitman made her misleading statement. The results were made available to the EPA on October 12. The test results showed elevated levels of a number of hazardous materials in many of these residences. The EPA did nothing and Ms. Whitman did not clarify her statement.

In recent weeks, the EPA has stated repeatedly that the city of New York, not the EPA, is responsible for indoor testing. The city, however, didn't get around to testing inside homes until November or December. The full results of these tests are still not available, and according to the Health Department, won't be available until the spring.

I do not understand why the results of tests undertaken by a public agency are being delayed for public release. Our test results, the ones that the Task Force commissioned, were available for public release in less than a month.

Nevertheless, just 3 days ago, I assume in anticipation of these hearings, the city Department of Health issued a press release regarding this limited indoor testing. Despite a pacifying headline, the limited data in the press release has caused a scientist with whom we've consulted to believe that full results will directly contradict Ms. Whitman's statement about the safety of the air, at least as regards the indoor air.

The release does make it clear, as did our commissioned study, that there were disconcerting levels of hazardous materials in people's apartments. Ms. Whitman's reassurances are deeply confusing in light of other statements made by agency officials and of other information we now have that EPA has not itself released. For example, in a January 25 speech by Walter Mugdan, EPA Region 2

counsel, he states, "A significant number of the WTC bulk dust samples that we analyzed did have more than 1 percent asbestos."

An October 3, 2001 EPA memo, "Confirm[ing] No Significant Public Health Risk" states, "The majority of EPA and OSHA samples of air and dust analyzed for asbestos have been at levels that post no significant risk to residents and workers returning to their homes or area businesses." Now, that of course is misleading. Because that may be the majority, but that means the minority in plenty of places did find significant risk.

This statement has been made repeatedly by EPA Region II officials. How are New Yorkers to interpret these conflicting remarks? I can't even tell you what they mean, except that they cannot both be true.

Confusing remarks are one thing, withholding critical data pertaining to the public health is another. We know that it took a Freedom of Information Act request by the New York Environmental Law and Justice Project to get test results showing dangerous levels of hazardous materials in outdoor ambient air. The EPA claimed that this was an oversight.

But now we have new, frightening information. According to yesterday's St. Louis Post Dispatch, the U.S. Geological Survey, using the country's best detection equipment and methods, found pH levels in World Trade Center dust that are "as corrosive as drain cleaner," and passed this information along to health experts at the EPA on a Government-only website.

It took less than 2 weeks in September for these test results to be ready. But they weren't revealed until the St. Louis Post Dispatch yesterday. I submit this article for the record.

Senator LIEBERMAN. Without objection, the article will be received.

Mr. NADLER. Andrew Schneider, the paper's Pulitzer prize winning environmental journalist, charges "the USGS data was not released by the EPA nor apparently were the environmental agency's own test results on the dust." The EPA claims to have released this data to the public, but when Schneider reviewed all of the EPA's statements made since September 11th, he found nothing that warned of these high pH levels.

According to the New York Committee for Occupational Safety and Health, such dust, "once it's in contact with moist tissue, the throat, the mouth, the nasal passages, the eyes and even sweaty skin, it becomes corrosive and can cause severe burns." This is utterly scandalous. We must determine why the EPA hid this information from the public, and we must see all the data now. I hope that the two Senators will join me in calling on the Federal Government to explain why New Yorkers were misled, and to demand the immediate release of the full complement of data.

The EPA has not only provided false reassurances and misleading information, the EPA has also abrogated its responsibility to act. In a statement issued on January 17 in response to charges at a press conference that I held, the EPA states that it "has led the effort to monitor the outdoor environment, while the city of New York has taken the lead regarding the reoccupancy of buildings." At least the EPA admits that it has in effect delegated authority to the city.



Unfortunately, the EPA has yet to provide any justification for doing so, nor has it provided any evidence that it has taken any of the oversight measures the law compels it to take to assure that the city is acting in accordance with strict Federal standards. On January 23, I sent a formal inquiry to Administrator Whitman asking for answers to these and other questions about the city's response, which I submit for the record today. It has been over 3 weeks since the letter was sent, and I have yet to get a response.

Senator LIEBERMAN. Without objection, so ordered.

Mr. NADLER. The EPA might say today, as it has in the past, that it does not have the proper legal authority to take the steps we are requesting to test and clean the areas affected by the collapse of the World Trade Center. It will probably say that the Clean Air Act, for example, does not govern indoor air, and that it is therefore the responsibility of the local and State governments, or even that of the landlords and residents themselves. This is again all utterly misleading.

Under Section 303 of the Clean Air Act, the EPA has the authority in an emergency situation to protect human health when there is "an imminent and substantial endangerment" presented by a source of pollution. The intent of Congress is clear in this regard. A Senate report from 1970 on Section 303 states, "The levels of concentration of air pollution agents or combinations of agents which substantially endanger health are levels which should never be reached in any community. When the prediction can reasonably be made that such elevated levels could be reached even for a short period of time, that is that they are imminent, an emergency action plan should be implemented."

In short, the EPA should not wait for people to actually get sick before it acts, and it clearly has the authority to act under Section 303. Indeed, an EPA memo entitled, "Guidance on the Use of Section 303 of the Clean Air Act" was issued to the regional offices on September 15, 1983, outlining these very points. I submit a copy of this memo for the record.

Senator LIEBERMAN. Without objection, so ordered.

Mr. NADLER. The Clean Air Act is not the only governing statute. The EPA has the authority to act on indoor air under the National Contingency Plan of the Comprehensive Environmental Response, Compensation and Liability Act. In fact, I understand the EPA has indeed been utilizing some of the NCP, National Contingency Plan, protocols at Ground Zero. However, they have not relied on this authority or any other to test or remediate indoor environments.

As we speak, the EPA is in fact doing indoor testing and remediation in Herculaneum, MO, and other locales, which are not, by the way, Superfund sites. We must learn why the EPA is treating New York differently. I ask the Senators present here today to help me find out. This double standard is unconscionable.

The EPA was unwilling to act on its own, and yet did nothing to ensure that those ostensibly charged with acting did the right thing. The EPA on its website and in public press releases referred residents to the New York City Department of Health, which recommended that people clean their potentially asbestos laden dust with a "wet rag or wet mop." Clearly, such cleanup measures are inadequate.

We know that the law requires proper remediation of asbestos sites, not with a wet rag or a wet mop. The EPA's own actions show this to be the case as the actions they took in cleaning their own building at 290 Broadway. I today, again ask, why the EPA applied stricter measures to Federal buildings than the city advice for local residences and businesses equidistant from the World Trade Center?

Given the lack of action, credible information or oversight, I believe the EPA has failed in its responsibility to protect the public health of the citizens of Lower Manhattan. This is quite shameful, for public health is the first thing we as a Government must protect.

In order to assure a full and fair public assessment on the EPA's actions following September 11th, I have also asked the EPA National Ombudsman, Robert Martin, to investigate these matters. Mr. Martin has been doing so, and I am disappointed he did not have the opportunity to share the status of that investigation with the committee. However, I understand the sharp time constraint today, so I have attached a statement from Mr. Martin to be included in the record.

Senator LIEBERMAN. Without objection, so ordered.

Mr. NADLER. As you may also know, Administrator Whitman is attempting to place the Office of the Ombudsman under the control of the Inspector General of the EPA, effectively stripping the Ombudsman of his independence and ability to investigate these and other claims. I sincerely hope that Administrator Whitman will stop her request to eviscerate the Office of the Ombudsman, and in doing so, further undermining the integrity of her agency. I also hope that Congress will do so if she doesn't.

I realize that I have leveled serious charges here today. I believe I have the moral responsibility to do so. The salient point is that we still do not know the extent of the presence of hazardous materials in some areas of the city, especially in indoor areas. It may or may not be dangerous in many indoor areas of Lower Manhattan, we just do not know.

I am dismayed that there seems to be an unwillingness on the part of our public agencies to get this information. But given that we do not have all of the facts, we cannot conclude anything. I do know that we must get the facts and act swiftly and appropriately to get the job done right. We must not fall into the catch-22 of saying there is no evidence of a public health emergency without taking any steps to get such evidence.

The burden should not be on the landlords and residents themselves when the testing procedures and cleanup measures are expensive and must be conducted by properly trained personnel. The EPA has the statutory and regulatory authority to test and to remediate indoor environments in Lower Manhattan and has exercised such authority elsewhere.

I am calling on EPA today to immediately commence a program of full-scale testing and remediation using the best available technology, and to make a report of all such test results and actions available to the public. The EPA must also issue the test results in a manner which is tied directly to health standards, so that we

can truly assess the public health risks posed to the people of Lower Manhattan.

Finally, testing procedures should in no way impede the expeditious remediation of hazardous materials found by other Government agencies or private researchers. Similarly, should the EPA find dangerous levels of hazardous materials before the full spectrum of testing is completed, cleanup measures should commence immediately.

If the EPA fails to act again, despite its current authority, I will introduce legislation to compel it to do so. People might say that the measures I am requesting here today are expensive. That may be, but we must protect the public health. Although the cost may be high today, imagine what the cost will be in the future if it turns out there really are dangerous levels of hazardous materials in Lower Manhattan, especially indoors.

By the way, when I say Lower Manhattan, this applies equally to Brooklyn, Jersey City and anywhere else that cloud went. All of these areas must be properly tested. Imagine the city's and EPA's contingent liability to lawsuits 20 years down the road and envision to potential health care costs. It is in the best interests of the residents, workers, students and businesses, for the Government to act swiftly and appropriately to address the public's environment and health concerns. We cannot afford to wait while all the agencies point fingers at each other. There is still time to right the situation.

Time is of the essence. My office has received numerous complaints from people experiencing adverse health effects, such as headaches, nosebleeds and respiratory ailments. The symptoms are so widespread they have been dubbed the World Trade Center flu. Public confidence is at stake. People know when they are sick, they know when something is not right, and they know when they are being lied to. I sincerely hope that we do not have another Love Canal on our hands. But the best way to avoid that is to do the necessary testing and cleanup now.

I again thank you for inviting me to testify before you today. I look forward to working with my colleagues in both chambers of Congress and with all interested parties to ensure that New York City is safe and prosperous for many years to come. I thank you.

Senator LIEBERMAN. Thanks, Congressman Nadler. That was a characteristically direct, intelligent and passionate statement. I appreciate it very much. You framed the issues and issued a challenge as well as offering some solutions, which I think will guide us as we go on in this hearing for the rest of the morning.

Without objection, I'm going to include all the material you've referred to in the printed record of this hearing.

I thank you very much for your time, your advocacy and for a superb opening statement.

Mr. NADLER. Thank you.

Senator CLINTON. I join in thanking the Congressman, and especially for his leadership on the Ground Zero Elected Officials Task Force. We're including on the record, I hope that you'll just hand it to us, Jerry, because we want to be able to refer to your material as we go through this hearing. We will closely work together and

make sure that the questions you raised are at the forefront of certainly the Senate's agenda as well.

Mr. NADLER. Thank you very much.

Senator LIEBERMAN. Thanks, Congressman. See you in Washington.

Now we'll go to the second panel. I'll call them to the table. Liz Berger, who's a resident of the area; Dr. Kerry Kelly, chief medical officer of the New York City Fire Department; Dr. George Thurston, associate professor of Environmental Medicine at the New York University Medical School, Nelson Institute of Environmental Medicine; and Eric Goldstein, who's the New York Urban program director of the Natural Resources Defense Council.

I thank all of you for being here. You are either living through or examining and being advocates about the problems that we've talked about. So your initial testimony here is very important.

We're timing this to 3-minute opening statements, then we'll have questions. If you can't do it all in 3 minutes, we will not give you the proverbial hook, but try to keep it as concise as you can.

Ms. Berger, welcome, and we look forward to your testimony now.

**STATEMENT OF ELIZABETH H. BERGER, RESIDENT,  
NEW YORK, NY**

Ms. BERGER. Thank you, Senator. I'm going to talk really fast. Chairman Lieberman, Senator Clinton, staff members, fellow panelists, neighbors, thank you for inviting me to tell you about the doubts, concerns and questions which have confronted downtown residents every day since September 11th. I've submitted more comprehensive testimony for the record, but I want you to know that we live in a time of deep uncertainty, but are required to make countless decisions that may affect our health and that of our children for decades to come.

I live 150 yards from Ground Zero. I have lived south of Fulton Street for more than 19 years. My husband and I remember life downtown before there was a single all night deli, and restaurants closed early Friday and didn't reopen until Monday lunch, and when the closest supermarkets were in New Jersey.

We loved being downtown. We loved the huge buildings on the narrow, winding streets. We loved being closed to the water, and we knew that in some powerful, visceral way, Manhattan was an island and that we were at the center and the beginning of everything.

For us, the World Trade Center was everything. It was our indoor play space, our back yard, our mall, our theater. It was where our kids flew their kites, where they went roller skating, where they learned to ride their bikes. It was the only place below Chamber Street where you could buy a decent loaf of bread. My children, who are 5 and 2, spent part of every day of their lives at the World Trade Center.

This is why it is so absurd to heed the call to return to normal. There is no more normal for us. I saw the first plane before it hit. Our building was evacuated. It was 8 days before we knew that it was structurally sound, and another few weeks before we were assured that One Liberty wasn't going to fall on us. That entire time,

I thought not of the apartment we were going to lose, but of the destruction of our community, of 20 years' work gone in 18 minutes.

The theme of my remarks is uncertainty. I never doubted that we would return. After the city recertified our building, I realized the question was not whether, but how. Because as you know, it is the city's job to certify for structural integrity, not for environmental safety.

We then began a great education process which has made downtown residents experts in products and services we never knew existed—FEMA, HEPA, OSHA. We all learned fairly quickly which were the best cleaning companies and testing companies, but what no one to this day can agree on is what clean means and how to measure it. It took eight guys in white suits and respirators 5 days to clean my apartment. But is it clean? Nobody tells you what to keep and what to toss.

In October, I attended a panel discussion at Cooper Union featuring leaders in the field of pediatric environmental health. I didn't even know this was a field. It included some of the doctors who are testifying here today. There were six doctors, they have seven opinions and they ranged from throw it in the washing machine to get out of town and don't look back.

So the question for us is, what's in the stuff? Every day, the air smelled different and the winds blew a different course. We made our own rules divined from press reports, from high school science as we remembered it, from the advice of friends of neighbors. One scientist friend who lives two blocks from Ground Zero measured the asbestos and lead levels in his apartment and declared it safe for his family. They went back after 3 weeks. The managing agent of his building, however, reported high levels of those substances in the building's public areas. So the question is, how to interpret the facts.

In the end, 248 stuffed animals, 8 handmade baby quilts, 5 mattresses, a trousseau's worth of sheets and towels, all the food in my kitchen and 13 leaf and lawn bags of toys went into our trash. We didn't throw away our books, our drapes, our upholstered furniture or our clothes, although it did cost \$16,000 to dry clean them. We washed the walls, but we didn't repaint them. Some people we know repainted, but they kept their mattresses. Some people kept their stuffed animals, but they threw away their furniture. Some people kept what they just couldn't bear to lose and got rid of everything else.

Now, we haven't decided what to do about our floors. We can't decide, if we strip, sand and reseal them, will the asbestos, fiberglass, concrete, human remains, because we know there are body parts pulverized throughout our apartment, heavy metals, and these vague particulates, will they be contained or will they just be released into the indoor air? I should say, I'm going to submit for the record a January 11th memo I've just received from Cate Jenkins of the EPA. When you read this, I want to go home and I want to take all my furniture and just put it out on the street. So I'll let you decide.

Senator LIEBERMAN. We'll include it in the record.

Without objection, so ordered.

Ms. BERGER. Thank you, Senator.

Indoor air is a tough issue. In our building, we have a very primitive central air system. It circulates the air from apartment to apartment. Some people hired professional cleaners. Others did it themselves, and a few locked the door and just didn't come back. So after the guys in suits left our apartment, we sealed our windows, we filtered our vents, we bought six triple-HEPA filtered air purifiers, which we run 24 hours a day. My extremely clean air is working its way through the building, as is the air of my neighbors who didn't do that. Now, this is also true for outdoor air.

Our building, all the systems in public spaces have been professionally cleaned following the city DEP guidelines. We are surrounded by buildings that have either not been cleaned or have been cleaned very summarily. Now, we live on the 11th floor. So we see the poor porters in the commercial buildings around us sent up on the roof by management with push brooms. I'm going to show you what it looks like. These pictures were taken from my neighbor's window last week. That's not snow. That's stuff. That's coming through our windows. I will submit these to you as well.

Senator LIEBERMAN. Without objection, so ordered.

Ms. BERGER. Now, in our case, much of this debate has been academic. We decided that with two young children, it would be very foolish to return to our homes until the fire went out. Now, we were urged to return to normal. Every time that we thought we were being a little crazy and should go back, there would be a new report of asbestos, of heavy metal and other readings in the warm zone. We were told, well, you live in the financial zone. Except our building's front door is 16 feet from the fence of the warm zone.

Now, that was not easy. We've been home for 3 weeks. We're all happier, but we don't know if we are safe. Now, this is what my 5-year-old asked me to tell you. She said, tell them please that we lived in three places in 4 months and that it was very, very hard. So we're back home. We've opened our windows, but we're not going to the park. Some of our neighbors have HEPA window screens, some have their windows duct taped, others have put their apartments on the market. We don't know what the right thing to do is. Ours is a culture that's based on authority, but there has been none.

We would do whatever we needed to do if only we knew what that was. I have to say in this regard, the failure of the Federal regulators to recognize that this is a residential community and to think that OSHA standards apply is just an outrage. I mean, we could smell it, computers, fluorescent bulbs, copiers, electrolytic fluids, bodies. Let me tell you, everyone downtown knows that we are the baseline of the 30-year study on what happens when worlds collide. As a parent, that is the most frightening experience and responsibility I have ever faced.

What I find ironic in all this is that the only authority I have found with respect to cleaning up the mess is William James, who was the father of pragmatism. Pragmatism is arguably the only American contribution to world philosophy, so I guess it makes sense that when we're feeling very American, we're turning to him. Now, as you know, Senator Lieberman, he was a Harvard man, so I'm sorry to quote him. But as he said in a lecture he gave right

here in New York City in 1907, "We have to live today by what truth we can get today, and be ready tomorrow to call it falsehood." I first read that when I was 19 years old in college, and I thought it was pretty cynical. But now, as a 41-year-old mother of two, while I'm horrified by the implications for my children's future, I know it is the only way we can live.

James also said, "Truth is an affair of leading." Now, this is your charge. On behalf of the almost 30,000 people who live here, I commend you for following it and I urge you not to let go.

Senator LIEBERMAN. Thanks very much for a very important and eloquent statement. Thanks very much, and I think I can speak for Senator Clinton when I say we accept the charge. That was a very important and poignant statement.

Dr. Kelly, welcome and thanks for your testimony.

**STATEMENT OF KERRY J. KELLY, M.D., CHIEF MEDICAL OFFICER, NEW YORK CITY FIRE DEPARTMENT**

Dr. KELLY. Good morning, and thank you for inviting me to appear before the subcommittee.

I am the chief medical officer of the New York City Fire Department. I responded to the World Trade Center on September 11th and participated in the rescue and recovery efforts that thousands of our members undertook on that day and on the days to come. The recovery effort still continues now, engaging our members in recovery of both civilians and uniformed members, 7 days a week, 24 hours a day.

The FDNY response to the World Trade Center event placed our members in the epicenter within moments of the first plane hitting the north tower. Members from emergency squads, rescue companies, engines, ladders and medical teams from across the city responded to the call. Firefighters about to end their daily tour of duty stayed on. Off duty firefighters commandeered vehicles. Retirees and members on sick leave found their way to the scene.

Within a matter of moments, these rescuers became victims, soldiers in the worst terrorist attack on our Nation's soil. Three hundred forty-three members lost their lives that day. Over 200 members were seen in emergency rooms for physical trauma. Many members required hospitalization and surgical intervention for significant orthopedic injuries. The rescue and recovery effort involved thousands of members following a job-wide recall during the first few days of operation.

In the initial moments and hours after the collapses, firefighters and emergency workers continued to work without pause in the desperate search for survivors. The air was full of thick debris and dense dust clouds, with visibility so bad that one could not see people more than 3 feet ahead. With the collapse of the towers, and avalanche of acrid debris, metallic meteors and a shower of gray dust descended on the survivors, blanketing the new wave of rescuers as they rushed in to assist. It seemed as though day had turned into night, but still our members continued searching for survivors in the surreal, black blizzard of debris. Fine dust coated every crevice, making features indiscernible.

Dust, debris and particulate matter choked breath and irritated the eyes. Due to the vast numbers of FDNY personnel at the scene,

respirators were not available for all members working at the site. Many also found it more difficult to operate while wearing respirators, and many chose to carry on their search for survivors unprotected. Members ignored or fought against symptoms. Many did not sleep for days, pushing themselves to continue the search for survivors.

In the immediate aftermath of the collapse, as the rescue work continued, many members complained of eye irritation, as well as, cough and congestion. As the air quality improved, eye irritation symptoms improved. Cough complaints continued. Pulmicort inhalers and inhaled steroid was offered to offset the allergic cough symptoms.

Concerns for the physical and mental health of members were raised by FDNY medical staff in those first few hours and days. Due to the cough symptoms that members exhibited, questions were also raised about exposure levels that were present at the scene. It was, and is still unclear what exposures members might have been experiencing following the fall of two 110-story towers combined with the combustion of two planes and jet fuel.

Within a week of the tragedy, the Fire Department's Bureau of Health Services began preparing for an unparalleled medical monitoring procedure for all members exposed at the site. BHS partnered with National Institute for Occupational Safety and Health and the U.S. Centers for Disease Control and Prevention on this project. We are very grateful for the funding we received from the CDC to conduct this initial analysis of our members. From October 6 through 12, an initial sampling of 400 exposed members were given comprehensive medical evaluations.

BHS, NIOSH and CDC were satisfied with the logistics and implementation of the medical evaluation, and BHS immediately began the vast project of testing the remaining members. We worked 7 days a week, with three shifts a day, and were able to see approximately 180 members per day. From October 31 until January 31, the medical monitoring of all personnel who responded to the World Trade Center was undertaken. Almost 10,000 firefighters and 800 EMS personnel have now been evaluated. I am proud to say that our initial medical evaluation of all the members who responded to the World Trade Center is now complete.

Medical monitoring consisted of ECGs, pulmonary function tests, chest x-rays, hearing evaluations, and blood testing consisting of CBCs, chemistries, liver functions, lipid profiles, lead, beryllium, PCBs and urine mercury and urinalysis testing. In addition, testing of dioxins and hydrocarbons was done at the CDC lab on the initial group of 400. Blood from all remaining members was banked, to be tested at a later time if the need arose. Although some of these tests are part of a routine medical exam, other more specialized tests were conducted due to environmental concerns.

At the time of the medical monitoring, members also completed a computerized survey regarding their physical complaints to assist the Department in tracking the symptoms that members are experiencing. BHS has compiled a very complete record of each of our members from prior annual exams to use as a baseline for comparison.



Since the testing was completed less than 2 weeks ago, the complete results from this computer survey are still being tallied. Preliminary blood tests have not indicated any significantly elevated levels of toxic metals or abnormal chemistries or blood counts. At the time of completing the computer survey, 25 percent of our members reported cough and shortness of breath on exertion. The pulmonary function tests taken during the medical evaluation have shown a decline that matches this complaint. In most cases, this change has not affected overall functional capacity. Some members remain "off the line" with active symptoms, while others have returned to work.

Our current medical leave rate is a reflection of both the rise in respiratory symptoms and post-traumatic stress. There has been a twofold increase in both respiratory problems and stress-related problems in the last 5 months. It remains to be seen how members will recover from this event.

However, in order to measure recovery, we must continue to monitor all of the members who responded to the World Trade Center event. We are grateful to have received funding from CDC for one additional medical examination per member in the future. We remain concerned about the potential health problems in our members. We are also concerned about longitudinal followup with our members. Those who become ill, or experience a trauma of this level in their working life, may choose to retire from this job when they can no longer withstand the rigors of this work. We want to ensure that our members continue to receive monitoring in the future, whether or not they retire from the Department.

For this reason, the Fire Department's Bureau of Health Services is now actively seeking funding for this project. We must affirm our commitment to the members of our Department who gave so much to this city and to this country, and who have inspired people around the world with their courage and determination. We owe it to them continue to monitor the effects that their exposure on September 11th may have on their future.

Bureau of Health Services has the pre- and post-World Trade Center records, the expertise and the logistical set-up to conduct an unprecedented and thorough investigation of the effects of the exposure our members experienced on that terrible day. Let us not forget that more of our members experienced a far greater level of exposure than any other group in this city. As far as I know, there are no hard and fast answers to the potential effects of exposures. Many unknowns remain. That is why it is critical that we continue our monitoring.

The events of September 11th were catastrophic. In a matter of moments, our members became participants in a battlefield. The FDNY response was outstanding when we review the numbers of civilians saved and we measure the heroic efforts of so many individuals. Our losses are deeply felt with the deaths of members from every rank and every branch of our service. Our memories are filled with the experiences of that day and the many days that followed. Both physically and emotionally, we have been challenged by this event.

As we rebuild our Department, we must also restate our commitment to our members who worked so hard to save others. I am sure we can all agree it is no less than they deserve.

Thank you for your time.

Senator LIEBERMAN. Thanks, Dr. Kelly. Thanks for those very important results, and also for your eloquence.

Dr. Thurston.

**STATEMENT OF GEORGE D. THURSTON, ScD., ASSOCIATE PROFESSOR OF ENVIRONMENTAL MEDICINE, NEW YORK UNIVERSITY MEDICAL SCHOOL, NELSON INSTITUTE OF ENVIRONMENTAL MEDICINE**

Dr. THURSTON. Good morning. Thank you for this opportunity to share our scientific results in your process of investigating the World Trade Center disaster.

On September 12, my research center at the NYU School of Medicine received an urgent request from the Office of the Director of the NIEHS, the National Institutes of Health Sciences, one of the National Institutes of Health, to respond to the environmental impacts of the attack of September 11th by doing whatever we could to monitor the air pollution that was resulting from the disaster's dust and fires. That evening, we sent a research team into the World Trade Center disaster zone to collect numerous samples of the dust from locations surrounding Ground Zero. The red dots on this figure display the points at which they were able to gather samples of the World Trade Center dust for us to analyze.

Our NYU Medical School research team also set up an ambient outdoor air monitoring station at the NYU Downtown Hospital at Beekman Street, just five blocks to the east-northeast of Ground Zero. It's also noted on the figure. We sampled for various types of particle air pollution from Friday, September 14th until the end of 2001. Although our work is far from complete, we have weighed these samples to determine the outdoor particulate mass concentrations, as well as analyzed the ambient air pollution samples and the World Trade Center dust for their constituents.

Therefore, our sampling data, and my testimony today, applies to the general public living and working in the vicinity of the disaster, rather than to the rescue workers exposed at Ground Zero.

As shown in the next figure, our analyses of the World Trade Center dust samples revealed that some 99 percent of the dust was as particles too large to be penetrate deeply into the lung, being largely caught in the nose, mouth and throat when inhaled. This large dust, however, contained approximately one-third fiberglass, with much of the remainder as alkaline cement dust. This large dust therefore was quite caustic and had the high pH that Congressman Nadler was discussing. Therefore, it's caustic and irritating to the eyes, nose and throat, consistent with the now infamous "World Trade Center cough" that nearby residents reported.

Only trace amounts of asbestos were found in our samples. The less than 1 percent that was as PM<sub>2.5</sub>, or the particles that would reach deepest in the lung, was found to have a neutral pH, with no detectable asbestos or fiberglass. I think that's an important distinction from the results that were, I gather, discussed. I didn't read the article. If you just looked at these dust particles as an ag-

gregate, it's dominated by the large particles, and those are very caustic.

What we did was, we re-aerosolized the dust and we analyzed it by size fraction, which is a very important distinction. Because it's the fine particles that would get deep in your lung. Those were not caustic, those were not alkaline like the large dust that would be in your eyes, your nose, your throat, and therefore would give you symptoms but not get deeply into your lungs, which is a relief.

Thus, while our analyses are consistent with the Government's conclusion that the World Trade Center dust is not likely to have short- or long-term serious health impacts from the fine particles on otherwise healthy local residents, we found that it is very irritating and capable of causing the symptoms reported by many residents. I would also note that we also sampled in November one indoor residence near the World Trade Center. We found very similar results of those particles inside the home as what we found outside, where the majority of the particles were in these very large size fraction that would be caught in the eyes, nose and throat.

Our sampling of the outdoor air pollution at NYU Downtown Hospital, and let me go to the next figure there, showed that air pollution levels were very high in the first weeks following the attack, especially at night, but then diminished as the fires were brought under control. By October, soot levels in the downtown area were generally similar to those that we measured at the NYU Medical School in midtown, First Avenue and 26th Street. We were also monitoring at another location up toward midtown. Although levels occasionally climbed in downtown on clear, calm nights throughout the fall. This is pointed out in this figure, you can see that the black line is the 24-hour average that the EPA might report and measure. Then we had day time and night time samples. Each evening, the levels are higher and lower in the day time. So when the winds diminished at night, the pollution levels would buildup.

Overall, our independent air pollution sampling results were largely consistent with the data reported by the EPA. In particular, although short-term peaks in  $PM_{2.5}$  particulate matter air pollution for a few hours did occur at night, the 24-hour averages were of  $PM_{2.5}$  were within the legal standards set by the U.S. air quality laws.

Despite the fact that individual pollutants in the community were apparently at safe levels for otherwise healthy persons in the general population, it is impossible to know what potential interactive effects might have occurred among the various pollutants, even at these low levels. Ultimately, only epidemiological followup studies of possible effects among especially susceptible individuals will provide a fuller determination of the issue of possible health effects from the various pollutants in the World Trade Center plume.

Finally, I feel strongly that we must make sure to learn all the lessons that we can from this horrible catastrophe regarding the communication of risk to the public in such emergency situations. Something like what happened to New York City on September 11th could, unfortunately happen again, and we must be prepared.

It is an understatement to say that the public is skeptical of Government pronouncements of safety in such situations.

In this case, I feel that the EPA was too quick to declare the air "safe" and did not well enough define what was meant by that term. Although the fine particle pollution was not of a level that would make otherwise healthy people very sick, the dust was caustic and irritating, causing many to have severe and upsetting symptoms, including eye, nose, and throat irritation. This caused people to further doubt governmental pronouncements of safety, even after more complete data were available confirming the EPA position.

As a result, the press turned to the academic research community of New York City to fill the void. It has been my duty and honor to play a role in the academic effort to answer the environmental questions that New Yorkers had, and still have. But we must improve the current situation. While we cannot create governmental trust where there is none, I believe that we should draw upon what happened in New York City to help the Nation better cope with such situations in the future.

The Government should designate a suite of environmental parameters to be measured in such situations, and designate the appropriate health standards for best comparisons in such short-term exposure situations. There was a lot of confusion, especially in the press, citing which standards to compare. They would get hold of data, and they would compare it to a standard, and it would be an inappropriate standard, then it would lead to false or, inaccurate, let's say, conclusions from the data. So you really have to know what you're comparing things to. I think there was a lot of misunderstanding about how to interpret the data that was collected and reported in the press.

Moreover, I recommend that we create a mechanism by which blue ribbon panels of the leading independent experts in the United States are formed in advance, perhaps by the National Academy of Sciences, to be on standby in case, God forbid, such an emergency happens again. If this is done, there would then be an independent expert panel ready to be assembled, briefed, and to then give their quick-turnaround assessment of the public's environmental risks, and of the appropriate actions that are needed to protect public health. Without such new mechanisms, I fear that any future such disasters may be accompanied by the same unfortunate confusion, doubts, and distrust. Let us act now to help preclude this risk communication problem from happening in the future.

Thank you for the opportunity to testify on this important issue.

Senator LIEBERMAN. Thank you, Dr. Thurston, for some very constructive recommendations. It kind of reminds me what we went through in the Capitol when the anthrax was discovered in Senator Daschle's office. There were some very quick reassurances which turned out not as time went on to be justified. It's a lesson for all of us which is, sometimes when you're not certain, the best thing to say is nothing. Then when you have some more information, to say what the information leads you to say.

So I look forward to coming back in the question and answer and asking you more about that.

Our final witness on this panel is Eric Goldstein of the National Resources Defense Council. Thanks for being here.

**STATEMENT OF ERIC A. GOLDSTEIN, NEW YORK URBAN PROGRAM DIRECTOR, NATURAL RESOURCES DEFENSE COUNCIL**

Mr. GOLDSTEIN. Thank you, Chairman Lieberman, Senator Clinton. It's an honor to appear before both of you, and we appreciate your holding these hearings and all your good work on the environment and for New York in general.

My name is Eric Goldstein and I am the New York program director at the Natural Resources Defense Council. First, let me express the condolences of NRDC on behalf of all of my colleagues to all of those who lost loved ones in all of the terrorist attacks on September 11th.

In the aftermath of the September 11th tragedy, my colleagues Megan Nordgren, Mark Izeman and I began pulling together a 1-year report and analysis of the environmental impacts of the World Trade Center disaster and the Government response to those events. We are releasing a preliminary version of that report on Wednesday, and hope that you will be able to incorporate the entire document into the record of this hearing. I'll try to quickly make three points and several recommendations.

First, the September 11th attacks, in addition to the horrific loss of human lives and the huge economic dislocations, constituted an unprecedented assault, as we all know, on Lower Manhattan's environment. The collapse of the 110-story towers, two of them, the conflagration of vast amounts of toxic materials, the forced distribution of debris and dust throughout portions of Lower Manhattan, the long-burning fires at Ground Zero all combined to create unquestionably the single largest air pollution episode in the history of New York City and probably urban America.

NRDC's report estimates that at least 10,000 New Yorkers suffered short-term respiratory or other pollution-related impacts from the Trade Center's collapse and subsequent fires. Thousands of apartments and offices in the immediate vicinity of Ground Zero received significant loadings of polluted dust. As Congressman Nadler forcefully noted, there is of course much that we still do not know about the air quality impacts of the September 11th attacks. That's why the health studies that are now being undertaken by Dr. Landrigan at Mount Sinai, Dr. Carerra at Columbia, Dr. Thurston at NYU, Dr. Kelly at the Fire Department and others are so important. That's why continuing monitoring and assessment is so urgent.

Based upon the incomplete data that is now available, here's what we can say. In general, outdoor air quality in Lower Manhattan today is approaching or similar to levels in the area prior to September 11th, with some exceptions. Some portions of the Ground Zero work pile, of course, and localized hot spots, such as areas with heavy concentrations of diesel buses and diesel equipment, and at times, areas where Trade Center debris is being removed or transferred to barges.

The most worrisome air pollution problem facing Lower Manhattan today, in addition, of course, to the worker safety concerns, now involves indoor pollution threats in some residences and offices

that were engulfed with thick layers of contaminated dust and whose buildings were not properly cleaned. These are pollution challenges that remain. They are pollution challenges, including getting the best available filtration devices for Stuyvesant and some of the schools there that are manageable and solvable. But they exist, and they shouldn't be swept under the rug.

In many ways, the response of Government agencies and their employees to the Trade Center attacks was heroic and a testament to the merits of public service, which is too often undervalued. We recognize the environmental and health agency staff who performed many tasks with distinction. EPA personnel, for example, undertook numerous assignments including the removal of hazardous waste from the Ground Zero site, the deployment of HEPA vacuuming trucks and the establishment of sophisticated air quality monitoring and testing facilities. But there were some Olympic-sized problems as well, and I want to briefly highlight them.

No. 1, overlapping jurisdiction among at least nine city, State, and Federal agencies. This was a problem. This meant no single agency was in overall charge of the environmental response to the September 11th attacks. It meant that no agency took the lead in ensuring environmental safety for those working at Ground Zero. It meant that no agency took affirmative charge of the environmental cleanup and inspection of environmental conditions prior to re-occupancy of residences and offices in the vicinity of Ground Zero. Many of these problems, NRDC believes, resulted from shortcomings of the Giuliani administration, which handled so many other aspects of the September 11th response magnificently and which was in tight, overall command of the entire rescue, recovery and cleanup effort. The low profile of the city's Department of Environmental Protection, which has 6,000 employees and wide-ranging authority under the New York City charter to respond to environmental emergencies, lends support to the growing belief the department does not rise to the challenges posed by the September 11th attacks.

No. 2, a major problem involved communicating environmental health data to the public. As Ms. Berger has stated so compellingly, there appeared to be no coordinated strategy for conveying such information to concerned citizens. There were no regular briefings of Government leaders of environmental or health agencies. There was no one place for citizens to turn to get environmental guidance and advice. Test data was not often promptly released.

Government statements on air quality, at least as the public understood them, stressed the good news and de-emphasized issues that might raise further concerns. By focusing almost exclusively on long-term risks in their public statements, Government officials omitted warnings regarding short-term health effects, particularly to Ground Zero workers and other sensitive sub-groups. For at least a small portion of those who suffered from short-term impacts, there could well be long-term consequences.

Admittedly, the Government agencies had a very difficult assignment here, and were responding not to an industrial accident but an act of war. Nevertheless, as a result of shortcomings on the communications front, a troubling credibility gap on environmental health issues emerged.

No. 3, difficulty has been environmental safety shortcomings at the Ground Zero site itself. While rescue, recovery and site cleanup operations have made remarkable progress with some heroic actions, the environmental health issues that were handled at Ground Zero represent a glaring exception to that overall record of accomplishment. A prime example has been the failure to require Ground Zero workers to wear appropriate respirators. The OSHA representatives who seemed to argue that they were only at Ground Zero in an advisory capacity, and did not or could not insist upon the wearing of respirators certainly have some explaining to do.

Among other onsite safety problems of significance were undue delays in establishing worker safety training procedures. It's one thing in the first day or couple of days after, but it's another thing when those procedures haven't gotten underway weeks and months after the tragic events of September 11th.

A final shortcoming in the Government's environmental response involves problems assisting Lower Manhattan residents in environmental safety and cleanup issues. As previously stated, in addition to the communications gaps, agencies failed to prepare and provide complete and proper cleanup protocols for many Manhattan residents, they failed to inspect even the most heavily contaminated buildings for environmental safety, prior to reentry. No agency took overall responsibility for supervising the environmental cleanup and safe re-occupancy of these apartments. It was left, for the most part, to residents and building managers to sort these complex challenges out for themselves.

No. 4, as to recommendations. We support Senator Clinton's five-point program, of course, including S. 1621, and the Health Registry funding. We urge that you encourage EPA and the New York City Department of Environmental Protection and whatever other agencies they together feel are appropriate to create an Air Pollution Assistance Center located in the Ground Zero vicinity, fully staffed to answer and respond to residents' questions and provide one-stop shopping to address the air quality and health aspects of this tragedy. Also, those two agencies, U.S. EPA and the New York City Department of Environmental Protection and others create a joint task force that will promptly begin door-to-door visits and inspections of individual buildings, to verify environmental conditions, at least in the immediate ring of buildings within a 10-block radius of Ground Zero.

Second, we urge that you prod the Occupational Safety and Health Administration and relevant New York city officials to commence without further delay enforcement of environmental safety rules at the Ground Zero work site. Third, as we mentioned and you mentioned before, we urge you to assist medical institutions, such as those mentioned before, in securing the funds they need for these critical public health studies, and to help obtain funds for a full health registry of all Lower Manhattan residents and workers.

Finally, we urge you to convene a second hearing and otherwise find ways of address the question of whether the Federal Clean Air Act pollution standards and pollution monitoring requirements need revision in the wake of the lessons that we've learned from the September 11th tragedy. Ultimately, if there were no violations

of Federal air quality standards from this event, the Federal and State air quality standards certainly need to be re-examined.

Thank you very much for inviting us to testify, and we definitely appreciate your interest in this issue.

Senator LIEBERMAN. Thanks, Mr. Goldstein. We have become accustomed, obviously, to saying what happened on September 11th was unprecedented in our history, that we never have been attacked that way. You said something in your testimony that may surprise some people, but it's important to the specific focus of this committee, that what resulted, and I quote you, was unquestionably the single largest air pollution episode in the history of New York City. That cries out for our attention at all levels of Government now.

Let me begin with a few questions and then I'll yield to Senator Clinton.

Dr. Thurston, you stated that only followup epidemiological studies will truly reveal the cumulative effects any of the pollutants had or will have had on people in the area who are exposed, particularly sensitive sub-populations, such as children. That struck me as remarkably consistent with what Ms. Berger said when she said that she knows that she's now part of a 30-year baseline study by the fact that she lives in this area.

I wanted to ask you how you would advise residents to evaluate the risks from the pollutants, given the uncertainty. In some sense your testimony has been reassuring, based on your studies. In other senses, it obviously, I would guess, and I'll give her a chance to say, leaves Ms. Berger and other residents with questions about the future.

Mr. THURSTON. Right. Well, first let me say that I think there's only so far we can go by looking at the pollution levels and trying to interpret them. I think that's the first cut that we've done. We've looked at it, and we're not through with it yet, but looking at the pollution levels, the various pollutants, analyzing them, and trying to figure out what the potential for health effects are.

But the serious complications of this of course is that we've got a mixture of pollutants that are different from what we normally experience. We do normally experience quite a bit of pollution in big cities like New York, Los Angeles and London, so that the epidemiologic studies I think are necessary if we're going to get to the ultimate bottom line, is did it affect people's health. I think initially as you look across the pollutants, and we're not done yet, but it does appear that looking at them individually, that in the general public that the health risk is not significantly high.

Now, of course, the Ground Zero workers, rescue workers and people like that, there's a different exposure and evaluation that has to go on. But then when you start considering the fact that there was this mixture that's not like other pollutants, we really can't go back to previous studies to evaluate what the health impacts are. We were saying that the air quality standards aren't adequate for assessing these. Well, the way that air quality standards work is, you look at past history and you have to use studies that are published, and then you say, well, OK, in those situations we saw effects, so we'll set the standard.



We have nothing to look back to try and set those limits. So I think that's going to make it much more challenging.

Now, in terms of advice to people, I think that it really is going to be on an individual level. In other words, otherwise healthy people are probably going to have very little concern. But then if you have a pre-existing condition, a pre-existing disease, young children, for example, spend a lot more time crawling around on the floor, such that if an apartment wasn't fully cleaned and there's still lead, there are elevated levels of lead in the dust. Although levels we've found would be acceptable to be in a playground under EPA limits, but not acceptable to being on the floor in a home. There's a higher level, because children are crawling, you have very young infants that are crawling around and then they'll put their fingers in their mouth and they'll get a higher exposure.

So it's very difficult, of course, you can't give across the board advice here. I think that it's going to be very individual and it's going to depend on what the pre-condition is of the person and whether it's a pregnant woman or not. That makes a big difference.

So those are the kinds of things that have to be considered in deciding what action to take. So it's going to be pretty individual, there's no broad, across the board advice, I think, that's going to serve everyone.

Senator LIEBERMAN. So what do you say to Ms. Berger? Should she be, for instance, taking her children regularly to a doctor to examine them for possible effects from air quality?

Mr. THURSTON. Well, I don't know the situation of the exposures and things, so it's very difficult to evaluate that. I know that when I came down in November to speak to the parents at Stuyvesant High School, at that point I told them that I would be more than glad to have my daughter go to that school because of the excellent education she would get. I felt comfortable that the pollution levels for a healthy child like mine would be appropriate, it would be fine, she wouldn't have a problem.

Now, if she had severe asthma, then maybe I would have had a somewhat different decision. So it's very difficult for me to give advice without knowing the situation.

Senator LIEBERMAN. Let me ask Ms. Berger whether you are at all reassured by what Dr. Thurston or Mr. Goldstein has said this morning.

Ms. BERGER. I'm not particularly reassured by what Dr. Thurston says. I mean, I read before some of his findings.

I don't think the issue is a global one. I don't think anybody believes there can be a certain answer. I think that's actually the history of asbestos, that this long-term exposure and it's after the fact, as he said, looking at the studies.

But what we don't know is how to clean appropriately. You've just said, if you clean appropriately, you should be fine. Well, I've done almost everything that's been suggested. Every time I turn around, there's something else, there's something that I've not done. That's really the issue. I mean, the basis of the Kay Jenkins report is that in certain homes they tested in Tribeca, the asbestos levels are 22 times what they are in Libby, MT, which is a Superfund cleanup site.

Now, you're right, I have no idea how to evaluate that. But I'm not a scientist. So what does that mean for me? She says that the reason why the numbers are so off is that the testing procedures are incorrect. There's a huge debate, again, I'm sure you know it, about the size particle.

So I guess what I found so wonderful about your five point plan and the way I would expand upon it is what are the testing procedures, why aren't the Federal regulators coming in, setting the standards, why aren't they doing the testing. Then, of course, there are the financial issues, which is, what's the cost of abatement on an individual level and who bears it.

Senator LIEBERMAN. Very strong points. Dr. Kelly, let me ask you a few questions. I gather from your testimony that in the studies you've done and the work you've done with the firefighters involved here that there's no evidence of increased metallic or other toxins in their blood, but that there is, basically 25 percent, or a quarter of those firefighters surveyed not only have respiratory concerns but in fact your studies and tests of them show that they have respiratory problems. Have I heard that correctly?

Dr. KELLY. Yes, that's true. Our computer survey with the symptoms, the results from the initial 400. We are still tallying the computer survey for the remaining 10,000. But that's approximately 25 percent.

We've certainly seen a number of people who have been ill, unable to work due to respiratory symptoms. With treatment, some have been able to go back. Others have not. I know you mentioned that some of the people who are most at risk are people who have underlying respiratory problems. But in the case of our firefighters, these are people who are in good health. These are people who have excellent pulmonary function tests. We have baseline studies to show that.

This group is even more disheartened, because this is a group that is normally very athletic, physically active. To suddenly not be able to breathe or have symptoms and perhaps face the loss of a career that they've loved is very upsetting to them.

Senator LIEBERMAN. Is there any indication in your studies about unique characteristics to the 25 percent who are showing respiratory problems? In other words, did it have anything to do with where they were on the site or what they were doing or when they were on it?

Dr. KELLY. We're still analyzing that as part of our survey. We are asking what days they were working, what kinds of activity they were engaged in. That will take continuing studies. That's what we plan on doing over the next month or several months.

Senator LIEBERMAN. I was pleased, incidentally, that CDC, which is obviously a Federal Agency, is supporting some of the work you're doing. I hope they or some other Federal agencies will continue to support it. Because this is very important work to be done.

Do you know if there are any studies going on of the health of firefighters or other emergency workers who came in from outside of New York?

Dr. KELLY. I don't know the answer to that.

Senator LIEBERMAN. A final question. Your testimony and other material that I've read indicates that not only were there not

enough respirators available at the site, but also that the equipment the fire department had was too bulky and that firefighters couldn't use it for extended periods of time. Am I correct in that understanding, and if so, is the fire department looking for lighter weight breathing equipment for the firefighters now?

Dr. KELLY. They will be continuing efforts to see what equipment we can adapt or use for these situations. The P100 mask or respirator is excellent for both vapor and for particulate matter. That was not as widely available at the scene, though, in the initial few days. Again, this was a war zone. The initial several days, the control of that site and that environment was not easily done. The overall response of our members was phenomenal, and people responded without really any equipment just to be there and see what they could do to help. Their efforts were really looking for people, finding people, not even thinking of protecting themselves.

Senator LIEBERMAN. So some, I presume, just didn't put the respirators on because they were so focused on exactly what you said, the search for survivors?

Dr. KELLY. The availability of those respirators was not there, at least certainly the first few days.

Senator LIEBERMAN. Is that because they were not available in the department generally, or there were too few, or just that they didn't get to the site on time?

Dr. KELLY. Again, we lost, had crushed over 70 some rigs. Those are the rigs that normally would hold the backup equipment. The mass service units, which are the units that come to bring additional equipment, were lost. We had tremendous losses of equipment and manpower that day.

Senator LIEBERMAN. Thanks. Senator Clinton.

Senator CLINTON. Thank you, and I want to thank the panel. I particularly appreciate all of the recommendations that you've given us for future actions. I just want to ask a brief question of each of you.

Liz, you just made a point about the cost of abatement. You have done everything you know to do, and you've done it to the highest possible level, trying to make your living situation as safe as you can. Did insurance cover any of that for you?

Ms. BERGER. I have to say, the insurance companies, in my experience and the experience of my neighbors in general, have been pretty good. The problem is that most people are under-insured, myself included. Most of what we're talking about comes under personal property damage. There was not a lot of structural damage.

We're maxed out. The Federal agencies have been useless. I went through the FEMA process, I went through the SBA process. I kind of enjoyed being told by the SBA that I couldn't have a loan because I didn't have enough debt. Well, maybe now I will.

Senator LIEBERMAN. Yes, your Federal Government qualifies for a loan on that basis.

[Laughter.]

Ms. BERGER. It was just unbelievable. So in this case, I mean, I can say for me it's not a question of money. I will do whatever I need to do. For many people, it is, though. A lot of people who didn't have renter's insurance, there were people whose windows were open and so who had even greater property damage. But to

look at some of the reports that essentially say, anything porous goes out the door, it's tough.

Senator CLINTON. Well, I am concerned because right now we are facing decreasing insurance available for any purpose with respect to terrorist attacks, and in particular here in New York. So what was available on September 10th may no longer be available. That's a double whammy.

The other thing I just don't understand is, I've been talking to the agencies and being quite agitated about this for months, is that with all the money that came in, why helping owners and renters clean up their living space was not on the list, is something I don't understand. If the law needs to be changed, if SBA or FEMA or any other agency needs to be empowered to try to help, I think we have to look at that as well. Because it's just not been appropriate the way that there's been no help on these issues.

Ms. BERGER. Senator, if I could just add one more thing. We've now increased our personal property insurance but our building, which is a co-op, has the misfortune of having its insurance come due in the first few months after this. We had a very difficult time finding a carrier that would write the policy. That is really the issue, co-ops are kind of a unique form of ownership here in New York. But to have a building without insurance, it's pretty difficult.

Senator CLINTON. Well, I appreciate that very much.

Now, Dr. Kelly, I thank you again for being willing to come and testify and I want to thank Dr. Prezant, who's with you, who I know has been your partner in doing this work. I'm pleased that I was able to get some CDC money, Senator Lieberman, about \$12 million, for these followup studies. But that is woefully inadequate for what needs to be done. If we're looking at longitudinal studies for 20 to 30 years, taking into account not only the firefighters and the first responders and the construction workers who I feel strongly have to be involved in the followup, but also residents and workers in the area generally.

I'm hoping that the methods that you've used, which I am very pleased you had a chance to describe today, will be looked at as a real model.

If you, though, were to have the funding for the broader, longer longitudinal study that you have referred to, could you use the existing protocols and methods that you've already used for the shorter term October to January study, or would you need some additional assistance to design and implement such a study?

Dr. KELLY. We certainly have the infrastructure in place. Our concern is again, the longitudinal followup. We don't know all the substances that people have been exposed to. One reason we've banked blood is so that if substances become apparent that we are unaware of, we will at least have the opportunity to go back and check that blood. We're also concerned that currently, once members retire, we no longer follow them, and therefore it becomes difficult for good followup over the years to see how people are doing.

So that's an area that we have a level of concern and we would want to continue that information gathering. Because again, this is the most affected group. If we look ahead to say how are people going to do, we need to have an ability to follow these people as time goes on.

Senator CLINTON. Well, I agree 100 percent. I also believe that we haven't up until now done a very good job in our country following chronic diseases and conditions in any event. It takes a disaster like this to point out the fact that we have a system to track infectious disease, but we don't have a system to track chronic disease. Maybe this will be the wakeup call we need to put such a system in effect, and then to correlate that with environmental information. Because the interactions which Dr. Thurston referred to is something that we just don't know the meaning of yet.

So I hope that as Senator Lieberman and I go forward with additional legislation and hearings on this that we will look to the fire department as a real example of what can be done.

Dr. Thurston, you have mentioned that we do have fiberglass found traces of in some of the materials that have been tested. As you know, the city announced on Friday the continuing presence of fiberglass in indoor dust samples. When somebody hears fiberglass, when I hear fiberglass, I find that disturbing. In your testimony, you were critical of EPA's use of the term safe.

How, though, can we communicate more effectively? Both you and Mr. Goldstein made the point that we didn't communicate information effectively. When we hear in the public that there's fiberglass, then we hear an agency say that it's safe, how do we sort that out? Do you have any guidance on that?

Mr. THURSTON. The issue of fiberglass, there is actually more than just a trace of fiberglass in the large particles. But fortunately, those are very efficiently caught in the upper airways, the nose, throat, the mouth, thankfully they don't get deeper in the lungs. Also, fiberglass is very irritating as was mentioned. It's also more readily cleared than asbestos from the lung, so that it doesn't insinuate itself into the linings of the lungs as readily, so that it's not as long a term risk, not thought to be as long a term risk as say, asbestos. So it's a short-term irritating kind of effect.

Now, in terms of having something to compare it to, that's what I mentioned, we need to look at the standards we have. Something like fiberglass, something like asbestos are based on a 20-, 30-year exposure to it in an occupational setting. We just don't have that here, thankfully. But it's difficult to then take that and ramp it back to let's say a 1-year exposure and figure out what that means. Because the mechanisms are different in acute versus chronic exposure effects.

So it's a challenging thing. I think it will require, again, perhaps a National Academy of Sciences panel or EPA to go back and look at their standards and say, how can we set these, so that we can set up some criteria by which to compare. I think mentioned a few moments ago was the asbestos counts and very high counts, when you use techniques that look at the very finest asbestos. I think it's a good example of comparing apples and oranges. It's led to a lot of confusion and scared people, I think in all likelihood excessively. Because the standard that was set was counting particles by a method that counted the larger particles, larger asbestos, the longer fibers, which are the ones that are thought to be the most dangerous to health.

Now, the standard didn't include the little particles, so that if you're going to start counting them, then you can't compare it to

a standard which didn't count them. If you were to have, in setting the standard, added in the small particles, you would have gotten a much higher level as your legal limit. But what people are doing now is they're counting all the particles and then they're comparing it to a standard set just for the large fibers.

So that's inappropriate, even if the small fibers, let's say, are as damaging as the large ones, which science would indicate they probably are not, because they are much more easily cleared from the lungs. But even if they were of equal toxicity, the standard to compare it to wouldn't be one that just counted the ones larger, it would also include the small one.

So that's what we've got to do, we've got to have standards that are comparable to what people are out there measuring.

Senator CLINTON. I couldn't agree more, and I think that Mr. Goldstein's recommendation that we need to consider changes in standards, maybe even need to consider changes in the Clean Air Act, is something that we have to take very seriously.

Mr. THURSTON. Well, it's going to be challenging, because as you probably know from your experience on the Senate committee that looks into this issue, what's required is for us to look at published studies of situations and to document very carefully. If we don't have the documentation, then we can't set the standard.

Senator CLINTON. I understand that, but I guess it's a chicken and egg issue. I think that's what's so totally frustrating to people, is that we haven't invested enough, in my opinion, we haven't invested enough in doing these studies and in tracking this information longitudinally so that therefore we come up short when it comes time to make standards.

I know we're running out of time, and Mr. Goldstein, would you just comment on the whole standards issue?

Mr. GOLDSTEIN. It's clear that this was an unprecedented event, and that therefore, the standards that have been established under the Clean Air Act might not have been fully protective of public health. Among the things that ought to be examined are whether there should be some even shorter term standard for exposure to high intensity bursts of particulate matter on a short standard than the current 24-hour measuring standard, whether there ought to be some standards under the EPA's Clean Air Act regarding fiberglass, and whether other pollutants such as dioxins, which have some 30-year guidance values, but are not part of the formal standard setting process, ought to be incorporated.

So it's a complex issue, but it is one we believe this subcommittee ought to be thinking about, and that EPA ought to be carefully exploring.

Senator CLINTON. Thank you.

Senator LIEBERMAN. Thanks, Senator Clinton.

Before we go on to the next panel, Mr. Goldstein, you were quite critical of the New York City Department of Environmental Protection. They're going to be represented on the next panel. I wondered if you wanted to just say a few more words about your criticism.

Mr. GOLDSTEIN. Well, ultimately if you examine, I guess in terms of for the public, they care less which agency is in charge than that some agency is in charge. One of the weaknesses here was that many agencies had a variety of responsibilities, and many agencies

did some good work. But there was no single agency in command of the environmental health issues where the public could go that would have regular briefings and that would be in charge of the whole operation.

In our view, after reviewing the New York City charter, which is our city's constitution, the city Department of Environmental Protection had wide-ranging responsibilities to respond to environmental emergencies involving hazardous substances. In our view, those duties were not fulfilled, and therefore, other agencies who would have filled in, particularly with the way in which New York City, again, magnificently in most aspects of the problem, really ran the show at Ground Zero, it made it all that much more difficult for State or Federal agencies to step in in a very active way when Mayor Giuliani and his team was running this operation in the way that the mayor sometimes did.

So with that in mind, it was a responsibility, we believe, of the city's Department of Environmental Protection, working with the New York City Health Department, to coordinate all the agencies. Someone had to take the lead. In our view, the most logical agency to do so would have been the city DEP, to coordinate the work of all these other agencies.

Senator LIEBERMAN. I thank you. I thank all of you on the panel very much. You've contributed very significantly to the work of this committee. The committee will continue to be interested in this matter and try to be constructive in our response to it. If there was every any doubt about the committee's interest, Senator Clinton will make sure that we continue to be interested and respond. I promise you, we will.

I thank you very much for your time.

We'll now call the third panel. Ms. Marianne Jackson, Deputy Federal Coordinating Officer for the World Trade Center Event, Federal Emergency Management Agency; Ms. Jane M. Kenny, Administrator, Environmental Protection Agency, Region 2; Mr. Carl Johnson, deputy commissioner for Air and Waste Management, Department of Environmental Conservation, State of New York; and Commissioner Joel Miele, Department of Environmental Protection, City of New York, who will be accompanied by Commissioner Thomas Frieden of the Department of Health, City of New York.

Thank you all for being here. I ask you if you can, as quickly as possible, to find your seats at the table. I'd ask folks in the room to try to keep the noise down and we will proceed with the testimony.

The hearing room will come to order. Ms. Jackson, representing FEMA, you are first. We welcome your testimony, and obviously we'd like to hear a response to some of what you heard in the first panel, particularly Ms. Berger's complaint about her inability to get assistance from FEMA.

**STATEMENT OF MARIANNE C. JACKSON, DEPUTY FEDERAL COORDINATING OFFICER FOR THE WORLD TRADE CENTER EVENT, FEDERAL EMERGENCY MANAGEMENT AGENCY**

Ms. JACKSON. Good morning, Mr. Chairman and Senator Clinton. I am Marianne Jackson, Deputy Federal Coordinating Officer for the Federal Emergency Management Agency (FEMA), for the

World Trade Center disaster. I thank you for this opportunity to update you on FEMA's disaster response operations in New York City.

Some 3,500 Federal workers were deployed to New York City to support the disaster response. About 1,300 from FEMA and almost 2,000 from other Federal departments and agencies. There are still about 500 Federal workers supporting the city and the State on this recovery.

As you know, FEMA's mission is to reduce the loss of life and property protect our Nation's critical infrastructure. Our success depends on our ability to organize and lead a community of local, State, and Federal agencies and voluntary organizations. We provide the management framework, the financial resources and the Federal assets to help State and local governments.

Immediately following the attacks on September 11th, the importance of air quality and emergency responder health and related issues emerged as critically important. Initially, we attended daily meetings with the State and the city to discuss a wide variety of issues including air quality. We worked closely with EPA, the New York City DEP and the New York State DEC.

Under the Federal Response Plan (FRP), we mission assigned, that means tasked, and provided funding to EPA to conduct air samplings as well as a number of other missions. The health and safety of emergency responders was of paramount importance. Immediately, various Government agencies, such as OSHA, NIOSH, HHS, EPA and State and city agencies, were dispatched to the site.

Federal personnel and teams deployed into the disaster area, such as the Urban Search and Rescue Teams, the U.S. Army Corps of Engineers experts and medical personnel from the Department of HHS arrived with the necessary protective gear. We were able to address immediately health concerns involving emergency responders through our coordination with HHS and its Public Health Service. Five Disaster Medical Assistance Teams, which are MASH type hospital units, were brought in, four Disaster Mortuary Teams were brought in, and one Mental Health Assistance Team was brought in, in addition to other assets to address health concerns.

Long-term health monitoring was initially funded by FEMA, and that's what Dr. Kelly from the fire department described. We also included initial tests on 4,000 State emergency workers working at Ground Zero, and CDC will continue that effort.

In another critical area, we provided funding to address the long-term mental health of responders and others who may have been affected by this tragedy. We coordinated with the National Association of Fallen Firefighters to work directly with the Fire Department of New York (FDNY) on crisis counseling, and we also funded Project Liberty, at \$23 million at this point, which is a long-term mental health disaster recovery program administered by the State of New York Office of Mental Health.

Because of the amount of dust and debris that resulted from the building collapses, cleanup of residences and the surrounding areas has been a major priority. We provided almost 6,000 disaster housing assistance grants to both renters and owners who lived in the vicinity of the World Trade Center. The rent money, we gave renters 2 months rent and owners 3 months rent, so they could go some



place else and live until they were able to get back into their apartments, which in some cases were inaccessible for quite a while. We also provided cleanup money and we also reimbursed people who stayed in hotels in the first couple of weeks.

New York State administers a program called the Individual and Family Grant Program. That program provided grants to people to buy HEPA vacuum cleaners, air filters and air purification systems for residences. In addition, the voluntary agencies provided similar cleanup gear for people. The voluntary agencies were also very active and helped with cleanup for the special needs population.

We worked with the city Department of Health through our joint outreach teams in distributing to residents flyers containing recommendations on actions needed in order to be able to safely reoccupy buildings and homes. This flyer addressed cleanup and safety and health concerns and was developed to facilitate individuals moving back into their homes.

The Small Business Administration offers two kinds of loans, economic injury loans, and that's for businesses who lost business, to help them stabilize and get their business back. But they also provide what are called physical loss loans. They provided over 800 loans to both businesses and individuals for physical loss. So that meant to repair and in most cases, it meant there was money for cleanup.

Eligible Government clean-up costs and monitoring activities are being funded 100 percent through FEMA's Public Assistance program, which is aid to Government entities. For example, the New York City Board of Education's cleanup of the schools near Ground Zero is an eligible expense, and they will be reimbursed, as is the cleanup of city vehicles such as fire trucks and police cars.

All of FEMA's work has been created out of the authority the Environment and Public Works Committee has provided through the Stafford Act. This legislation has served us well and has provided the necessary authority and flexibility to empower us to do our best. The disaster response and recovery in New York City will be a long-term process, but the President has said that we will provide whatever assistance is needed to get the job done. I can assure you that FEMA will be here as long as needed.

Senator LIEBERMAN. Thanks, Ms. Jackson, for all FEMA has done. Do you want to take a moment to respond to what Ms. Berger expressed as a concern?

Ms. JACKSON. Yes, I gave Ms. Berger my card, and actually she and I had met at one of the many meetings that we've had down here since September 11th. I'm going to need, naturally I'm very concerned about her interaction with FEMA. She and I will talk later. We have to address these situations on a case by case basis.

As I mentioned in my testimony, we have been giving people money to clean up, so they can get back in. Additionally, if someone has been given rent money and they come to us and say, my doctor is saying I shouldn't move back to my residence because of a health condition, because psychologically, it's very, very difficult for me, then we're going to give them additional money so they're not forced to move back into the area.

Senator LIEBERMAN. I'm glad you're going to work with her and talk with her. Again, I appreciate what you've done. You're abso-

lutely right, FEMA is created by statute that comes out of our committee and the documentation of the assistance you've rendered here is impressive. I thank you.

Ms. Kenny, you're here representing EPA. Thank you for that, and obviously we want you in your testimony as best you can to respond to some of the criticism of EPA, both from Congressman Nadler and from Dr. Thurston during their previous testimony.

**STATEMENT OF JANE M. KENNY, REGIONAL ADMINISTRATOR,  
ENVIRONMENTAL PROTECTION AGENCY, REGION 2**

Ms. KENNY. Thank you, Mr. Chairman and Senator Clinton. I appreciate the opportunity.

I'm Jane Kenny, Region 2 Administrator. I do welcome this opportunity to discuss our response to the tragic events of September 11th.

Today is February 11, 2002, a mere 5 months after this unprecedented event in our Nation's history and 5 months of incredibly intense work. So now we now reflect on the impacts of the attacks and the extraordinary efforts so many have made. EPA and our Federal, State and city partners have all played important roles in the protection of public health and the cleanup. Today, we look toward the future and the ultimate recovery of Lower Manhattan. So I appreciate this opportunity to do that.

EPA and other agencies have taken over 10,000 samples of dust, air, drinking water, and storm water runoff at and around the World Trade Center site, at the Fresh Kills landfill and in New Jersey. We also conducted additional air sampling within five boroughs.

EPA has tested for asbestos, fine particulate matter, lead and other metals, volatile organic compounds, dioxin, PCBs and other substances that could pose a threat to the public and to the workers at the site. Fortunately, the vast majority of our tests continue to find levels of these contaminants below standards or guidelines set to protect public health. It's important to emphasize, as we have from day one, that the risks are different for response workers at the World Trade Center site. We have repeated said that these response workers should wear respirators and other protective gear.

We have found asbestos fibers in the outdoor air and dust samples. Out of more than 5,500 air samples taken at and around the site, only 15 have exceeded the Asbestos Hazard Emergency Response Act standard we use to determine if children can re-enter a school building after asbestos cleanup. Of those 15, all but 4 were recorded before September 30.

Where we found elevated levels of asbestos in the dust EPA used large HEPA vacuum trucks to clean sidewalks, local parks and children's sand boxes. EPA has led the effort to monitor the outdoor environment with support from New York State while the city has taken the lead for the reoccupancy of buildings.

EPA has been testing for numerous volatile organic compounds or VOCs such as benzene at several sites within and near the perimeter of the World Trade Center site. To protect workers, EPA takes daily "grab" samples of VOCs at ground level where smoke plumes have been sighted. These samples provide a snapshot of

worst-case exposure. The samples are immediately analyzed at EPA's mobile laboratory at the site, allowing us to relay the results directly to the fire department.

EPA standards and guidelines are set with an ample margin of safety to protect public health. Our grab samples from Ground Zero have found the presence of benzene at levels that have exceeded Federal guidelines. That's why we continue to urge workers to wear their respirators.

However, EPA air samples of pollutants such as benzene taken at the perimeter of the site find levels that are very low or non-detectable. Dioxin levels were generally below health-based guidelines. Once the fires were diminished, concentrations of several chemicals declined in most cases to non-detectable levels, even at the work site.

Fine particulates, those smaller than 2.5 microns with a few exceptions early on, have also been below the level of concern. We do know that materials in construction dust and smoke can be irritants. They can cause more serious reactions in people with respiratory problems or asthma. Again, this is one of the reasons we have recommended that workers wear respirators and impacted homes and businesses be properly cleaned. Sensitive groups have been advised by the city health department and the CDC to take special precautions and consult their physicians if they are experiencing symptoms.

We and the city have tested drinking water and water quality in the Hudson and East Rivers. All samples of drinking water met Federal standards. Runoff following heavy rain on September 14 did show some elevated dioxins, asbestos and other pollutants. Followup sampling found levels back to those normally found in area waters.

Almost immediately after these attacks, President Bush declared a Federal disaster, and that activated the Federal Response Plan. Acting on FEMA's mission assignments, EPA is the lead agency for hazardous waste disposal, for monitoring the ambient environment, for coordinating sampling data, for managing worker and vehicle wash-down operations and initially supplying thousands of respirators and other personal protective equipment. On September 11th, EPA provided a flyer to FEMA for distribution at Ground Zero that emphasized the potential from asbestos and urged workers to wear protective gear. By September 20, EPA had set up worker wash-down operations at the site, at which flyers were distributed and signs posted recommending the use of respirators and other protective gear.

In October, EPA began two scientific investigations, a health risk evaluation and a comparative toxicological study. They will help us better understand the possible health risks to people who may have been exposed to various pollutants following the disaster.

In addition, we have supported the Agency for Toxic Substances and Disease Registry and the city health department in their study of residences impacted by the World Trade Center collapse. We are committed to helping residents and businesses and employees in Lower Manhattan address their concerns about the indoor air.

From the start, EPA has been committed to sharing the results and explaining what they mean. I must say, under incredible cir-

cumstances, having witnessed the attacks and having been evacuated from our Lower Manhattan offices, EPA staff began sampling, analyzing, interpreting and conveying environmental data to the first-line response agencies, the press and the public. Those results are available in summary form every day on our website and in detail at our offices in Lower Manhattan.

As we look to the future, we will work with our Federal, State and city partners and Congress, on science-based approaches that ensure that public health is protected. I have to say, I'm proud of the many dedicated people at EPA who have worked tirelessly to protect the health of all New Yorkers in the wake of this unprecedented event.

Mr. Chairman, thank you for helping me give you the information that you need.

Senator LIEBERMAN. Thanks, Ms. Kenny. We'll wait until the question and answer period, I'll come back to some of the questions that have been raised.

Mr. Johnson, on behalf of the State. Thanks for being here.

**STATEMENT OF CARL JOHNSON, DEPUTY COMMISSIONER,  
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CON-  
SERVATION**

Mr. JOHNSON. Thank you, Mr. Chairman, thank you, Senator Clinton, for providing the New York State Department of Environmental Conservation with the opportunity to testify about our efforts to assist the residents and businesses of Lower Manhattan to recover from the devastation that was caused by the destruction of the World Trade Center.

We share with Governor Pataki and our sister agencies the highest level of commitment to managing the cleanup, and we appreciate the excellent coordination among all levels of Government involved in this effort. I'm going to be brief, because our role primarily has been one of support and collaboration with EPA and the city agencies. I do want to say that we often engage in friendly collegial competition, and in some cases, we oversee city agencies, in some cases EPA oversees our programs. There are opportunities for friction there.

Throughout this process, I have never seen Government agencies work together, collaborate, confer, communicate at the levels that we have been involved in since September 11th. It started immediately and has been ongoing through that time. I think to the extent that we have success stories to tell, it's as a result of the dedication of the professionals in all of our agencies.

As soon as possible after the attacks the New York State DEC began to work with the other agencies to monitor and assess the environmental impacts from the devastation. We all have slightly differing roles. We established a multi-jurisdictional air monitoring group to coordinate that effort, which initially focused on worker safety and then began to work out from the site to try to learn what we could about the conditions for the residents and the workers returning to the area. We did identify specific monitoring needs and we put them in place in the process of collecting that information. Ms. Kenny has spoken to that, I'm sure we'll talk in more detail about that.

Certainly, we had an existing PM<sub>2.5</sub> and PM<sub>10</sub> monitoring network. We expanded on that to try to give us more information about the conditions in Lower Manhattan and throughout the city. We adapted a number of those monitors for asbestos because we had information very early on that asbestos was present in one of the towers. It was something that obviously would be of concern to the citizens of New York.

We worked together with EPA in consultation to determine what standard we could use. Dr. Thurston I think spoke ably to the question of apples and oranges. There is no outdoor quality standard for asbestos, because it's never happened before. We worked very, very carefully to try to determine what we could do that was already scientifically tested and acceptable and apply it to an outdoor situation. It was a bit of a struggle to do that, but we have continued to apply that, and I think we can say with certainty on the outdoor air quality that we have not seen issues with regard to asbestos, a few exceedances or excursions in the early days, and since then, we do not believe that breathing the outdoor air causes any issues.

The particulate matter, we have sampled for both PM<sub>2.5</sub> and PM<sub>10</sub> is ongoing, as I said. We expanded that. We added five new monitoring sites in Lower Manhattan, both continuous air quality monitoring devices, which gives the results people are looking for, I think on more of a real time basis, and filter based, which are more sensitive, more analyzable, can be archived and re-examined later on. But obviously they don't give you the air quality results that you want in that day.

To date, as Ms. Kenny said, in the particulate levels in Lower Manhattan, as well as throughout the rest of the city, we have not seen significant increases. Certainly in the early weeks after the attack, there were elevated levels of particulates. As we hoped and expected has happened, those have come down.

We are also involved in the field work for dioxin monitoring. We know any time you have a source of uncontrolled combustion, you can certainly expect to see some levels of dioxins. Folks were worried about that. We established the monitoring for that as well, in conjunction with EPA. We have seen similar results, that in the early days and when the fire was still burning, we saw some levels of dioxins that have since fallen off. That gives us some confidence.

The concerns about irritations and odors in the area are certainly the trickiest when it comes to air quality. We spent some effort with EPA and some of its specialized staff in trying to determine additional monitoring that could be done to look for some of the irritants and to study what sorts of previous models we might learn from. I think one of the things we learned is we haven't really had a long-term building fire before to study and to determine what comes from these. Most of our models have been in other areas.

So we have established additional contaminants that we began monitoring for. Again, we primarily service monitors and provide the information to EPA. We're going to maintain those activities until the effort is completed and until we can assure people that we have some sense of what came from the pile and what effect it may have had on their health.

I would be remiss in speaking before the Senate if I didn't mention that the State will soon be before both Houses looking for assistance in solving an issue that we have as a result of the World Trade Center with regard to transportation conformity and the Clean Air Act. We're working to assure the environmental community and the citizens that while we do believe we need some relief in the planning requirements under that, that we by no means intend for it to have any negative environmental or air quality impacts whatsoever. We're working aggressively and frequently with the environmental community to bring forward a proposal that we believe both Houses would be able to support.

I did want to speak just briefly to the issue of the diesel truck emissions that's been raised a couple of times. The State has been using its authority under a State idling regulation to prevent idling. We've been as aggressive as we can be in making the drivers turn off the engines when they're in an idling situation. It's not allowed for more than 3 minutes in the city.

We have also been working in a multi-jurisdictional effort to try to bring relief to the site in the form of both lower sulfur fuel for the site and to try to bring some particulate traps and other control technologies to some of the equipment of the site. We didn't begin this until January or so, we are working very diligently with virtually every city agency that has any responsibility at the site and with the Northeast States for Coordinated Air Use Management and EPA. We're trying to bring a proposal forward. We have found that this is very complex, but we are still moving forward on trying to bring some relief from the ongoing operations at the site.

I just want to thank again the subcommittee. We appreciate being here.

Senator LIEBERMAN. Thank you, Mr. Johnson.

Commissioner Miele, thank you for being here, and I would urge you to respond to the critique from Mr. Goldstein, and to some extent from Congressman Nadler, who said in his statement that EPA had delegated authority to the city for indoor environmental consequences and had not followed up to make sure that the city's response was appropriate.

Dr. MIELE. Senator, if I may, the city has two responses. Dr. Frieden would like to lead off, if that's all right with you.

Senator LIEBERMAN. OK. I'd urge you to try to be as concise as you can, because time is running on and we've got a final panel to go.

**STATEMENT OF THOMAS R. FRIEDEN, M.D., COMMISSIONER,  
NEW YORK CITY DEPARTMENT OF HEALTH; ACCOMPANIED  
BY: JOEL A. MIELE, SR., COMMISSIONER, NEW YORK CITY  
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

Dr. FRIEDEN. Good morning. We do appreciate the opportunity to be here today.

Since being sworn in as health commissioner by the new administration, less than 2 weeks ago, I have reviewed the activities of the New York City Health Department and other agencies since the first day of the disaster. I would second what my State colleague has said. One of the most vivid pictures to emerge is one of unprecedented cooperation between local, State and Federal

health, environmental and occupational agencies. The teamwork is quite extraordinary.

Following the attack, the City Health Department had a multi-faceted role. The health department immediately established systems to monitor first, emergency departments in the immediate vicinity to assess acute injuries; second, hospital staffing and equipment needs; third, illness and injuries among rescue workers; and fourth, unusual syndromes that might represent a bioterrorist event.

Other responsibilities included ensuring water and food safety in the immediate area, conducting rodent and vector control, initiating a worker safety program and providing regular advisories to the public and medical community. The Department also facilitated development and coordination of environmental sampling plans.

Many individuals were exposed to large amounts of smoke, dust, and airborne substances. The potential release of contaminants during and after the disaster was a primary public health concern from the beginning. Air monitoring was established immediately, and continues. The Health Department reviews the numerous air quality, debris sample results and personal air monitoring tests being conducted by various agencies. The data from air quality tests thus far have been, in general, reassuring. None of the test results done to date would indicate long-term health impacts.

The numerous substances of potential concern have led to some confusion about health effects over the short and long term. Some substances, such as the particulate matter from the dust or smoke in the air, are irritating but are not expected to have long-term health effects. Other substances, most notably asbestos, are not expected to have short-term effects, but if elevated over long periods of time can cause serious health effects.

Asbestos was a known building component in the World Trade Center. Asbestos levels in the air at and around the site in the first few days were elevated. Fortunately, since that time, except for a few transient spikes found in outdoor air sampling, asbestos levels have been low and within standards.

With funding from FEMA, the Department of Health and the Federal ATSDR conducted a study of both air and dust samples taken in November and December of 2001 at 30 residential buildings in Lower Manhattan. As soon as we received the final results from ATSDR, we released them to building residents and owners and to the public. We will continue to release results as soon as they become available from ATSDR.

This study showed no elevated levels of asbestos in indoor air. Dust sample tests showed low levels of asbestos in some samples and fiberglass in some other dust samples. Asbestos and fiberglass can be a problem if they become airborne. Airborne fiberglass can cause cough and skin, throat and eye irritation. While these findings are not unexpected, they underscore the importance of proper cleaning to minimize exposure, as the DOH has repeatedly emphasized.

I would add that the use of wet wiping is an important and effective means of making our homes safe, and statements to the contrary are unhelpful.

The standards used are conservative. For example, for asbestos in outdoor air, we are using the indoor air quality standard for re-entry into a school after asbestos removal. Stringent standards are also being used for other substances in outdoor air, such as dioxins, identified at the perimeter of the site. Both duration of exposure and concentration of the substance are important to determine health effects.

Many standards which we are applying were based on exposures for prolonged periods of time. The long-term health risks associated with short-term exposures are not well documented, but are generally believed to be quite low.

As fires at the WTC site burned far longer than anticipated, many residents living and working in the community, in particular rescue workers, have reported health effects, such as acute breathing problems, worsening of asthma, eye, nose, and throat irritation, nausea, and headaches. Many residents also continue to experience significant psychological and stress-related illness and anxiety.

Students of Stuyvesant High School, who returned to their school on October 9, 2001, reported similar complaints. A DOH analysis shows that the average daily rate of headaches, respiratory, skin, eye, and throat complaints at Stuyvesant was higher than in the previous year and higher than in four other New York City public high schools. The data also show that complaints decreased from October to November 2001. We will continue to monitor this situation.

The department has been working with the Centers for Disease Control and Prevention to develop a protocol for a WTC Registry. Since September 11th, we have all had to live in a world of greater uncertainty. While we know that the air meets safety standards today, we cannot state unequivocally that there will be no long-term health effects of exposures on or around September 11th. We simply do not know. For that reason, rapid funding and implementation of the registry is particularly important. The registry will enable scientists to evaluate the long-term health effects as objectively and comprehensively as possible.

But with every day that passes, implementation of a registry becomes more difficult. We therefore urge our colleagues to avoid any further delay in this very important project which you have spearheaded.

Finally, the City Health Department recognizes residents' concerns and will continue to work closely with local, State and Federal agencies to monitor air quality and to inform the public of findings as soon as they are available. Together with the City Department of Mental Health, which is also under my jurisdiction, we are addressing residents' mental health concerns by promoting the ongoing Project Liberty program, a statewide disaster-recovery initiative that offers free crisis counseling, education and referral services. DOH will continue its community outreach and education efforts.

Now I would like to turn to Commissioner Miele.

Dr. MIELE. Thank you, Dr. Frieden, Senator Lieberman and Senator Clinton. It's a pleasure to be here. My name is Joel Miele, and I'm the commissioner of the New York City Department of Environmental Protection.



In addition to the DEP's operation of the city's sewer and water systems, which by the way withstood the attack well, our expertise in regulating asbestos in New York City was a significant portion of our responsibilities following September 11th. Since 1985, DEP has been the New York City agency with responsibility for regulating asbestos abatement. Starting September 12, DEP operated a network of outdoor air monitors that have been used for monitoring outdoor asbestos levels. Aside from repairing water and sewer infrastructure, assessing and mitigating risks caused by the presence of asbestos-containing material has dominated DEP's work in responding to the Trade Center attack.

Since September 11th, DEP or its contractors analyzed 3,060 samples from 37 outdoor monitoring sites in Lower Manhattan; 500 samples collected adjacent to the four schools in the vicinity of the Trade Center; and 328 samples taken in the four boroughs of the city outside of Manhattan. The map and all sampling results to date from the sites shown on this map are available to anyone on DEP's website: [www.nyc.gov/dep](http://www.nyc.gov/dep).

Of these samples, only 9 of the total of 3,864, or  $\frac{2}{10}$  of 1 percent, exceeded the Federal re-occupancy standard for indoor air. These nine samples were all taken in the vicinity of Ground Zero. As Commissioner Frieden noted, there is no established standard for asbestos in outdoor air. Unlike carbon monoxide, nitrogen oxides and other gases whose presence in outside air is regulated under the Clean Air Act, asbestos is a once-prevalent building material, and previous work at standard-setting has focused on establishing safe levels for asbestos within buildings.

On September 12, when my colleagues and I at all three levels of Government were creating our monitoring networks, we knew that there were no reliable, scientifically based, acceptable standards that would tell us what level of asbestos in outdoor air might be considered "safe" or "unsafe." Therefore, we opted to use EPA's indoor post abatement re-occupancy of schools standard as our threshold level of concern since we felt it was more protective.

Let me briefly explain our sampling methodology. The samples are collected on filters and examined under Phase Contrast Microscopy utilizing a specific method developed by the National Institutes for Occupational Safety and Health. The PCM analysis counts all fibrous particles, including asbestos. PCM sample results are compared to the clearance/re-occupancy standard for indoor air following an asbestos abatement project. This standard is 0.01 fibers per cubic centimeter. Samples found to be above this standard are re-examined using Transmission Electron Microscopy. The TEM analysis identifies the type of particles collected. TEM results are compared to the clearance/re-occupancy standard for indoor air in schools after an asbestos abatement project. This standard is 70 structures of asbestos per square millimeter. The standard was established pursuant to the Federal Asbestos Hazard and Emergency Response Act, also known as AHERA.

Based on all Federal, State and local test results, public health experts have consistently expressed confidence that, based on sampling, airborne asbestos levels do not pose a threat to human health. Health professionals have stated that short-term exposure

to airborne asbestos, at levels equal to or lower than 0.01, carries an extremely low risk of causing asbestos-related illness.

Before allowing occupants in any residential or commercial building near the Trade Center site, the city's various agencies, acting through its Office of Emergency Management, required building owners to take the following steps. Assess the building's structural strength and stability using qualified professionals. Restore gas and electrical service. Restore building water service, including flushing, re-filling and cleaning roof tanks where necessary. Assess the presence of hazardous materials such as asbestos, and remediate as required under applicable city regulations using qualified professionals. Finally, inspect, clean and repair mechanical and HVAC systems.

While property owners were accomplishing these tasks, DEP and its sister agencies, again acting through the Office of Emergency Management, assumed responsibility for cleaning streets, sidewalks and common areas so that there was a safe outdoor environment to reach the buildings for contractors and workers who were retained by owners and managers to effect all necessary exterior and interior cleanup of private buildings. To assist property owners, DEP engaged in the following tasks, among others.

Developed and distributed advisories to building owners and occupants; established HELP lines for concerned owners or tenants to respond to complaints or concerns about proper abatement procedures for contractors; provided telephone consultation to building owners, contractors, consultants and tenants related to asbestos cleanup; performed site inspections and conducted building surveys; reviewed sampling data submitted by building owners, their contractors and consultants; reviewed the scopes of work for cleanup of asbestos-containing material; and developed emergency certification procedures and offered daily certification exams to ensure a properly trained and qualified work force was available.

Although city, State and Federal agencies have provided oversight and guidance on interior cleanup, that task remains the responsibility of building owners and occupants. For example, some building owners identified the presence of asbestos-containing material during their assessment for hazardous materials in areas of the buildings under their control. Once material is identified as ACM, New York City rules require that a licensed contractor with certified asbestos workers perform the cleanup activities.

As noted above, DEP technical staff has been continuously available to assist in the development of plans for handling asbestos cleanup activities. At the completion of the cleanup activities, the city's regulations require clearance air sampling by licensed professionals prior to allowing re-occupancy of areas where asbestos work had been performed.

The city, through the Office of Emergency Management, looks forward to working with Senator Clinton in developing an improved indoor air quality program. With respect to the question that was raised earlier by Congressman Nadler and Mr. Goldstein, the issue of the DEP, the agency's name tends unfortunately to be a little bit of a misnomer. The agency is primarily involved in running and operating the water and sewer systems of the city of New York. The staff available for asbestos and hazmat, while adequate

except in the case of a catastrophic such as occurred here, has always been adequate for the services that we've needed, whether it was for asbestos abatement or the occasional hazardous materials situation that arises.

I appreciate the opportunity.

Senator LIEBERMAN. Thanks, Commissioner. So did EPA federally make a mistake in reaching a judgment that the city environmental protection department was in charge of indoor air quality?

Dr. MIELE. No, I think what they really meant by that was that the outdoor air quality had been checked. It was very clear to us in our daily meetings, and we met, all three levels of government, each day for as much time as it took to understand what was occurring in the past 24 hours and to decide what we were going to do in the next 24 hours.

But essentially what happened, as you've heard here already, the outside air immediately started clearing up dramatically. There was a steep drop in the curve. By the time we permitted people to go back into the interior buildings, we were very comfortable that the level of materials outside were well below the regulatory standards.

Consequently, when the buildings were entered, they were entered not by the occupants, but by qualified experts to determine whether there was an air problem within the buildings or not, and whether cleanup was required. That work was done in each case. What we did after that is, when the public was allowed back in, after we were comfortable with the material that had been done and we knew the buildings had been cleaned, the owners then permitted reoccupancy.

If any tenant had any question, they could call us, did call us on occasion. We would come out, we would question the results, take a look at the results of the cleanup that had been done, and the air testing that had been done, and if we had any questions, we did our own air testing. There were only minimal situations where that occurred, and in each case where it did occur, we were comfortable that the air was acceptable.

Senator LIEBERMAN. So you're testifying that——

[Interruption from audience.]

Hold on, we'll come back to you.

You're saying that every building was tested, every building had its indoor air tested before people were allowed to go back in.

Dr. MIELE. That's the city regulation. That's correct, sir.

[Interruption from audience.]

Senator LIEBERMAN. We're going to come back to you. Hold on a second.

Ms. Kenny, Congressman Nadler made some very direct and serious challenges to the EPA, and I want your response. The first is, that EPA Administrator Whitman misled the public on September 18 last year, when she said she was glad to reassure the people of New York that their air is safe to breathe and their water is safe to drink. She made the statement without the indoor data necessary to make such a pronouncement.

Dr. Thurston seemed at least in part to corroborate Congressman Nadler's statement when he said that EPA gave assurances pre-

maturely, before there was adequate evidence to justify them. Do you agree?

Ms. KENNY. The procedure under this kind of an emergency, and obviously, we've never experienced this kind of emergency before, but the Federal response plan, once the President declares a national emergency, the Federal response plan is what the Federal agencies follow. We basically decided as our agencies got together, there was a mutual agreement with the city of New York, and with the Federal agencies, what each role would be, trying to use our resources in the best possible way, as efficiently as possible in terms of getting people out to do the work that needed to be done.

It was agreed that EPA would monitor and immediately began to set up monitors. I have to say that we used the most extensive data ever. We never had more extensive testing than was done in this particular case. That was the statement that was made, was basically about walking around in Lower Manhattan. We always said that if you were a sensitive population or if you were right on the pile, that you should protect yourself or you should see a physician. But in terms of what the others have testified to, the outdoor air that we were testing was showing low- or non-detectable levels, except for a couple of spikes which I mentioned in my testimony.

So I think that there was a lot of confusion. I think people understandably were confused about what exactly was safe and not. I think there is a lot of uncertainty. We never have dealt with this kind of issue before. Don't forget, there were seven stories of debris that people were working through at that particular time, right after this event.

I think we just have to remember going forward who the enemy is. The people in public service were basically trying to do the best that they could to make the kinds of determination to protect the public health. Obviously, we need to continue to work together. We need to continue to work as Federal agencies, we need to work with Congress, we need to work with the city to determine what the next steps are and how to protect people that are feeling unprotected and uncertain right now.

Senator LIEBERMAN. So you would reject the criticism that Administrator Whitman gave premature reassurance about air quality before it was justified?

Ms. KENNY. Again, I think what I want to make sure is that what Administrator Whitman was talking about was the outdoor air that was based on extensive sampling, air quality monitoring in Lower Manhattan and the boroughs, at the Fresh Kills, all those samples that were coming in. We can show you what we have seen, and obviously in terms of what we didn't know when those buildings came down with those tremendous fires and etc., we didn't know what that air would be like. After a certain amount of testing, we saw that the levels of the particulates that we were testing for, the asbestos, etc., they happened, they were based on data collected using sound science.

We always said, and I know I said it, that people right on the pile should protect themselves, and people that are vulnerable, that have asthma or are prone to that should see their physicians. But in terms of that outdoor air that we were talking about, yes.

Senator LIEBERMAN. I'm hearing you say that while the Administrator's comments may have been confusing, they were not intentionally misleading.

Ms. KENNY. Absolutely. I think there was, again, I don't know whether the comments were confusing to everyone or not. I know that people are confused about what is healthy for them. I'm a parent, I understand that. It's certainly something that is not hard to imagine. It was a scary time; people were hearing different things.

In the EPA, we did countless public meetings. We spoke to the press every day. We were constantly saying what I've said to you. But sometimes you can't hear this, because it really is so terrifying. You want to know, you want to have certainty.

I have a scientist with us today from EPA who can talk about the science. We can talk about—there are just so many emotional issues attached to it. When we actually remember what we're talking about, there was not a lot of immediate concern about being at risk. We know there was a risk posed by the events of that day.

Senator LIEBERMAN. Let me ask one more question, and then yield to Senator Clinton. Congressman Nadler said some very troubling data, just in yesterday's St. Louis Post Dispatch, about the U.S. Geological Survey, using best detection equipment and methods, found pH levels in World Trade Center dust that are "as corrosive as drain cleaner" and passed this information along to health experts at the EPA. The argument, the charge here is that the USGS data was not released by EPA nor apparently were the environmental agencies' own test results on the dust. That's a serious charge. That last quote is not from Congressman Nadler, but from the reporter, Pulitzer prize-winning environmental journalist, Andrew Schneider.

What is your response to that?

Ms. KENNY. Yes, again, there were, certainly it was consistent with our findings that there was a high level of pH, that was alkaline, that is an irritant.

Senator LIEBERMAN. Do you agree that it's as corrosive as drain cleaner?

Ms. KENNY. I'm sorry, I can't address that. I don't know.

But it actually does present one explanation why residents felt the kind of irritation that they felt. It was consistent with all the information. Our understanding was that USGS did publish this information and it was available on their website, etc. We didn't do that kind of sampling, because that had been done.

Senator LIEBERMAN. So you're saying, from your knowledge, and I ask you to go back and speak to the folks in Washington about this, you were not intentionally concealing this information, it was just assumed it was already published by the U.S. Geological Survey?

Ms. KENNY. Absolutely.

Senator LIEBERMAN. Is that what your answer is?

Ms. KENNY. Yes, that's my answer.

Senator LIEBERMAN. OK, Senator Clinton.

Senator CLINTON. Ms. Kenny, Congressman Nadler has sent a letter as of January 23 to Administrator Whitman with a lot of the questions that flow from his work and the concerns of our constitu-

ents. Would you reassure or I guess assure this committee that you will do your best efforts to get that letter responded to?

Ms. KENNY. Absolutely, Senator.

Senator CLINTON. I think that Congressman Nadler deserves a rapid response, and it's been some weeks since then.

With respect to the issues that Senator Lieberman was discussing with you, I think part of the problem that we confront is the competing information and the feeling that somehow this information is not being made available, or that the EPA is not providing a contrary point of view, so that people can have an opportunity to make a judgment. That's not only true with respect to the U.S. Geological Survey, but also as Congressman Nadler pointed out, the Ombudsman of the EPA, Robert Martin, who has made, as I'm sure you know, a number of charges and challenges about the EPA's work.

I would appreciate being given a very clear explanation of the Ombudsman's points of view and concerns with a response from the agency, so that we can evaluate it. I know that Congressman Nadler joins me in that request.

I think one of the issues that is just still very confusing and frustrating, and it goes to the authority and sharing of authority between the EPA and the DEP, and that is, the burden that is placed on the first instance on the city to supervise indoor air, and then in the second instance, it really devolves onto the landlords and residents to have to do a lot of that remediation themselves.

Commissioner, in your response, and I know we had some vocal audience members who responded to what you said, you said that's the city regulation. But can you sit there today and tell us that every landlord and every building complied with the city regulations?

Dr. MIELE. No, I can't tell you that. But the reason for that, in large measure, has been the fact that we've let people back into the buildings, that is to clean up the buildings, and then when we're comfortable that they've got the tests, let people back in. One of the things we did to try and facilitate it was to let people get back in when we were comfortable that they had cleaned up the buildings but before they had submitted the formal permit application to us and gotten the permits from us. Same reason why we tried to expedite the licensing of personnel who could be qualified to do the cleanup.

We were overwhelmed, obviously, by the amount of area and square footage that we obviously had to deal with. We had to come up with some methodology to do that. We have the addresses for each of those buildings, and anyone who has a question or an inquiry as to whether their building was in fact cleaned up could certainly get in touch with our agency and we'd be very pleased to provide them with the information. Obviously, if anyone fell through the crack, we certainly want to get at that and find out how that happened and see that it is corrected.

Senator CLINTON. I appreciate that, Commissioner. One of the recommendations that I've made is that we work together on an indoor air quality task force. Because I do think that residents and people who work downtown deserve accurate information. Given the overwhelming nature of the demands that were placed on your

department, the fact that I think you very forthrightly have said, you're a sewer and water department primarily, so we may need to look not only at what was done but what could be done. I think that residents and others need to be sure to get that information.

What number would people call to have their building checked?

Dr. MIELE. They can call 718-DEP-HELP.

Senator CLINTON. Seven one eight, DEP-HELP?

Dr. MIELE. DEP-HELP, that's our help line. If they have any difficulty with that whatsoever, they can call my office. My office is 718-595-6565. We'll direct them down to air resources and they'll take care of the problem.

Senator CLINTON. I think you're going to have some calls, Commissioner.

Dr. MIELE. That's fine. That's what we've been encouraging. We also have a website, and you can get to us at the website, also.

Senator CLINTON. What's that website?

Dr. MIELE. That website is NYC.gov/dep.

Senator CLINTON. OK.

The last question that I have, because I know we're going to need to followup with both EPA, the city and the State. But I just wanted to direct the last question to Ms. Jackson with FEMA. You know, when I look at the numbers of requests that came in for assistance and those that were deemed ineligible, it seems like quite a high proportion were denied. I know that in the Senate, the Small Business Administration Committee chaired by Senator John Kerry has been concerned and complaining that it didn't appear that SBA had acted with the same kind of dispatch or results as we saw in other disasters.

What I would like as part of the hearing record, Ms. Jackson, if we could get some comparative figures. Because just the figures we've gotten so far and the complaints that my office receives suggests that perhaps we're not getting the same kind of eligibility numbers in the wake of this disaster as we have in others. I would very much like to get that information.

Do you have an immediate response to that?

Ms. JACKSON. We would be delighted to provide it for you, Senator. We've been urging people to call the FEMA 800 tele-registration number. Many of them are calling, over 59,000 have called to date. Some of them who are calling get referred to other programs, based on what they tell us, they're referred to disaster unemployment assistance or the regular State unemployment assistance. It depends on what all their requirements are at that time.

The Small Business Administration is a sister agency. We work with them on disasters all the time. They are very, very fast. They got here quickly, they set up sites in Chinatown.

But I will be happy to provide you with that followup information.

Senator CLINTON. I thank the panel, and I know that we've got many other questions. I hope we're going to be able to have a followup hearing based on what we've learned today and when we evaluate the additional information we've received. I appreciate very much Senator Lieberman's attention to these issues.

I think we do need some changes in the Stafford Act. I think we do need some changes in the way we address these disasters. I

don't think it's appropriate to put the burden so completely on residents and owners as we have, since it raises public health issues that affect people more generally. So I'd like to work with you, Senator Lieberman, on these issues.

Senator LIEBERMAN. Senator Clinton, I think you're right on target. I must say that this was obviously an unprecedented event. The city and the various emergency response efforts seem to me to have been extraordinarily well coordinated. There were some practice, if you will, done under Federal programs earlier on. I'm not convinced that the environmental response was as well coordinated to this unprecedented experience as the rest.

I think we've got an obligation to work with you, Federal, State and local agencies, to make sure if, God forbid, this ever happens again anywhere, that we have the same level of coordination and that it is long term, it is immediate but it is also long term because of the health consequences. We're not organized here to have a lot of questions from the audience. I think Senator Clinton got at one of the questions broadly that concerned folks. I've got another that I'm going to ask you, Commissioner Miele.

But I would invite people who are concerned and feel we haven't answered the questions, submit them to Senator Clinton and me. We'll put them to the witnesses and ask for their responses in writing, which will become part of the record.

Here's the final question, which did come from somebody who is here, a resident, I presume. Why did the DEP accept landlords' claims that there was no asbestos present when aggressive air monitoring was not performed and some of the independent tests done by tenants in fact did show asbestos?

Dr. MIELE. Well, that's an individual decision. But the bottom line is that if there was any break-in or entry, fracture of glass, open doors or what have you, then there's undoubtedly dust throughout the building. If there was dust throughout the building, the owner had to hire someone to evaluate that who was competent and professional, and he had to hire a certified cleanup team.

The bottom line is that if there was a building that was closed that did not get anything in it, it's conceivable that if an air monitoring professional came down and tested the air, and found nothing in the air, the owner may not have had to do any abatement. I can't conceive of that happening. But it's conceivable.

Senator LIEBERMAN. OK. We will welcome other questions in writing. We will submit them to you. We're going to keep the record of the hearing open for 3 weeks and ask for your cooperation in responding.

For now, I thank you for your testimony, which helps us to do better the next time around.

The committee will stand in recess for 10 minutes, and then we'll come back to the fourth panel.

[Recess.]

Senator CLINTON [assuming the chair]. We're going to reconvene the hearing. We have a very important panel with a lot of viewpoints and concerns that we haven't heard from yet. I want to thank all of the witnesses for coming. I want to reiterate my request that if you have specific questions, concerns, statements, that you would like to submit from the audience, from a group you rep-



resent, on behalf of yourself, please, we'll leave the record of this hearing open for 3 weeks. I believe we've given information about how people can get that to us.

If you submit questions, you may e-mail them to the committee clerk at [Duane\\_Nystrom@epw.senate.gov](mailto:Duane_Nystrom@epw.senate.gov). The record of this hearing will be published and available to the public at <http://www.senate.gov>, at the link to the Committee on the Environment and Public Works. We will keep it open, the hearing record, until February 25, 2002.

I am delighted to see a lot of my friends and colleagues here on this panel who have a very specific perspective that I want to be sure to be in the record and to be publicly recognized. Because it's such a large panel, we're going to try to keep everybody to the time limit of 3 minutes, give or take a little bit of time, so that everybody will have a chance to be heard.

Our first witness will be Mr. Tom Scotto, president of the Detectives Endowment Association.

Mr. Scotto.

**STATEMENT OF THOMAS J. SCOTTO, PRESIDENT, DETECTIVES  
ENDOWMENT ASSOCIATION, INC., NEW YORK CITY POLICE  
DEPARTMENT**

Mr. SCOTTO. Thank you, Senator.

Based upon some of the remarks I've seen here this morning, and in the press conference, I think it would be wise for this committee to just focus on doing what is beneficial for everyone, and not look at the finger pointing and accusations. As a result of what happened on September 11th, I witnessed people from all over this country coming together and putting their best foot forward to make things work. Whether there were some shortcomings or not that eventually developed from their efforts, I'm sure they were all well intended.

Having said that, on behalf of myself and the members of the New York City Police Department, I wish to express our appreciation to this committee for affording us the opportunity to express our concerns regarding the aftermath of the tragic events of September 11th. Since that date, members of the New York City Police Department have worked around the clock at the World Trade Center and the Staten Island Landfill.

As such, they have been exposed to a number of identifiable toxic substances and perhaps hundreds of other combinations of these toxins that may never be identified, and the long-term health effects of which are still unknown.

The major concerns of police officers can be grouped into four categories. No. 1, the development of a uniform procedure to provide physical exams over an extended period of time to monitor the overall effects of their exposure to the elements at Ground Zero and Staten Island Landfill. No. 2, assuring essential and required medical treatment within the basic health coverage provided by the city.

No. 3, in recognition of the fact that many of the illnesses which result from contact with toxic substances can take in excess of 10 years to appear, we should revise the current pension provisions to protect the families of those who retire and then may suffer a dis-

ability and/or terminal illness as a result of their exposure to Ground Zero and the Staten Island Landfill environment. No. 4, revise the current legal requirements which impose an unrealistic time limit on one's ability to commence an action against the city.

Those are highlighted as pinpoints, and if I may just take the liberty just to explain them a little briefly, not from my written statement, but right from the heart. I was so pleased to hear Dr. Kelly testify before that the fire department has implemented a procedure from day one to monitor the results of physical exams over an extended period of time. Unfortunately, I'm also saddened to inform this committee that no such procedure exists in the New York City Police Department.

First, so disturbed were we, meaning, when I say we, the five police presidents, that we called a meeting last week and out of our own money, the union dues, we put up \$85,000 as seed money to implement the program to start a similar procedure within the New York City Police Department, which does not exist today. So I would hope perhaps as a result of the testimony today, maybe the mayor or someone within the city agencies will look at this and say, we were unaware of the fact that no such procedure existed in the police department, and commence one immediately. It should not be at the cost factor of the members of the union.

Second, when I said assuring essential required medical treatment within the basic health coverage provided by the city, many of these ailments that occur as a result of being exposed to toxics require special and specific type of treatment and exams. Most of this type of treatment and exams are not covered by the basic health packages provided by the city of New York. Therefore, I think it's essential that we take a very close look at that, and say if there is any illnesses that are directly related to their exposures that this type of coverage should be provided by either the State or the Federal Government.

Third, in recognition of the fact that many of these illnesses result from, you know, 10 years from now, many of the members of the police department are retiring this year for a number of reasons, a large amount are. Therefore, the way the current pension rules are designed, if you do not have that ailment on the day of your retirement, and subsequently, you develop an illness, well, you cannot come back to the pension system and get a modification to the payment.

I think there's going to be a desperate need for police, fire and other city employees to have some sort of legislation designed that would protect their families in the event that they develop a disability and/or a fatal death, perhaps, even, as an exposure, so that their families can be protected.

Fourth, under the current laws, you have up to 90 days in which to file a suit against the city, or 90 days from the time the ailment surfaces. If you fail to do so, then your timeframe to take such an action against the city of New York is now over with. So I think that again, although we're talking about air quality here, these are some of the hybrids that come off of this issue that we're talking about that I think are major concerns to the members of the police department, and I'm sure to the fire department and other city employees.

So to try and stay within the timeframe allotted me, I'll just say thank you to the committee and hope that we have the opportunity to address these issues.

Senator CLINTON. Thank you so much, Mr. Scotto. I think that your ideas are very good ones, and we'll certainly be sure that both the city and the State representatives get those specific recommendations.

Our next witness is Mr. Edward Malloy, the president of the Building and Construction Trades Council of Greater New York. Thank you for joining us, Mr. Malloy.

**STATEMENT OF EDWARD J. MALLOY, PRESIDENT, BUILDING AND CONSTRUCTION TRADES COUNCIL OF GREATER NEW YORK**

Mr. MALLOY. Thank you, Senator Clinton.

On the morning of September 11, 2001, nearly every unionized construction project in New York City shut down as workers rushed to Ground Zero. In the early days of this tragedy, it is estimated that more than 10,000 of our members volunteered their skills on the site. In the ensuing weeks and months since, when the city of New York's Department of Design and Construction assigned recovery and cleanup responsibilities to a team of the area's most respected contractors, approximately 2,000 of our members per day were employed in two around-the-clock shifts of 12 hours. Today, as this recovery and cleanup effort moves toward conclusion, several hundred of our members remain on the job.

In testifying before the subcommittee this morning, we would like to draw your attention to two areas of interest and concern. The first is the area of measurable safety and health data and the partnership between labor, management, and government which has produced rather impressive results in this regard. The second is the less certain issue of how we address safety and health exposures which are not as easily detectable as common bumps and bruises.

On November 20, 2001, the Building and Construction Trades Council, the Employers Association, OSHA, and other public and private entities working at Ground Zero implemented a safety and health partnership agreement on the site. A copy of this agreement is attached to our testimony for your consideration. Let me share with you what we consider an exceptional report. The results of this partnership and other cooperative efforts are encouraging. With more than 2 million hours of labor completed, there have been 96 claims for workers's compensation reported. Of these claims, 13 have resulted in lost time due to injury or illness. No deaths or life-threatening injuries have occurred. All experts with whom we have consulted advise that the number of injuries and illnesses, as well as their relative severity, are well below what might have been expected.

It is our intention as an industry, with both a continuation and expansion of the commitment to safety and health, that this record be maintained and improved.

The second matter of concern pertains to the need for clinical medical services to be made available to every individual, whether they resided, volunteered, or were employed at Ground Zero or in

the nearby vicinity, particularly in the earliest days of this tragedy when it would seem that the potential for exposures to contaminants was at its highest. We appreciate Senator Clinton's efforts to secure \$12 million for this purpose and submit to the subcommittee that additional funding must be provided to assure that every individual whose health has potentially been adversely affected by activities at or near Ground Zero be available to receive clinical medical services.

Madam Chairperson, members of the subcommittee, the losses and devastation caused by the events of September 11th are well-known. It is imperative that every effort be made to assure that no further unnecessary and preventable tragedies result, whether 10 days or 10 years from now. The provision of funding to make clinical medical services available to all individuals who need them is among the most important work that we believe the Federal Government can undertake going forward. We do not hesitate to argue that it is a particular moral obligation to assure that those men and women who responded so selflessly and even heroically to the events of September 11th receive every possible consideration for their well-being that can be offered.

We will be pleased to cooperate with you in every way to achieve this goal. Thank you.

Senator CLINTON. Thank you very much, Mr. Malloy. I think that the members you represent from all the building and construction trades really deserve our thanks and gratitude, not only for what they did in the immediate aftermath, but the extraordinary way that the cleanup has proceeded, ahead of time, below budget, and I hope you'll convey that on behalf of all of us.

Our next witness is Dr. Stephen Levin, medical director, Mount Sinai, the Irving J. Selikoff Occupational Health Clinical Center. We look forward to your testimony, Doctor.

**STATEMENT OF STEPHEN M. LEVIN, M.D., MEDICAL DIRECTOR, IRVING J. SELIKOFF OCCUPATIONAL HEALTH CLINICAL CENTER, MOUNT SINAI MEDICAL CENTER**

Dr. LEVIN. Thank you. Senator Clinton, I'm happy to be here today to talk about the health impacts of the attack on the World Trade Center, our understanding of the short-term and longer-range risks to health and a perspective on what needs to be put into place to meet the needs of the thousands of workers and volunteers who played a role in the response to that disaster.

Our center is funded by the New York State Department of Health, and it's part of a statewide network of occupational medicine clinics that was established by the State legislature to examine and treat workers who have developed illness or injury caused by their exposures at work. We have an explicit mission, and that is to find ways to prevent occupational illness by reducing exposures or by detecting and treating such diseases as quickly as possible once exposure has occurred. That, I think, applies to the circumstances we're dealing with today.

Since September 11th, we have examined more than 250 men and women who worked or volunteered at or near Ground Zero. Most of these individuals came to us because they had respiratory symptoms that developed after their exposures there. This very

weekend, Saturday and Sunday, we saw over 100 iron workers who had responded during the first few days after the attack, and we learned a great deal this weekend that confirmed our clinical impressions from seeing individual patients over the past several months.

We have long experience in our Center with the health consequences of exposures in the construction environment. As Ed Malloy knows, we've been working with the building trades and employers for a long time. As a result of that experience, we were able, therefore, to predict, unfortunately all too accurately, what health risks were posed by the exposures at and near Ground Zero. That's in exposures to the wide range of airborne irritants present in the smoke and dust caused by the fires and the collapse of the towers, which has been reviewed earlier today by Dr. Thurston and others.

As with most cases of illness caused by environmental agents, the likelihood of developing illness and the severity of that illness depend largely on dose, how much exposure has occurred. What I want to talk about today what we have observed among adults who were exposed at the World Trade Center site. My colleague and department chair, Dr. Phil Landrigan, will talk shortly about the risks to children.

Among the people who fled the buildings, the firefighters, police, and emergency medical techs and the ordinary citizens who tried to help after the planes hit the towers, many were caught in the huge, dense cloud of dust and combustion gases released by the collapse of the buildings. Those people had some of the worst exposures that occurred. They inhaled high concentrations of smoke and dust. Following that grouping, which had the worst of exposures, are those who came to the Ground Zero in the days immediately area after the collapse, the first days and weeks after September 11th, who performed rescue and recovery work or to were involved in restoration of essential services there. They also had heavy exposures. They were selfless and heroic, often, in what did what they could in the effort to save lives.

The thousands of construction and support workers who have been involved in the removal of debris from the site, as recovery efforts have been ongoing, often working 12 hour days, sometimes 6 and 7 days a week, also have had all too frequent exposures to the dusts and gases which until recent weeks were a constant feature of the site. We were concerned early on, and I mean within 24 hours, that these exposures would cause respiratory tract difficulties, and that is, in fact, what we have seen clinically. Problems range from persistent sinusitis, laryngitis, bronchitis, and among some, the first attacks of asthma they have ever experienced in their lives.

These problems have been especially severe, as has been pointed out earlier today, among those who had respiratory problems before September 11th. Many have noticed a marked worsening of their pre-existing sinus problems or breathing difficulties.

But what is perhaps most striking is the occurrence of respiratory problems, chest tightness, cough, shortness of breath, wheezing, among individuals who were in excellent physical condition before the attack on the World Trade Center. Firefighters are

an example, ironworkers and other constructions are similar examples. The experience of our patients parallels that of the firefighters who have been evaluated by Dr. Kelly and Dr. Prezant, that we've heard about already today. High rates of respiratory illness have been found among those firefighters, and it's our impression, especially after this weekend's experience, that we're going to see comparable rates of respiratory difficulties among construction workers and others who were at or close to Ground Zero, especially early on after September 11th.

Some of our patients, once they are away from Lower Manhattan, have noticed a general improvement in their symptoms, but find that exposure to cigarette smoke, to vehicle exhaust, to cleaning solutions, to perfumes or other airborne irritants that their symptoms are being provoked. They're having reoccurrence of their symptoms, in these other settings where irritants are present. None of them had such experience prior to September 11th.

Now, not all who were part of the effort at or near Ground Zero developed these persistent respiratory problems. Some are more susceptible than others. The trouble is that we can't predict who the susceptibles are. It's something we recognize after the fact. It's very important for all individuals who have been affected this way that you prevent further exposure to irritants. But treatment with appropriate medications has to be instituted as quickly as possible, to prevent these conditions from becoming lifelong, disabling illnesses.

I want to make one comment, there's been a tendency to ascribe to short-term problems the irritant reactions. To think of long-term health consequences as only those who have to do with asbestos and potential 20-year later cancer incidents. Well, I can tell you that there will be individuals, especially if they're not treated adequately, who will have developed asthma as a consequence of these exposures which we are here, until now calling them short-term reactions, who will have asthma for the rest of their lives, especially if they are not treated early. That's the importance of the kind of surveillance program that's been discussed here.

In the past couple of months, and I think what I'm going to say relates more to the issues of concern expressed so far today. We have seen similar respiratory problems emerging among some of the office workers who have returned to buildings situated in the immediate periphery of Ground Zero, especially those located downwind from the debris pile and the fires that were actively burning until December. For most, these symptoms of eye, nose, throat, and chest irritation are transient and they're not of serious concern. That's for most people.

We have patients with new onset asthma since they returned to work in nearby buildings, people who were never previously asthmatic who now have this condition. They were not at Ground Zero. They were four and five blocks downwind of Ground Zero, but experienced some of the same problems. Most of our patients note that now that the fires are out, their symptoms are improving. That's an encouraging fact. There are some who remain very provokable as time goes on.

I want to talk about one other clinical feature that surprised us in its frequency and intensity, even though we predicted that we

would have some of these problems, and that's the psychological distress that occurred especially among the early responders. Many of our patients came to us for respiratory problems, but a brief questioning also elicited reports of persistent flashbacks of images and sounds of human trauma and horror they had witnessed, especially early on. Police officers, construction workers, and others have had sleep difficulties, depression or irritability, and many had difficulty controlling their tears when they described this or whenever they were reminded of what this, and in New York City, there are constant reminders of this.

The group debriefing sessions that many participated in were simply insufficient to help some of these individuals resolve these difficulties and the effects of their experience on their emotional well-being and the need for a well developed program to treat such individuals, I think, is clear. Among these tough ironworkers that we saw this weekend, I'd say one out of three were still experiencing significant impairments to their psychological well-being. It was really quite striking and surprising.

I want to address the issue of asbestos exposure at and near Ground Zero, because it been such a constant feature of discussion. We know that asbestos is in the debris pile, there's no mistaking that, and we know that it's in settled dust inside and on the outside of buildings. We know that that's so. Fortunately, the data indicate that asbestos concentrations in the outside air suggests that there really will not be much of a problem as a consequence of walking down the street near it. That's comforting.

For those who work at Ground Zero itself, respiratory protection is the key. The kind of respiratory protection that's been suggested early on from within 48 hours of the time of the attack, this is the appropriate thing. The problem is that compliance out there on the site can hardly be described as universal. That remains something of an issue.

There is a group at special group risk for asbestos-related disease that hasn't been talked about today: the workers who are involved in the in cleanup of the buildings, the offices and residential spaces near the site. For an individual household resident or office occupant who cleans his or her own space, surely it should be done correctly, but even if it's done incorrectly, the likelihood of significant risk for asbestos-related disease is low. We know that from looking at occupational groups, the construction workers that have been working a lifetime with this material. The risks are very low for an individual apartment owner who does it, even wrong. Although by no means should that be encouraged, and surely we can prevent those exposures.

Those individuals who are involved in doing the cleanup work day in and day out, perhaps for months, are at genuinely significant risk. These are unprotected workers. Many of them have been hired off the street, they're not unionized workers, they're often not English speaking, and they are among the most vulnerable of workers, that they should have been permitted to be exposed to asbestos dust in this fashion is a public health failure. Unfortunately, the information we have is that it's ongoing.

Now, let me finish by saying that from our perspective, from our own clinical experience, the experience of the firefighters that have

been so well studied, the information points clearly to the need for developing medical surveillance programs for everyone who placed himself or herself at risk in the course of their efforts, whether as employed workers or volunteers. A registry has to be established. It's quite clear, everyone agrees that that's so.

Medical examinations to identify persistent respiratory, musculo-skeletal, and psychological conditions should be made available to all who were there. Treatment should be initiated where findings warrant it. There's been a lot of talk about the need for ongoing research and surveillance for research purposes. We know of workers who now 5 months after the episode have still not been adequately evaluated and are still not receiving adequate treatment. We learned that from the ironworkers that we saw this weekend, 5 months after their exposure. It's key that they be identified and treated as rapidly as possible. Because the longer you delay treatment, the less effective treatment is, and the more likely you're going to wind up with long-term consequences.

If resources are made available, a consortium of medical institutions under the guidance of occupational and environmental medicine expertise can be established, working in coordination with the appropriate Government agencies, to provide these evaluations and treatment programs. I am confident that we would receive full cooperation from relevant employers and labor organizations to facilitate the development of the registry and the clinical surveillance program itself. As others have said before, the many workers and volunteers who have given so much of themselves deserve no less. Surely, the sort of program that the firefighters have been able to establish is the sort of thing that's appropriate for many others.

So I thank you, and I will be pleased to answer questions.

Senator CLINTON. Thank you very, very much, Doctor. I think that your insight and expertise is something we're going to be relying on as we move forward. Perhaps after the hearing, you and Mr. Scotto can talk about ideas you might have. Because I'm concerned by what he's reported with respect to the police officers. We look to you to give us some guidance.

Our next witness is Ms. Christodoulou, who is the president of the Stuyvesant High School Parents' Association, and we welcome you here.

**STATEMENT OF MARILENA CHRISTODOULOU, PRESIDENT,  
STUYVESANT HIGH SCHOOL PARENTS' ASSOCIATION**

Ms. CHRISTODOULOU. Thank you. On behalf of the 6,000 parents at Stuyvesant High School, thank you for holding this hearing on a matter of great concern to our community.

Stuyvesant is located four blocks from the World Trade Center. The 3,000 students and 200 staff members were evacuated in the middle of a cloud of toxic dust and debris as the second tower was collapsing. The Board of Education reopened the school on October 9. Unfortunately, environmental conditions in and around the school continue to pose a potential threat to our children.

I am not a scientist, I am not a doctor. I am a parent, and the president of the Parents' Association. Having listened to respected experts for the last 5 months, our conclusion is that the environmental safety of Lower Manhattan is still very much in debate.



While this debate is going on, our children are getting sick. Our experience since returning to school has been and continues to be problematic. As the inside of the school tested positive for asbestos, the Board of Education conducted an asbestos abatement prior to reoccupancy, and agreed to undertake environmental sampling inside and outside the school. The excavation operations at Ground Zero continue to release a variety of contaminants into the air. Several hundred trucks a day carry the pulverized debris and steel beams coated with asbestos from Ground Zero to a barge which is located right next to our school. It's less than 100 feet north of our school. This is the main debris removal from Ground Zero.

In addition to whatever the composition of the debris is, which is dumped right next to our school and in the middle of the community, diesel emissions from the many trucks and cranes at the barge are a source of additional contaminants. That makes it extremely important to take preventive measures to prevent these contaminants from entering the school. Unfortunately, this has not happened. Results from environmental sampling conducted by the Board of Education demonstrates that on more than 50 percent of the days, from October 9 when our children returned to school to February 1, measurements of respirable particulate matter, the PM<sub>2.5</sub>, inside the school have exceeded EPA guidelines for children. These particulates may pose a greater danger because they contain a mixture of toxins. Levels of lead dust in excess of regulatory limits were found inside Stuyvesant on several occasions as recently as last Thursday.

To date, the Board of Education has failed to take adequate measures to protect our children. It still has not cleaned the ductwork of the ventilation system. After months of stalling, it upgraded the filters of the ventilation system at the end of January, after our children had been in the school since October 9. You may hear from the speakers who follow me that conditions at Stuyvesant have stabilized. There is no evidence to support this conclusion, because the environmental quality outside the school is unpredictable.

Also, in accordance with two independent environmental engineers, working with the Parents' Association, the upgrades to the ventilation system that the Board of Education has conducted are inadequate.

The barge operation is a main source of contaminants. The PA's environmental engineer has measured and compared airborne concentrations of particulate matter at or near Ground Zero and at the north side of Stuyvesant by the barge, and has consistently found particulate matter to be higher at Stuyvesant than at Ground Zero. On several occasions, the EPA notified us that it had monitored high levels of certain contaminants, which I'm going to attempt to pronounce—

Senator CLINTON. You can just add that to the record.

Ms. CHRISTODOULOU. OK, fine. At its monitoring station between the school and the barge. Carting of the Ground Zero debris material to the barge constitutes an unacceptable risk to our children and to the surrounding community along the truck route. Within two blocks from the barge operation, there are 4,500 school chil-

dren, some as young as 4 years old. Of course, it's in the middle of a residential community.

We are in the unique position to observe this operation, and we can report to you that despite assurances from Government officials, the trucks are not always adequately covered. On cold days, the debris cannot be hosed down to prevent the release of dust. The levels of visible dust in the air and on the pavement are high. Diesel emissions from the trucks and the cranes are high.

This morning, you heard Mr. Johnson of the Department of Environmental Conservation testify that they are looking to install particulate traps and low sulfur fuel for the trucks. I have met with Mr. Johnson and with Ms. Wills, the chairwoman of Community Board One at the barge in early December, 2 months ago. We were talking about the same measures 2 months ago. I'm very disturbed that we're still talking about it. We need action. If the reason that action is not provided is a lack of funding, some agency, FEMA, whoever it is, should step in and provide this funding. We cannot just talk about things and not have action.

To date, Government agencies have been unwilling to either relocate the barge to a less damaging site or to take effective measures to protect the community. Since the return to school on October 9, a number of students and faculty have reported and exhibited clinically diagnosable symptoms of illness. Many parents report that their children have experienced unusual rashes, nosebleeds, coughing attacks, and chronic sinus and respiratory problems. Parents have reported to us several emergency room visits.

Despite what you may hear from the speakers that follow me, no epidemiological study of the students has been conducted. I can say this with full confidence, because parents have not been asked for their written consent, which is required in order to conduct a study on minors. Also, there has been no study or interviews of parents or students. The incidence of student illness cannot be adequately characterized based only on attendance rates and visits to the school nurse's office.

In conclusion, these developments call into question any unequivocal assurances from Government agencies, including the EPA and the Board of Education, about the health and safety of our children.

Regarding what courses of action should be implemented to protect environmental quality and public health, I have a whole list. They're in the record. I want to focus on two. First, the truck and barge operation right next to the school should be relocated to an area where there is less residential and educational impact. The Government should assume responsibility for implementing a centralized and coordinated effort to monitor and track incidence of illness. A central registry of all residents, workers, and students who have been exposed to contaminants as a result of the September 11th attacks should be established.

The student population at Stuyvesant is very diverse. Many of our students come from first and second generation non-English speaking immigrant families. We are concerned that many of these families do not have the wherewithal to seek early medical care. Dr. Stephen Levin has advised us that early detection and treatment of respiratory illness is critical in terms of preventing such

illness from becoming chronic. I would like to take this opportunity to thank Dr. Levin for his help during this period.

The Government should assume responsibility, therefore, for early detection and medical treatment of illness related to the World Trade Center disaster. I will also go a step further. In my opinion, a dedicated fund should be established to pay for medical costs associated with any future health problems of registered individuals.

Thank you for the opportunity to address you.

Senator CLINTON. Thank you very much.

I think we've got some Stuyvesant family members here, which I'm very glad to have. I think your points are very well made. Residents, too. I know. Well, we've heard a lot from the residents. I thought we'd give a plug to Stuyvesant. We're glad to have all of you here.

Our next witness speaks from a different but related perspective, as a second grade teacher at PS 89. Everything that we've just heard about concerns affecting the high school students and teachers at Stuyvesant is certainly very much in the minds of all of us when it comes to the elementary school students. So I'm very pleased that Julie Hiraga would be here to speak on behalf of the students and teachers at PS 89.

**STATEMENT OF JULIE HIRAGA, TEACHER, PS 89, MANHATTAN;  
ACCOMPANIED BY: RANDI WEINGARTEN, PRESIDENT,  
UNITED FEDERATION OF TEACHERS**

Ms. HIRAGA. Thank you. Good afternoon, Senator Clinton and members of the committee. I am pleased to be here with Randi Weingarten, president of the United Federation of Teachers. Thank you for this opportunity to testify on the health issues that concern those of us who live and work in Lower Manhattan.

The brutal attack on the World Trade Center on September 11th was a trauma we are all still learning to overcome, but slowly we are trying to return to our normal routine, and that's what the teachers at PS 89 want. We are scheduled to go back to our home school on February 28th, and although there's a lot of excitement and optimism, there's also some anxiety about safety. Teachers are concerned about having to keep windows closed and not having an outdoor play space for the children.

Also, the school is on the truck route for debris removal. These huge trucks emit diesel fumes and their cargo throws a lot of dust in the air. Teachers are worried about the long-term impact on their health and that of our students, and we wonder if symptoms may not emerge for some time.

At PS 89, parents' environmental concerns have affected enrollment. Some families have moved. Others have withdrawn their children, and now we have only half as many students as before September 11th. Sadly, we hear that parents of up to 30 more students intend to enroll them elsewhere, rather than return to our home school at Ground Zero.

As for teachers, having our union as a watchdog has helped allay some of those fears. For example, the UFT's two industrial hygienists and its consulting physician made presentations to our staff and answered all of our questions. They and other union represent-

atives explained what was being done to control the dust, such as watering down the trucks, and installing mats under all exterior school doors to hinder dust seepage. They helped our school get a more efficient filtration system and a HEPA vacuum for our custodial staff. They even sent us snacks and paper towels, which was a real morale boost when we needed it.

We've seen what happened as other schools reopened. Stuyvesant High School was the first on October 9. After some of its staff and students complained of respiratory problems, the UFT asked the Federal Government to step in. As a result, on January 29, the National Institute for Occupational Safety and Health began surveying Stuyvesant staff to compare their symptoms with those at a high school away from the affected area. We saw that the union's experts were not content with acceptable facts and figures alone. They conducted onsite visual inspections to make sure that all the affected schools were properly cleaned and prepared for reoccupancy. When they spotted potential hazards, they forced the city to delay the move until it cleaned them spotless.

So to sum up, we have lingering concerns about our students' psychological and educational welfare, as well as parental reactions. All of us at PS 89 have had concerns about air quality and other health hazards since September 11th. However, the independent monitoring and involvement of the UFT's health and safety experts has helped to reassure us.

Thank you.

Senator CLINTON. Thank you very much.

We'll now hear from Mr. Bernard Orlan, the director of Environmental Health and Safety, New York City Board of Education. Mr. Orlan, obviously the concerns that were expressed about Stuyvesant and about PS 89 and about all of the schools in the affected area are ones that I hope you will address in your testimony.

**STATEMENT OF BERNARD ORLAN, DIRECTOR OF ENVIRONMENTAL HEALTH AND SAFETY, NEW YORK CITY BOARD OF EDUCATION**

Mr. ORLAN. Good afternoon, Senator Clinton. I am happy to appear here today on behalf of Chancellor Harold O. Levy and the New York City Board of Education. We appreciate the opportunity to speak about how the events of September 11th have affected public schools in the area of the World Trade Center.

I am Bernard Orlan and I am the director of Environmental Health and Safety for the New York City Board of Education. As you are aware, as of September 11th, we were forced to evacuate a number of schools in the downtown area. While it has been noted numerous times, it is worth pointing out once again that this evacuation was accomplished without a single injury, either to a teacher or to a child. Teachers and other staff kept their charges safe. Indeed throughout the entire system, teachers, principals, assistant principals and support staff worked tirelessly to get children home safely and in the aftermath of that day have helped our students get back to the business of learning.

In the days following the disaster, many of our school buildings were used by various emergency agencies including FEMA, the city's Office of Emergency Management for rescue and ultimately,

recovery operations. Other school facilities were used by the Red Cross as emergency shelters. Once permission was granted by the city to normalize activity from the 14th Street area to the Canal Street area and areas east of Broadway, schools in this area were tested for various contaminants, for particulate dust, for carbon monoxide, for asbestos and a host of others. We compared it to the air quality and established baseline levels that exist. Unfortunately, there are not very many guidelines out there that pertain to children of school age. Asbestos happens to be one, and dust particulate happens to be another. That's why I wholeheartedly agree with the other speakers that have discussed the registry and the need to take advantage of this situation. Hopefully, we'll never have to utilize this experience. But since we have survived at this particular point, it's incumbent upon us to use this as a laboratory, so that we know that our children have been safeguarded in the future against anything they may have been exposed to.

The results of these tests and other tests that were taken in conjunction with various health agencies verified that the buildings were safe for children and staff to return. This left us south of Canal Street and west of Broadway seven schools that were contained in six separate buildings that could not immediately be reoccupied. They included two high schools south of the Trade Center area, they included one high school north of the Trade Center area, Stuyvesant High School, an intermediate school and two primary schools.

Four of these schools were actually being used at the time by emergency workers, by Port Authority of New York and New Jersey, by FEMA, by various other agencies as staging areas for the various rescue and recovery operations that were taking place. Once these buildings were turned back to the jurisdiction of the Board of Education, we began exhaustive environmental testing, both inside and outside the buildings. First, of course, would have been to test for asbestos. We used the most sensitive testing available. We went directly to the Transmission Electron Microscopy, because we are a school, we have to follow the most sensitive, exacting, AHERA guidelines. We had to take that step beyond what the EPA would have required normally in a residence. But we had to go to the EPA AHERA guidelines.

In some instances, we did find elevated levels of asbestos, in others, we did not. Nevertheless, a decision was made to clean these buildings from top to bottom by AHERA certified asbestos abatement handlers that are State certified by the State Department of Labor, that are certified by EPA. Even in those situations where we did not encounter asbestos, the mind set of these workers that knew how to operate a HEPA vacuum, that knew how to wet wipe, that handled minute amounts of contamination, were very important to us. So although in hindsight we may not have needed to have these handlers used throughout all the buildings, nevertheless, it was a decision made and it is a decision we still stand by to make sure the buildings were cleaned as best they could be at that time.

As the buildings were turned over to us to be allowed to reoccupy for our occupation, for education and for other activities that took place in the schools, we conducted a battery of tests. These in-

cluded testing for dioxins and PCBs, asbestos, particulates, various metals, cyanides, various air contaminants. Prior to the reoccupancy, we received acceptable levels of all these contaminants. In addition, we worked together with the United Federation of Teachers environmentalists, the various health agencies that were involved, and the Parents' Association consultant to develop various tests that would give that feeling of comfort as we moved along, as we go further from the actual September 11th event. There were various tests that were conducted, again daily for asbestos. At Stuyvesant High School we sampled, continued to sample 21 times each day for asbestos, both inside and outside the building, around the building, on top of the building, close to the fresh air intakes, near the barge of the building. We'd take close to 100 samples of particulate air on instantaneous measure at these schools.

We continue to do these either on a daily or weekly basis, depending on the necessity of the tests and based on the previous results that have been found. For example, metals and dioxin are done once a week. At this point, there are only two schools that have not been reoccupied, one would be PS 89, that shares a building with IS 89, and the school downtown, the High School for Economics and Finance. When they are ultimately going to return, which should be in a few weeks, they will follow a three-pronged approach that we've had with our other schools. Namely, when they do go in, the environmental monitoring must continue, that the environmental situation in the building in terms of the heating and ventilation system, must be inspected, enhanced when available, so that we can trap the smaller particles of air that many in the scientific community feel may be hazardous to the occupants of the building.

In addition, we have barrier mats to avoid having people entering the building as being a vehicle for bringing in new contamination. These mats have to be laundered periodically so that they cannot bring anything else into the building from the surrounding areas. In addition, there are medical and metal hygiene staff located at each of our schools to assist and document as necessary in all of our schools. They will be there for the next period of time.

Basically in conclusion, we have done everything we can do to ensure that our students are learning and our teachers can teach and they can do so in a clean and secure environment. We will continue to monitor their environment for those issues that we've documented up to this point, and other concerns that may arise. We will continue to work with members of the school and public health community so that we can as a team approach continue to safeguard the health and safety of the school occupants, the teachers and of course our children. Thank you.

Senator CLINTON. Thank you, Mr. Orlan.

Our next witness is—we will have time for questions. Just a minute. We're going to hear from all of our witnesses.

Our next witness is Dr. Phil Landrigan. I want to also ask Judith Berger-Arroyo to join us at the table as well. We're going to add her to this witness table for a very short testimony following Dr. Landrigan.

Dr. Landrigan is the Ethel H. Wise professor and chairman, Department of Community and Preventive Medicine, the Mount Sinai

School of Medicine. Certainly, I don't think there is anybody in the Nation who is more expert on the environmental effects of toxins and the exposures that children have than he is. I really appreciate your being here, Dr. Landrigan.

**STATEMENT OF PHILIP J. LANDRIGAN, M.D., CHAIR, DEPARTMENT OF COMMUNITY AND PREVENTIVE MEDICINE; PROFESSOR OF PEDIATRICS, DIRECTOR, CENTER FOR CHILDREN'S HEALTH AND THE ENVIRONMENT, MOUNT SINAI SCHOOL OF MEDICINE**

Dr. LANDRIGAN. Thank you, Senator Clinton. Thank you very much. I want to commend you and Chairman Lieberman for having convened this hearing, and single you out for the extraordinary leadership that you've given to public health generally and to focusing September 11th on the consequences of the attack.

It was good to see Congressman Nadler here this morning. A number of us have consulted Ground Zero Elected Officials Task Force. That's been a very rewarding activity.

I was thinking as I came in this morning, I'm still having trouble personally on the 11th day of each month. I suspect that I and many of us will for a long time to come. It's good to have you transform that pain into the kind of energy that we're exercising here this morning.

What I'd like to talk about, and I'll keep it very brief, because I appreciate that I'm the next to the last thing between everyone and lunch, is risk to children and particularly what do we do about assessing, preventing, dealing with the long-term health risk to children. We've heard a great deal today about the exposures, the asbestos, the particulates, the products of combustion, the other exposures that were visited upon New York. We've heard from my colleague, Steve Levin and from George Thurston and others, Dr. Kelly, about what's being done to protect the workers.

Kids are a group at particular risk, of course, when we think about environmental hazards. They live close to the ground, so they breathe more dust than adults. They take in more air per pound of body weight per day than we do, because their respiratory rates are more rapid. They have more future years of life, so they have much more time to develop any disease that may be triggered by exposure. Last, of course, kids are more vulnerable. They're just inherently more vulnerable than adults to toxins.

I put some numbers together. On the morning of September 11th, there were 46,000 children living in Lower Manhattan below 14th Street. About 11,000 of these kids are under the age of 5, and 3 of them lived within 1/2-mile radius of the tower. You've already heard information on the numbers of children who were at the various schools, which totals about 4,500 children. We also estimate that there were about 1,700 women in Lower Manhattan that morning who were pregnant, various stages during the course of their pregnancy.

Thinking about risk to children, I think it's useful to divide those risks into several categories. You've heard all these this morning, so I'll just touch upon the headlines. First of all, there are the risks that are associated with inhaling ambient, outdoor air. I think the data that Dr. Thurston presented are crystal clear, that levels were

higher at the beginning. They've declined since, and for the last several months, particularly since the fires have gone out, things are pretty decent.

You've heard about the schools, and I've consulted pro bono to the Board of Education. It's my impression that by and large, inside the schools, conditions are good, that the Board of Education is making an extraordinarily diligent effort to deal with the problems in the schools. I'm still a bit worried about the playgrounds, because some of those outdoor play spaces are right by the roadway where the trucks go, as Mr. Hiraga just described the trucks. I've been down there, I've seen those trucks go by inadequately covered. I certainly wouldn't want any of my grandchildren to be out there.

Then last, there's a question of homes. It's clear that the degree to which homes have been cleaned has been uneven. Some have been dealt with very well, of course, but others have not been dealt with adequately. Kids who are in those homes, and indeed, people of all ages, are at risk of exposure to particulates, asbestos, products of combustion, and whatever else may have gone into those homes in the days following the attack.

So I salute you for having proposed that there be long-term surveillance of people who have been exposed to the products that were liberated into the air following September 11th. The way I see it now, there are two groups who are reasonably well covered by ongoing surveillance efforts, and one group who are mostly not covered at all. The workers are pretty well covered, there are obviously gaps. We heard from Mr. Scotto about the inadequate coverage of the police officers, but at least the firefighters, certain of the construction workers, are being well covered. My sense is that with the strong unions in place and people like Steve Levin to keep an eye on things, that if we all work together, we'll do a good job of covering the workers.

We're also doing a reasonable good job of covering people at the other end of life, namely pregnant women and their children. Our group at Sinai with colleagues at Columbia have received supported from the New York Community Trust, and we hope to get additional support from National Institute of Environmental Health Sciences to organize a prospective epidemiologic study of pregnant women and their offspring. In fact, it's already been launched. We've already recruited a couple hundred women against our target of 600. So that is progressing reasonably well.

The group who are pretty much uncovered by any sort of systematic medical effort at the present time are kids. Yes, there have been sporadic efforts, ATSDR I think has looked at a few people, various hospitals have looked at a few here and there. But I agree with what Ms. Christodoulou said, to my knowledge, there's been no organized effort to do systematic surveys of respiratory health problems, mental health problems, other health problems in children. I think this is a serious need that needs to be met. We need to put into place organized programs for examining, registering, caring for and tracking these children.

I think these programs are going to have to be kept in existence for several decades. Because we know about the long-term risks of asbestos, mesothelioma, in particular, that may not become evident for two, three and even four decades in some of these children.



We've had some preliminary discussions about the need for such a registry with Dr. Henry Falk, the administrator of ATSDR. He's supportive, money may be an issue. I can say that, he can't.

Thank you again, Senator Clinton, for having convened this hearing.

Senator CLINTON. Thank you very much, Doctor.

Our final witness is Judith Berger-Arroyo. She's a public health nurse at the New York City Department of Health. She's a member of Local 436 of DC 37, Lee Saunders, the very excellent competent head of DC 37, is here. That was a union that basically was driven out of its headquarters because of its proximity to Ground Zero. So they've struggled not only with the needs of their members, who are throughout the city in various positions, but also very much trying to figure out how to keep themselves going. I think you're back in, now, Lee, basically? Good.

Well, thank you very much, Ms. Berger-Arroyo. We're looking forward to hearing from you.

**STATEMENT OF JUDITH BERGER-ARROYO, PUBLIC HEALTH  
NURSE, DISTRICT COUNCIL 37**

Ms. BERGER-ARROYO. Thank you, Senators Lieberman and Clinton, for giving us this opportunity to address your subcommittee.

As you pointed out, my name is Judith Berger-Arroyo. I'm a public health nurse with Local 436. But in addition to being a member of Local 436, I am the member at large representative for Manhattan, which means I represent all the public health nurses that work in the borough of Manhattan. I am testifying not only on their behalf, but on behalf of the other 125,000 members of District Council 37.

We are the everyday heroes who helped in hundreds of ways at Ground Zero and elsewhere to keep the city working during the terrible tragedy that occurred on September 11, 2001. I am here today to request that the Federal Government provide funding for appropriate medical testing, treatment and surveillance, as well as continued safety training for us city workers who selflessly and violently put themselves in harm's way following the September 11th attack to assist the citizens of this great city.

From the moment the first plane hit, we have worked, our members who work as paramedics and emergency medical technicians rushed to the scene to begin the rescue effort. Moments after the attack, DC 37 lost three members, two EMTs, Carlos Little and Ricardo Quinn from Local 2507, and Father Michael Judge, a chaplain from Local 299. A score of other members were injured in the aftermath. Hundreds of other DC 37 members played and continue to play important roles in the rescue, recovery and cleanup effort in and around the World Trade Center.

At this point, I want to bring out more of what our members specifically. I myself personally, Local 436 has close to over 800 members in the New York City Public School System. We provide the health care there. I myself was a nurse in one of those public schools in the red zone, if not specifically at Ground Zero. As a member-at-large from Manhattan, I did hear from the public health nurses that we had at PS 89, plus a few other members that we had in the area who worked there.

The cloud, even though it went up Broadway and up to a certain point, the wind, when it would change directions or anything else, would bring it up as far as Chinatown, where many of us worked. We worked for 12-hour shifts for days after that, because we had displaced shelters there. So even though the schools were closed, the shelters were open and the public health nurses manned those shelters in addition to providing services in the school.

So I was exposed, and since December I've had this "cold" that I haven't been able to get rid of. The cough comes and goes, and once I think I'm feeling better it comes back.

Myself and my colleagues are most fortunate, because we have health insurance that covers it. We have our own private doctors that we go to. We have DC 37 here to help us, with Dr. Weem from Mount Sinai. But we are concerned about parents and teachers and the students in those schools that don't have insurance or are immigrants and don't speak English and may not think about that. We do outreach on this, we've been hearing from our members.

In addition, our members who were working in the area, not just at PS 89, and at the other schools, but we have the Bureau of Tuberculosis Nurses that worked in the area, we had epidemiologists, we had nurses that went down to Ground Zero itself the very next day that tested masks and everything else. A lot of them are coming back with either fatigue that they've never had before or they again, like myself, have coughs or this burr in our throats that we can't seem to get rid of. Some of our nurses who have suffered from asthma before, who were very well controlled on medication, now have had to add two or three more medications and are not doing very well at all. These are problems that continue to crop up for all of our public health nurses in the area.

We also have, since I'm speaking on behalf of all the members of District Council, we have our Local 983, our urban park rangers, who were among those who assisted in the evacuation of Battery Park City and the surrounding areas. They were covered with, needless to say since they were evacuating with the cloud. Our Local 1322 and 376 members who work for the Department of Environmental Protection immediately responded by ensuring that the water supply to fight the huge fires was adequate.

Our motor vehicle operators from Local 983 also responded immediately to address critical transportation needs. They are also the ones who helped move all those cars recently with all that dust and stuff to return them to their owners. As I speak, they continue to haul debris from Ground Zero hundreds of times a day. There are truck drivers, Local 375 hazmat workers, also played a critical role, to make certain that chemical hazards were abated quickly. Engineers and architects from Local 375 have been there from day one to provide technical expertise in overseeing the safety of the rescue and recovery operations. Other members of DC 37, such as Local 768, public health sanitariums, Local 420, mortuary care technicians, local 371, social service workers, have all played vital roles by tending to the health and safety needs of those adversely affected by this terrible event.

Until recently, Local 372, school lunch aides, fed thousands of meals a day to the rescue workers at Ground Zero. Since September 11, 2001, DC 37 has spoken out on the need for adequate

funding for the city to address the multiple concerns of our residents, as well as our members, who have so vitally assisted in the rescue and recovery efforts. To aid New York City in its recovery, it is critical that the \$20 million promised by President Bush be made available promptly to enable the city to meet the crushing and immediate economic needs.

More particularly, an integral portion of the \$12 million that you, Senator, and Senator Schumer have proposed to deal with worker health issues must be specifically earmarked for the medical testing, treatment and surveillance of employees who are exposed to the numerous dangers, chemicals and other toxins in and around Ground Zero. To date, only some of the employees working at Ground Zero have received baseline medical examinations. Unfortunately, hundreds of others have not. In order to adequately protect the health of these heroic workers, this money must be appropriated in an expeditious and efficient manner.

We must not allow unnecessary bureaucratic hurdles and lack of coordination on the part of city, State and Federal agencies to further delay this essential funding. Monies for medical testing treatment and surveillance of workers should be allocated to the New York State Occupational Health Clinic Network, which is well equipped, trained and staffed, but presently lacks adequate funding to deal with the huge number of workers potentially affected by this disaster.

Failure to allocate adequate funding to address these pressing occupational health issues will unduly burden the city's health insurance carriers and delay the needed medical treatment and surveillance that workers need now. Our Government should not place the burden of continued good health on these heroic workers who have already given so much.

I also want to point out, as Dr. Levin and everyone has pointed out, a lot of our members are also suffering from a great deal of psychological stress. We have a great many public health nurses that have been unable to return to their areas of employment in the Manhattan area down there. In fact, we have one public health nurse that, she just can't even look down at the area. We have to try to arrange for a transfer for her, so she will be able to continue doing her job.

DC 37 urges the subcommittee to immediately commit necessary Federal funds to New York City to be used in the following manner. To fund the occupational health clinics in New York City, in order to provide appropriate medical testing, treatment and surveillance. Develop training programs on safety and health-related issues for workers taking part in the rebuilding of the city and to develop a worker registry to identify workers affected by the September 11th attack. That is extremely important, because we need to know. A lot of these chemicals are long-term effect and not short term. We may not see anything for the next 10 or 20 years.

I would like to thank you for your time, and will answer any questions that you might have.

Senator CLINTON. Thank you very much.

Well, the time is vanishing, and there are so many questions. I reiterate that anyone with any questions in the audience, please get them to us, we will pass them on, get them answered. But

there are several points that I want to touch on before we have to end.

Mr. Orlan, let me turn to you, because there are two specific issues that were raised, and I want your direct response to them. The first, with respect to Stuyvesant, were the ventilation systems and the ductwork cleaned, and who did that work, if it was done?

Mr. ORLAN. The air mixing chambers and the ventilation system were cleaned by an asbestos hazard abatement company prior to the reoccupancy of the school. Prior to that weekend, and there was a holiday weekend, to ensure that there was nothing lurking behind the ventilation system, the ventilation system was run, a number of air changes, after which air sampling was conducted throughout the school. The analysis was using the TM analysis, we were able to get down to the smallest level of particulate. Those results were shared prior to reoccupancy of the school with both the environmentalists with the UFT, with the various regulatory agencies and with the parents' association consultant.

Senator CLINTON. Ms. Christodoulou, you just heard Mr. Orlan's response. What's your response to that?

Ms. CHRISTODOULOU. I think it was not a direct response. Your question, Senator, was were the ducts cleaned. Mr. Orlan responded that the intakes of the ducts were cleaned. It's a—

Senator CLINTON. Let me stop you. Were the ducts cleaned, Mr. Orlan?

Mr. ORLAN. The ducts themselves were not cleaned.

Senator CLINTON. Is there some reason why the ducts couldn't be cleaned?

Mr. ORLAN. The ducts, there was a sufficient number of air changes going through the ducts. Whatever was reachable by the ducts, the diffusers, the air chambers, the air handling chambers themselves, were physically cleaned. From that point on, sufficient amount of air was run through the ducts. It was a protocol agreed upon by the parents' association consultant prior to running this. We shared results with that particular gentleman and with the environmentalists with the UFT.

Senator CLINTON. Well, now, I think this needs to be resolved. It's not going to be resolved here. But clearly, this is the kind of either misunderstanding or lack of information or just difference of opinion about what needs to be done that I would very much like to see resolved one way or the other. Because I think that going back to what Mr. Scotto said in the very beginning, I don't think anyone has any desire to expose our children to any toxins that can be controlled and eliminated. If there are legitimate differences of opinion, obviously my view is, you err on the side of doing more, not less, and you will do everything that possibly can not only in actuality, but frankly by perception, give the sort of confidence that we need.

So I would hope that you can discuss this further and perhaps on behalf of the parents' association. I would appreciate getting a report as to whether you're going to go forward and do that, or whether some independent expert says it's not necessary. Because I think that that is the real bottom line on the Stuyvesant issue.

But I also wanted to ask Mr. Orlan about PS 89. I know there are teachers and parents in the audience. I guess they're also won-

dering, can you have some kind of additional meeting with some independent mediator or expert there, so that the questions that they have can be answered? I know that this is something that would be on the minds of any teacher or parent about their children.

Mr. ORLAN. So far as the staff and parents of 89, we did meet again last week. Chancellor Levy attended, various representatives of medical establishments that are working with us, independent agencies. Also their own independent consultant that the parents have hired.

I spoke to the president of the parents' association, and I did offer to meet with them on an ongoing basis, even when school does go back into session. If they have a regular PA meeting, if they just need me to come in for 5 minutes once a month to say, before we discuss reading and writing, let me tell you what we've done, what our test results are, what the mayor's office tells us is happening with the site and with the barge. I will be more than happy to do that. I've made that clear to them.

Senator CLINTON. Dr. Landrigan, as I've heard your testimony, you said that having consulted pro bono to the board, and I know you've also met with parents groups and teachers groups and others, you are willing to say that you think that the interior of the schools are acceptable, but you're worried about the playgrounds and the idling of the diesel trucks and the movement back and forth to the barge. Is that a fair paraphrase?

Dr. LANDRIGAN. Yes, Senator, it is. My colleague, Joel Foreman, who's a pediatrician with me at Mount Sinai, and he directs an ATSDR supported pediatric environmental health specialty unit, was actually at the meeting that Mr. Orlan mentioned that was convened last week with the parents of PS 89. We're continuing to review the data. It's a work in progress, and we understand that an examination of the data at one point doesn't answer the questions for all time. But we're committed to continuing to work with the parents and with the board of education.

Senator CLINTON. I will take very seriously your recommendation about the registry for children. It's something that we need to move on quickly.

Let me also just thank Dr. Levin for bringing to our attention the un-unionized, unprotected, undocumented workers who have been put into very difficult positions with these cleanups. I think we have to try to have an outreach also to try to deal with some of their potential health problems.

Now, I have to wrap this up. In fact, ending on the note that several of you have mentioned, we need financial help to do the kind of registry, the monitoring, the tracking and surveillance, for all of these groups, and to provide the additional expertise. I know how difficult it is, because certainly those of us who have lived through what happened here and what happened in the following weeks with anthrax know that we don't have all the answers we wish we did have. The Hart Building in Washington, DC where Senator Schumer has his office was closed for months. Nobody knew how to clean it up. They had to go back and try twice with an untried system to pump gas into the building.

So this is an issue, when it comes to our response to the health impact of these environmental disasters that flow from terrorism that we've got to do a better job in addressing. I'm on my way, actually, to go over to the city council, because I am concerned that we're not going to be having the support we need financially from the Federal Government to do the work that I think all of us agree needs to be done. It's something that to me just absolutely has to be a national priority.

I don't think that the war on terrorism can only be fought either in Afghanistan or foreign countries or that our only response here at home is to beef up security. We also have to take whatever steps are necessary to protect the environment and our health. I think this hearing today illustrates that dramatically.

Now, I thank all of you for participating. I want again to let the audience know that there are instructions on the table as you enter the auditorium for submitting questions and statements to the committee. Please do so by February 25, 2002. Let me thank you all for being here. I look forward to continuing to work with you on these issues.

The subcommittee is adjourned.

[Whereupon, at 2 p.m., the subcommittee was adjourned, to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

STATEMENT OF HON. JERROLD NADLER, U.S. REPRESENTATIVE FROM THE STATE OF  
NEW YORK

Thank you, Chairman Lieberman. I would like to thank you and Senator Clinton for holding this field hearing today, and for inviting me to testify, regarding the continuing impact of the September 11th attacks on the air quality in Lower Manhattan.

As the Congressman representing "Ground Zero" and the surrounding area, I am deeply concerned about the environmental and health effects posed by the collapse of the World Trade Center for my constituents, and for those who go to school or work in the area. It has now been exactly 5 months since the terrorist attacks and, unfortunately, the people in Lower Manhattan still do not know whether or not it is safe to live and work in the area. The Environmental Protection Agency (EPA) has failed in its mission to ". . . protect human health and to safeguard the natural environment . . ." by not exercising its full authority to test and clean all indoor spaces where people live and work. As such, the EPA has created a full-scale crisis of public confidence.

Yet, all is not lost. The EPA can and must act now to remedy this situation and make Lower Manhattan safe and to restore public trust. Despite statements to the contrary, the agency *does* currently have the authority and resources to do so, and it must do so quickly. However, if the EPA continues to fail New Yorkers, I will introduce legislation to mandate action.

I am going to begin by being very blunt. We now know enough to be alarmed and outraged at the Federal Government's response to the environmental impact of September 11th. First, we know that EPA Administrator Christine Todd Whitman misled the public on September 18, 2001 when she said she was "glad to reassure the people of New York that . . . their air is safe to breathe, and their water is safe to drink." She made that statement without the indoor data necessary to make such a pronouncement. Second, we know that the EPA has made a series of conflicting comments about the presence and quality of hazardous materials, and has even knowingly withheld critical data regarding the causticity of the dust. Third, we know that the EPA delegated authority to New York City to handle indoor environments, but did nothing to ensure that the City's response was appropriate. This left New Yorkers to their own, uninformed devices, often without the means to take care of themselves and their families. This is true even as the EPA had its own building at 290 Broadway professionally tested and cleaned. Finally, we know that the EPA has treated New York differently than it has treated other locales contaminated by

hazardous materials. New York was at the center of one of the most calamitous events in American history, and the EPA has essentially walked away.

Ms. Whitman's statement, reassuring the public about the safety of air and water, which has been echoed by many at all levels of government, was based only on the EPA's *outdoor* tests—the results of which are still in dispute. At that time, there had been no systematic testing of *indoor* air or dust in residential or commercial buildings by any Government Agency, let alone by the EPA. In fact, the EPA did not intend to do testing even of *outdoor* air in residential areas of Lower Manhattan until my Ground Zero Elected Officials Task Force requested that it do so on September 21. Ironically, the very first public testing conducted inside residences, which was commissioned by our Task Force, commenced on the very day Ms. Whitman made her misleading statement. The results were made available to the EPA on October 12. The test results showed elevated levels of hazardous materials in these residences. The EPA did nothing and Ms. Whitman did not adequately clarify her statement.

In recent weeks, the EPA has stated repeatedly that the city of New York, not the EPA is responsible for indoor testing. The city, however, didn't get around to testing inside homes until November and December. The full results of these test are still not available and, according to the Health Department, won't be until the spring. I do not understand why the results of tests undertaken by a public agency are being delayed for public release. Our test results took less than a month to be released. Nevertheless, just 3 days ago, the city Department of Health issued a press release regarding this limited indoor testing. Despite a pacifying headline, many the limited data in the press release has caused the scientists with whom we've consulted to believe that full results would directly contradict Ms. Whitman's statement. The release does make it clear, as did our commissioned study, that there were disconcerting levels of hazardous materials in peoples' apartments.

Ms. Whitman's reassurances are deeply confusing in light of other statements made by agency officials and of other information we now have that the EPA has not itself released. For example, in a copy of a January 25, 2002 speech given by Walter Mugdan, EPA Region II counsel, which I have obtained, I find that he states, ". . . a significant number of the WTC bulk dust samples that we analyzed did have more than 1 percent asbestos." But an October 3, 2001 EPA memo "Confirm[ing] No Significant Public Health Risk" states, "The vast majority of EPA and OSHA samples of air and dust analyzed for asbestos have been at levels that pose no significant risk to residents and workers returning to their homes or area businesses." This statement has been made repeatedly by EPA Region II officials. How are New Yorkers to interpret these conflicting remarks? I can't even tell you what they mean—except that they cannot both be true.

Confusing remarks are one thing, withholding critical data pertaining to the public health is another. We know that it took a Freedom of Information Act request by the New York Environmental Law and Justice Project to get test results showing dangerous levels of hazardous materials in outdoor ambient air. The EPA claimed that this was an "oversight." But now we have a new, frightening bombshell.

According to this Sunday's St. Louis Post Dispatch, the U.S. Geological Survey (USGS), using the country's best detection equipment and methods, found pH levels in World Trade Center dust that are ". . . as corrosive as drain cleaner" and passed this information along to health experts at the EPA on a "government-only" website. That's right. As corrosive as drain cleaner. (By the way, it took less than 2 weeks in September for these test results to be ready.) I submit this article for the record.

Andrew Schneider, the paper's Pulitzer Prize-winning environmental journalist, charges, "the USGS data was not released by the EPA nor apparently were the environmental agency's own test results on the dust." The EPA claims to have released this data to the public, but when Schneider reviewed all of the EPA's statements made since September 11th, he found nothing that warned of these high pH levels. According to the New York Committee for Occupational Safety and Health (NYCOSH), such dust "once it's in contact with moist tissue—the throat, the mouth—nasal passages, the eyes and even sweaty skin—it becomes corrosive and can cause severe burns." This is utterly scandalous. We must find out why the EPA hid this information from the public and we must see all the data now. I hope that Senators Clinton and Lieberman will join me in calling on the Federal Government to explain why New Yorkers were misled, and to demand the immediate release of the full complement of data.

The EPA has not only provided false reassurances and misleading information. The EPA has also abrogated its responsibility to act. In a statement issued on January 17 in response to a press conference I held, the EPA states that it, "has lead [sic] the effort to monitor the *outdoor* environment while the city of New York has taken the lead regarding the preoccupancy of buildings." At least the ERA admits

that it has delegated authority to the city. Unfortunately, the EPA has yet to provide any justification for doing so, nor has it provided any evidence of the oversight measures it is compelled to take to ensure that the city is acting in accordance with the strictest federal standards. On January 23, I sent a formal inquiry to Administrator Whitman asking for answers to these and other questions about the city's response, which I submit for the record today. It has been over 3 weeks since the letter was sent and I have yet to get a response.

The EPA might say today, as it has in the past, that it does not have the proper legal authority to take the steps we are requesting to test and clean the areas affected by the collapse of the World Trade Center. It will probably say that the Clean Air Act, for example, does not govern indoor air and that it is therefore the responsibility of the local and State governments, or even that of the landlords and residents themselves. This is, again, all utterly misleading.

Under Section 303 of the Clean Air Act, the EPA has the authority in an emergency situation to protect human health when there is an "imminent and substantial endangerment" presented by a source of pollution. The intent of Congress is clear in this regard. A Senate Report from 1970 on Section 303 states, "The levels of concentration of air pollution agents or combination of agents which substantially endanger health are levels which should never be reached in any community. When the prediction can reasonably be made that such elevated levels could be reached even for a short period of time—that is that they are imminent—an emergency action plan should be implemented." In short, the EPA should not wait for people to actually get sick before it acts, and it clearly has the authority to act under this law. Indeed, an EPA memo entitled "Guidance on the Use of Section 303 of the Clean Air Act" was issued to the Regional offices on September 15, 1983, outlining these very points. I submit a copy of this memo for the record.

But the Clean Air Act is not the only governing statute. The EPA has the authority to act on indoor air under the National Contingency Plan (NCP) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). In fact, I understand that the EPA has indeed been utilizing *some* of the NCP protocols at Ground Zero—however, they have not relied on this authority, or any other, to test or remediate indoor environments.

As we speak, the EPA is in fact doing indoor testing and remediation in Herculaneum, MO and other locales without Superfund designation. We must learn why the EPA is treating New York differently and I ask the Senators present here today to help me find out. This double standard is unconscionable.

The EPA was unwilling to act on its own, and yet did nothing to ensure that those ostensibly charged with acting did "the right thing." The EPA, on its web site and in public press releases referred residents to the New York City Department of Health, which recommended that people clean their potentially asbestos-laden dust with a "wet rag or wet mop." Clearly such cleanup measures are inadequate, as seen by the EPA's own actions taken in its building at 290 Broadway. I again today ask why the EPA applied stricter measures to Federal buildings than the city advised for local residences and business equidistant from the World Trade Center.

Given the lack of action, credible information or oversight, I believe the EPA has failed in its responsibility to protect the public health of the citizens of Lower Manhattan. This is quite simply shameful, for public health is the first thing we, as a government, must protect.

In order to ensure a full and fair public assessment on the EPA's actions following September 11th, I have also asked the EPA National Ombudsman, Robert Martin, to investigate these matters. Mr. Martin has been doing so, and I am disappointed he has not been invited to testify and share the status of his investigation with the committee. However, I understand there is a time constraint today, so I have attached a statement from Mr. Martin to be included in the record. As you may also know, Administrator Whitman is attempting to place the Office of the Ombudsman under the control of the Inspector General, effectively stripping the Ombudsman of his independence and ability to investigate these claims. I sincerely hope that Administrator Whitman will stop her quest to eviscerate the office of the Ombudsman, and in so doing, further undermining the integrity of the agency.

I realize that I have leveled serious charges here today, but I believe I have the moral responsibility to do so. The salient point is that we still do not know the extent of the presence of hazardous materials in some areas of the city. It may or may not be dangerous in many indoor areas of lower Manhattan—we just don't know. I am dismayed that there seems to be unwillingness on the part of our public agencies to get this information. But given that we do not have all of the facts, we cannot conclude anything. I *do* know that we must get the facts and act swiftly and appropriately to get the job done right.



We must not fall into the catch-22 of saying there is no evidence of a public health emergency without taking any steps to get such evidence. The burden should not be on the landlords and residents themselves when the testing procedures and cleanup measures are expensive and must be conducted by properly trained personnel.

The EPA has the statutory and regulatory authority to test and remediate indoor environments in Lower Manhattan, and has exercised such authority elsewhere. I am calling on the EPA today to immediately commence a program of full-scale testing and remediation using the best available technology, and to make a report of all such test results and actions available to the public. The EPA must also issue the test results in a manner which is tied directly to health standards, so that we can truly assess the public health risk posed to the people of Lower Manhattan. Finally, testing procedures should in no way impede the expeditious remediation of hazardous materials found by other government agencies or private researchers. Similarly, should the EPA find dangerous levels of hazardous materials before the full spectrum of testing is completed, cleanup measures should commence immediately.

If the EPA fails to act again, despite its current authority, compel it I will introduce legislation to do so.

People might say that the measures I am requesting here today are expensive. That may be, but we must protect the public health. Although the cost may be high today, imagine what the cost will be in the future if it turns out that they're really are dangerous levels of hazardous materials in Lower Manhattan. Imagine the City's and EPA's contingent liability to lawsuits 20 years down the road. Envision the potential health care costs.

It is in the best interest of the residents, workers, students and businesses for the Government to act swiftly and appropriately to address the public's environment and health concerns. We cannot afford to wait while all the agencies point fingers at each other. There is still time to right this situation.

Time is of the essence. My office has received numerous complaints from people experiencing adverse health effects such as headaches, nosebleeds, and respiratory ailments. The symptoms are so widespread that they have been dubbed "The World Trade Center Flu." Public confidence is at stake. People know when they are sick, they know when something is not right, and they know when they are being lied to. I sincerely hope that we do not have another "Love Canal" on our hands, but the best way to avoid that is to do the necessary testing and cleanup now.

Thank you for inviting me to testify before you today. I look forward to working with my colleagues in both chambers of Congress, and with all interested parties, to ensure that New York City is safe and prosperous for many years to come.

[From the St. Louis, (MO) Post-Dispatch, February 9, 2002]

#### CAUSTIC DUST BLANKETS WORLD TRADE CENTER AREA

(By Andrew Schneider)

NEW YORK.—Even as the dust from the collapsed World Trade Center was still settling, top government scientists were determining that the smoky gray mixture was highly corrosive and potentially a serious danger to health.

The U.S. Geological Survey team found that some of the dust was as caustic as liquid drain cleaner and alerted all Government agencies involved in the emergency response. But many of those on the front lines of protecting the health of the public and workers cleaning up the site say they never got the information.

"I'm supposed to be in the loop, and I've never heard any specific numbers on how caustic the dust actually was," said Dr. Robin Herbert, co-director of the Mount Sinai Center for Occupational and Environmental Medicine. "There is a large segment of the population here whose physicians needed to know that information that USGS submitted. Exposure to dust with a high pH could impact everyone, but especially the very young, the very old and those with existing pulmonary disease." Census data show large concentrations of young and elderly living near the World Trade Center site.

The EPA's office in New York said it repeatedly told the public that the dust was caustic because of the cement that was pulverized when the towers collapsed. But an examination of all the EPA's public and press statements made since September 11th found nothing that warned of the very high pH levels found by the Geological Survey scientists. Nor did the statements disclose the specific levels that the EPA's own testing found.

"We've not heard of EPA or anyone else releasing information on specific pH levels in the dust, and that's information that we all should have had," said Carrie Loewenherz, an industrial hygienist for the New York Committee for Occupational Safety and Health, which provides assistance to more than 250 unions.

"It's the specific numbers—those precise pH levels—that we need to make the appropriate safety decisions for the workers, and they were never released," Loewenherz said. "The dust, once it's in contact with moist tissue, the throat, the mouth, nasal passages, the eyes and even sweaty skin, it becomes corrosive and can cause severe burns."

Most of the samples taken by USGS' team had a pH of 9.5 to 10.5, about the same alkalinity as ammonia. Two samples that were taken inside a high-rise apartment and in a gymnasium across from the wreckage of the World Trade Center had a pH of 11.8 to 12.1—equivalent to what would be found in liquid drain cleaner.

The degree of acidity or alkalinity in a material is expressed as a pH measurement. Neutral pH—like water—is 7 on a 15-point scale. Lower than 7, to 0, is an indication of acid. Higher than 7, to 14, the top of the scale, is alkaline. Levels near either end of the pH scale can harm the health of people and animals.

Bruce Lippy, Loewenherz's counterpart with the operating engineers union, is responsible for the 300 workers running heavy equipment at Ground Zero.

"Part of the dilemma we faced was not knowing precisely what was in the dust," Lippy said. "We knew it was caustic but had no information on exactly how caustic it was. I was trying to get people to wear the respirators, but if I knew how high the pH levels were, I could have been more persuasive in convincing the workers of the dangers."

Only a handful of the 100 or so workers sorting wreckage and loading trucks on the site over 3 days last week were seen wearing respirators or protective masks.

#### SCIENTISTS RUSH TO MANHATTAN

Like the rest of the world, the USGS team watched the storm of dust roll across Manhattan after the terrorist attack on September 11th. With its world-class laboratories and sensors that can detect minerals on a distant planet, the Denver-based team was already making arrangements to get NASA's infrared sensors and aircraft over Ground Zero as the EPA and the U.S. Public Health Service requested its help.

Responding to requests from the White House science office, the NASA team flew over Manhattan four times between September 16 and September 23, while USGS scientists collected samples of the dust from 35 locations below.

Back in Denver, more than two dozen scientists using the world's most sophisticated analytical equipment ran the samples through extensive testing.

The Geological Survey's test results were posted September 27 on a Web site restricted to Government agencies.

The USGS findings were "evaluated by our technical experts and found to be consistent with the findings of EPA's Office of Research and Development," said Bonnie Bellow, the agency's spokeswoman in New York.

"The USGS data was also discussed by an interagency group of scientists, epidemiologists and health officials," Bellow said.

But neither the EPA headquarters nor its New York office would comment on what came out of these discussions or which EPA results they were "consistent" with.

The USGS data on pH levels were not released by the EPA, nor apparently were the environmental agency's own test results on the dust.

"It is extremely distressing to learn that the EPA knew how caustic samples of the dust were and didn't publicize the information immediately, or make sure that OSHA publicized it," said Joel Shufro, executive director of the New York Committee for Occupational Safety and Health.

"If we had known at the time exactly how caustic the dust could be, we would have been in a better position to make informed decisions about respiratory protection to recommend and about the urgency of ensuring that workers and residents followed those recommendations," Shufro said.

"It is inexcusable for EPA to have kept silent for so long about such a potential hazard."

#### DUST WEAKENS STRAPPING YOUTH

John Healy Jr. is 15, big, taller than his father. He looks as strong as a bull. But when he talks, wheezes and deep coughs punctuate his words. He and his father, John, live in an apartment overlooking what was the World Trade Center.

“Something is tearing him up, hitting his lungs hard,” said his father. “He had asthma when he was younger, but he was fine until after September 11th. If I knew the dust was that caustic, there’s no way I would have brought him back here.”

John goes to Stuyvesant High School, a 10-story building for the brightest of the bright. It’s one block from the collapsed buildings and beside the Hudson River, where barges are being filled with debris destined for sorting at the Fresh Kills landfill.

“I need to go to this school, and I need to live here to do it, but something in that dust is just hurting me,” the teen said as he looked down at the pile of pills, throat sprays and inhalers in his two large hands.

His father looked out the narrow dining room window at the brightly lighted carnage below. A light film of dust coated the window.

“I can’t understand why the Government didn’t tell us what was actually in the dust,” Healy said. “Were they afraid we were going to panic? I needed that information to decide what was best for my son. I needed it.” The teen’s malady and other serious problems are being seen by physicians throughout New York.

“What we’re finding is incredible irritation to the lungs, throat and nasal passages,” said Herbert, from Mount Sinai. “Some of the tissue is cherry red, vivid, bright, and we’ve never seen anything like it before.”

“There are a large number of clinicians and public health specialists who are struggling to reconcile the health problems they’re seeing with the exposure data they’re being given,” Herbert said. “The high pH in the dust may be a part of the answer. If the Government had these pH readings of 11 and 12, the public and their physicians should have been told.”

“Any credible information the Government had relating to health issues just should have been released,” she said. “There is no justification for holding it. You don’t conceal the information from those who need it.”

#### A DUBIOUS HONOR

Mark Rushing and Tori Bunch have the debatable honor of having lived in one of the sites that USGS tested. In fact, their apartment on the 30th floor of a building overlooking the World Trade Center tied for highest pH—12.1—of the dozens of sites where samples were collected.

“It’s obvious to those of us living here that the Government—city, State and Federal—wanted things to return to normal as quickly as possible. The economic losses were great,” Rushing said. “But no matter how you view it, that’s no excuse for the Government, any government, to conceal hazards from the people they are charged with protecting.”

Rushing and Bunch found a new apartment as far from the World Trade Center as they could get and still be in the city. The apartment is on the lowest floor available.

Even within the EPA, professionals believe the agency did a disservice by not acknowledging and releasing the Geological Survey’s data.

Cate Jenkins, a senior environmental scientist in the hazardous materials division at the EPA headquarters, said: “The pH levels the USGS documented were far too high for EPA to ignore. They insisted that all the information regarding health and safety was being released to the public. Well, that’s not true. There’s nothing, internally or in public releases, that shows the agency ever disclosed specific pH levels.”

Late Thursday, the EPA’s Bellow told the Post-Dispatch: “We have no specific data on pH levels.” Bellow added, “This is all the available information on the subject.”

Late Friday, the EPA responded to the question of why it didn’t collect its own pH numbers.

“EPA had enough information about the alkalinity of the material from the World Trade Center without doing further analysis,” Bellow said.

The question of why EPA didn’t release the data it had had remains unanswered.

The EPA is in a no-win situation. No Government Agency had been prepared for the enormity of the terrorist attack on New York. Tight budgets—Federal, State and city—ruled out planning and drills for an unfathomable event of this size.

Even most critics say that no amount of preparation could have kept the workers fleeing the twin towers—and the rescue workers racing to save them—from sucking in lungfuls of toxic dust and smoke.

But it’s what the EPA and OSHA and the New York State and city health departments did after the dust settled and the smoke cleared that has generated the most criticism.

On Monday, Rep. Jerrold Nadler, the New York Democrat who represents the people in Lower Manhattan, is holding a congressional hearing to determine who

dropped the ball. He is expected to announce that legislation will be introduced to “force EPA to do the proper testing inside offices and apartments and release the finding in a form that would be of value to the public and their physicians.”

Sen. Joseph Lieberman, D-Conn., has scheduled a Senate investigation of the issue.

Less than a week after the attack, on September 16, EPA Administrator Christie Todd Whitman told New Yorkers: “There’s no need for the general public to be concerned.”

That was the same day that USGS and NASA flew their first sampling missions over the city.

The EPA said its boss’s comments that there were no dangers from dioxin, benzene, PCB or asbestos—all cancer-causing agents—were based on thousands of outside air samples. Last month, the Post-Dispatch reported that high levels of asbestos were found in many apartments and offices. The EPA said its regulations did not call for indoor testing.

Hundreds of firefighters, paramedics and police officers are sick, suffering what some physicians call “ground zero coughs.” Their problems may have come from unprotected exposure the first week of the attack.

But hundreds of other people—workers, students and residents—who fled the area and stayed out for weeks and then came back also are suffering major respiratory problems.

The few Christmas decorations that adorned light poles in Lower Manhattan have been removed. But the metal poles still bristle with air monitors and vacuum pumps sucking in air almost around the clock, searching for asbestos fibers, chemicals and traces of heavy, toxic metals.

These monitors are of little or no value when it comes to determining the health hazard from dust contaminating apartments and offices. For the most part, the EPA and the Occupational Safety and Health Administration say they’re finding little, if anything, for New Yorkers to worry about.

They are talking about contaminants in the air, which is the main pathway for toxic materials to enter the body.

But the EPA pays little or no attention to indoor contamination.

Late Friday, the New York City Health Department issued a brief statement, with very few details, about both indoor and outdoor testing done by the Agency for Toxic Substances and Disease Registry. This well-respected research arm for the Department of Health and Human Services, found pulverized fiberglass in almost half of the samples it examined. However, New York health officials released no specifics on the levels of toxic material found, and no one could be reached for comment.

Attention is being paid to keeping the contamination on the site. Trucks hauling debris from Ground Zero pass through an EPA drive-through shower before they reach the streets. City street sweepers and washers drive a seemingly endless circle up and down the streets of Lower Manhattan.

But even blocks from the collapse, massive windows on offices and cornices on many apartment buildings are still caked with dust.

“We made this analytical effort because we were concerned about the likelihood that the composition of the dust could be potentially harmful to the rescue and cleanup workers at the site and to people living and working in Lower Manhattan,” said USGS team member Geoffrey Plumlee, a geochemist who determined the pH levels.

“We shared our findings with EPA, FEMA, the Federal emergency response coordinator and everyone else we felt was appropriate. We anticipated that the results would have been shared with the people on the ground, those at risk, but it looks like the information never got to those who needed it.”

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STATEMENT OF ROBERT J. MARTIN, NATIONAL OMBUDSMAN, ENVIRONMENTAL PROTECTION AGENCY

I am pleased and honored to provide testimony to this subcommittee exactly 5 months after the tragedy which struck this city and the Nation on September 11, 2001. The Hon. Jerrold Nadler of the U.S. House of Representatives and many affected citizens of New York City have asked that I as National Ombudsman and Chief Investigator Hugh Kaufman independently assess what needs to be done to protect the health and environment of the community.

The initial phase of our investigation identified the fact that asbestos testing being performed and/or paid for by the Environmental Protection Agency was not performed with the best available technology to identify the true health risks posed

by the tons of asbestos released into the community from the World Trade Center attack.

As a working finding, I have concluded that the Environmental Protection Agency, or any other agency of Government that has not used the best available technology to measure asbestos levels, cannot irrefutably conclude that dwellings in the community surrounding the World Trade Center attack are safe. As a working finding I have further concluded that besides asbestos, there are other hazardous materials that pose a risk to the public health and environment from the World Trade Center attack. These include, but are not limited to, benzene, lead, mercury, PBDEs (flame retardants), fiberglass, and PCBs.

Although not a working finding, we have received substantial anecdotal information that the workers and visitors to Ground Zero may not have been provided adequate information, training, and protective gear to assure their health and safety. We have also received substantial anecdotal information that the Environmental Protection Agency has provided erroneous information to the public during their response to the World Trade Center attack.

As in all other major National Ombudsman cases, we will be convening public hearings, taking on the record statements, interviewing witnesses, reviewing records and issuing Interrogatories and Requests for Production of Documents and Working Findings. The Ombudsman process is a transparent process and as in the past we expect that if mistakes have been made, they will be corrected during the process to afford the public the fastest possible help in protecting their health. We anticipate and welcome full cooperation from you, EPA and all other governmental authorities.

We look forward to working with all the elected officials in this area just as I have done in other cases around the country from Florida to Idaho, and from Pennsylvania to Colorado. I particularly want to point to the leadership of Congressman Jerrold Nadler and the Ground Zero Elected Officials Task Force in their efforts on behalf of all the citizens in helping to expeditiously solve these problems.

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#### INITIATION OF ADMINISTRATIVE AND CIVIL ACTION UNDER SECTION 303 OF THE CLEAN AIR ACT DURING AIR POLLUTION EMERGENCIES

The purpose of this guideline is to explain the statutory requirements and response needs which must be met in order to take action under Section 303 of the Clean Air Act<sup>1</sup> in the event of an air pollution emergency.

This guideline is directed toward both meteorological episodes (e.g., thermal inversions) involving dangerously high levels of criteria or non-criteria pollutants, situations in which chronic exposure to air pollution causes endangerment by cumulative effect, and incidents involving industrial accidents or malfunctions (e.g., breakdown of pollution control devices) resulting in the release of air pollutants in hazardous concentrations.

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<sup>1</sup>Section 303, as amended in 1977 and codified at 42 U.S.C. Section 7603, reads as follows:

(a) Notwithstanding any other provision of this chapter, the Administrator, upon receipt of evidence that a pollution source or combination of sources (including moving sources) is presenting an imminent and substantial endangerment to the health of persons, and that the appropriate State or local authorities have not acted to abate such sources, may bring suit on behalf of the United States in the appropriate United States District Court to immediately restrain any person causing or contributing to the alleged pollution to stop the emission of air pollutants causing or contributing to such pollution or to take such other actions as may be necessary. If it is not practicable to assure prompt protection of the health of persons solely by commencement of such a civil action, the Administrator may issue such orders as may be necessary to protect the health of persons who are, or may be, affected by such pollution source (or sources). Prior to taking any action under this section, the Administrator shall consult with the State and local authorities in order to confirm the correctness of the information on which the action proposed to be taken is based and to ascertain the action which such authorities are, or will be, taking. Such order shall be effective for a period of not more than 24 hours unless the Administrator begins an action under the first sentence of this subsection before the expiration of such period. Whenever the Administrator brings such an action within such period, such orders shall be effective for a period of 48 hours or such a longer period as may be authorized by the court pending litigation or thereafter.

(b) Any person who willfully violates, or fails or refuses to comply with, any order issued by the Administrator under subsection (a) of this section may, in an action brought in the appropriate United States District Court to enforce such order, be fined not more than \$5,000 for each day during which such violation occurs or failure to comply continues.

## STATUTORY PREREQUISITES

*I. An Imminent and Substantial Endangerment to Health*

The threshold prerequisite is the existence of “evidence that a pollution source or combination of sources (including moving sources) is presenting an imminent and substantial risk of harm. It should be emphasized that endangerment means a risk or threat to human health, and that EPA should not delay action until actual injury occurs. Such delay would thwart the express intent of the Clean Air Act to protect the Nation’s air quality in the interest of the public health. Section 303 is a precautionary provision, aimed at the avoidance of potential harm. This is best illustrated by the House Report on the Clean Act Amendments of 1977:

In retaining the words “imminent and substantial endangerment to the health of persons”, the committee intends that the authority of this section not be used where the risk of harm is completely speculative in nature or where the harm threatened is insubstantial. However, . . . the committee intends that this language be constructed by the courts and the Administrator so as to give paramount importance to the objective of protection of the public health. Administrative and judicial implementation of this authority must occur early enough to prevent the potential hazard from materializing.

H.R. Rep. No. 95–294, 95th Cong., Sess. 328 (1977) (emphasis added).

There is also some judicial opinion supporting an interpretation of the endangerment standard as being merely precautionary, and permitting remedial action prior to the occurrence of any actual harm. In *Ethyl Corporation v. Environmental Protection Agency*, 541 F.2d 1 (D.C. Cir. 1976), the Court ruled that EPA had properly acted to regulate lead in gasoline upon finding, under Section 211 of the Clean Air Act, that lead emissions would “endanger” as requiring only a finding that lead emissions presented a “significant risk” of injury to the public. There were no findings of the presence of actual harm. In upholding the Agency’s view of the “endanger” standard in Section 211, the Court explained:

When one is endangered, harm is threatened; no actual injury need ever occur. A statute allowing for regulation in the face of danger is, necessarily, a precautionary statute. Regulatory action may be taken before the threatened harm occurs; indeed, the very existence of such precautionary legislation would seem to demand that regulatory action precede, and, optimally, prevent, the perceived threat.

541 F.2d at 13. In *Reserve Mining Company v. Environmental Protection Agency*, 514 F.2d 492 (8th cir. 1975), the court had similarly interpreted an endangerment standard in the Federal Water Pollution Control Act in a case involving asbestos discharges into Lake Superior. The court stated that “Congress used the term ‘endangering’ in a precautionary or preventive sense, and, therefore, evidence of potential harm as well as actual harm comes within the purview of that term.” 514 F.2d at 528.

An important question for purposes of Section 303 of the Clean Air Act, however, concerns the effect of the modifying phrase “imminent and substantial” upon the meaning of “endangerment.” In *Reserve Mining*, the Court stated that the “term ‘endangering’ . . . connotes a lesser risk of harm than the phrase ‘imminent and substantial endangerment to the health of persons.’” 514 F.2d at 528. Accord, *Ethyl Corporation v. Environmental Protection Agency*, 541 F.2d at 20 n.36. This issue is particularly important to EPA’s ability under Section 303 to abate suspected carcinogens, the harm from which might take many years to manifest itself.

It is our position that in order to adequately safeguard public health by being in a position to preclude an air pollution emergency at its inception, the phrase “imminent and substantial endangerment” must be interpreted to refer to an imminent and substantial risk of harm, no matter how distant the manifestation of harm may be. If there exists a non-speculative risk of harm, the agency may properly act under Section 303. This is consistent with the legislative history quoted previously, and with the established definition of “endangerment” as referring to the risk of harm; not actual harm itself. This is also consistent with the 1970 Senate Report on Section 303, which states:

The levels of concentration of air pollution agents or combination of agents which substantially endanger health are levels which should never be reached in any community. When the prediction can reasonably be made that such elevated levels could be reached even for a short period of time—that it is that they are imminent—an emergency action plan should be implemented . . . S. Rep. No. 91–1196, 91st Cong., 2d Sess. 36 (1970). Thus, EPA may properly take action to abate air emissions when a substantial risk of harm is about to arise. This is several steps prior to the occur-

rence of any actual harm, but is appropriate in view of the precautionary nature of Section 303.<sup>2</sup>

This approach is also crucial to the Agency's ability to abate emissions which are believed to be but which are yet not confirmed as dangerous to human health. In *United States v. Vertac Chemical Corporation*, 489 F. Supp. 870 (E.D. Ark. 1980), the Court found the chemical dioxin, widely believed but not fully proven to be hazardous, to be presenting a "reasonable medical concern over public health" and to be thereby constituting an imminent and substantial endangerment to health under Section 7003 of the Resource Conservation and Recovery Act. *Id.* at 885. An Agency response under Section 303 of the Clean Air Act would be appropriate in the presence of pollutants reasonably believed to be dangerous to human health. As with regard to any pollutants sought to be abated under Section 303, EPA must be prepared to document the basis of its belief in the danger of these pollutants. If the Agency can show a "reasonably medical concern" created by the suspect emissions, it will have met the "imminent and substantial endangerment" test of Section 303.

Appendix L of the State Implementation Plan regulations (40 CFR Part 51) outlines a phased emission reduction program for air pollution emergencies involving criteria pollutants. In increasing degrees of seriousness, the levels are "alert", "warning", "emergency", and "significant harm to health." The "significant harm to health" levels are levels at which actual injury occurs and are levels that should never be reached. It is not consistent with the intent of the Act for the Regional Offices to wait until the levels of "significant harm to health," specified in 40 CFR 51.16(a), are reached prior to initiating a Section 303 action. The "emergency" level is intended to be the level at which action must be taken to avoid reaching levels of significant harm. Generally speaking, it is at these designated emergency levels that an imminent and substantial endangerment, i.e., an imminent and substantial risk to public health, is deemed to exist. The "warning" and "alert" levels specified in Appendix L are designed to ameliorate situations before the emergency stage by application of moderate controls.

Under certain circumstances an imminent and substantial endangerment to health may exist even though the Appendix L emergency levels have not been reached. Accordingly, the concentrations outlined in Appendix L as the "emergency levels" are only to be considered as a guide in determining when an imminent and substantial endangerment to health exists. Flexibility is essential and appropriate action must be taken pursuant to Section 303 whenever it is necessary to prevent the significant harm to health levels from being reached. For example, if review of forecasted meteorological conditions indicate that a situation is likely to deteriorate so rapidly that any action started at the emergency level in Appendix L would come too late to be effective in preventing the significant harm to health level from being reached, the Agency should act at such earlier time as is necessary to allow for enforcement action to be effective. Moreover, emergency conditions may be present even if there is no clear prediction that specified endangerment levels will be reached. An imminent and substantial endangerment to health may exist, for example, where pollutant concentrations lower than established emergency levels occur or are predicted to occur for an extended period of time.

With regard to non-criteria pollutants, sources of information on dangerous concentrations may vary. Among these are standards established by the Occupational Safety and Health Administration (OSHA) for exposure to air pollutants inside the workplace. Although not directly related to ambient air, these standards might provide a starting point for assessing the risk to the public when such pollutants, e.g., various organics, become airborne in a community. Computerized health effects data bases, such as Toxline and Chemline, might also be helpful. (These data bases are run by the National Library of Medicine and may be accessed through the EPA Headquarters or regional office libraries.) It will be necessary to gather scientific and medical data, in addition to meteorological data, in order to find an imminent and substantial endangerment to public health as a result of emissions of non-criteria pollutants. The role of experts for this purpose is discussed below.

## 2. State or Local Authorities Have Not Acted to Abate Pollution Source(s)

A second prerequisite to initiating a Section 303 action is that the Administrator receive evidence "that appropriate State or local authorities have not acted to abate such sources." Section 51.16(a) of 40 CFR requires that each State Implementation Plan for a priority I region include a contingency plan which, as a minimum, provides for taking any emission control actions necessary to prevent ambient air pol-

<sup>2</sup>This permits the Agency to act to seek abatement of emissions reasonably believed to be carcinogenic but for which a harmful level, and the time for harm from such emissions to become apparent, are both uncertain.

lutants concentrations of criterial pollutants from reaching levels which could cause significant harm to the health of persons. More specifically, the State Implementation Plans submitted to the Administrator were: (1) to specify two or more stages of episode criteria; (2) to provide for public announcements whenever any specific stage has been determined to exist; and (3) to specify emission control actions to be taken at each episode stage. (Section 51.16(g) of the Implementation Plan regulations requires that the State Implementation Plans for Priority II regions include, as a minimum, requirements (1) and (2);) Although Section 51.16 addresses only SIP contingency plans for criteria pollutants, the requirement of State or local failure to abate applies also to conditions involving non-criteria pollutants. The issue for purposes of implementing Section 303 is at what point it becomes the duty or the prerogative of EPA to act to abate an air pollution emergency.

Prevention and curtailment of an air pollution emergency is initially the responsibility of State and local governments. EPA has secondary responsibility for taking steps to avert emergency conditions. The Regional Office's initial duty, therefore, is to observe State and local abatement efforts (e.g., monitoring implementation of an emergency episode plan) and to render assistance should a State or locality request it. The Regional Office should take action under Section 303 only if State and local action is either unsuccessful or not forthcoming, as where a State lacks adequate abatement resources or simply refuses to attempt to abate the emergency. Under such circumstances, the Regional Office may assume primary responsibility for curtailing the emergency or, preferably, render technical assistance to the State's abatement efforts.

The time allowed for State and local government to take adequate action prior to EPA's assuming primary responsibility will obviously depend on the nature of the potential or actual emergency. The more the endangerment would be increased by delay, the shorter this lead-time should be. All that is required by Section 303, however, is that State or local action be insufficient to abate or preclude the emergency conditions, and that the appropriate State or local agency be consulted in order to determine what action it intends to take, and whether the information upon which EPA intends to act is accurate. The requirement of consultation should not be viewed as an obstacle to effective action by EPA. As explained in the House Report on the 1977 Clean Air Amendments:

The consultation requirement is in furtherance of the committee's intent that the Administrator not supplant effective State or local emergency abatement action. However, . . . if State and local efforts are not forthcoming in timely fashion to abate the hazardous condition, this provision would permit prompt action by the Administrator.

H.R. Rep. 95-294, 95th Cong., 1st Sess. 328 (1977). The consultation requirement is therefore not a concurrence requirement, but rather one of notification and corroboration prior to taking action. The scope of action taken by EPA should be restricted to what is necessary as a supplement to any action taken by State or local authorities, as, e.g., where a State is able to implement only portions of its SIP emergency episode plan, yet further action is needed to curtail the episode.

#### RELIEF AVAILABLE UNDER SECTION 303

The foregoing statutory prerequisites apply to both the initiation of a civil action to abate an air pollution emergency and to the issuance of an order by the Administrator directly to the source of the hazardous air emissions, demanding a curtailment of those emissions. These two forms of relief—the civil action for an injunction and the administrative order—are briefly discussed below.

##### *1. Injunctive Relief*

Section 303 permits the Administrator to seek injunctive relief in a Federal district court "upon receipt of evidence that a pollution source or combination of sources (including moving sources) is presenting an imminent and substantial endangerment to the health of persons, and that the appropriate State or local authorities have not acted to abate such sources . . ." Pursuant to the Memorandum of Understanding between EPA and the Department of Justice, codified in Section 305 of the Clean Air Act, the action would be filed on behalf of the Administrator by the U.S. Attorney for the appropriate Federal court district. EPA Regional and Headquarters Offices, however, have the responsibility of providing all data and evidentiary material to the Department of Justice.

As will be discussed more fully below, it is essential to a successful civil action that expert testimony be elicited, either in the form of affidavits or through expert appearances at depositions or trial, regarding the risk of harmful effects to the health of persons from exposure to the relevant pollutant. This is especially so in



the case of an emergency involving a non-criterial pollutant, the harmful levels or effects of which have not already been established by EPA or other agencies. A diligent effort should be made to obtain evidence, perhaps from citizen complaints or hospital records, that the particular emission sought to be controlled has in fact already caused adverse effects to the health of some individuals. Such evidence, while not essential to a Section 303 action, could be helpful in substantiating an imminent and substantial endangerment. Among the experts to be consulted concerning hazardous pollutants and the presence and extent of any adverse health effects are physicians, epidemiologists, and toxicologists.

In addition, expert meteorological testimony is needed in order to assess the magnitude of hazardous pollutant concentrations and to pinpoint the source of the dangerous emissions, if not already known as in an area of numerous industrial point sources), and to ascertain the expected geographical breadth of the emergency, based upon such parameters as current and forecasted wind speed, wind direction, atmospheric stability, temperature, and precipitation.<sup>3</sup>

The meteorological expert may also be able to predict the duration of an emergency episode by determining the time which will elapse before changed meteorological conditions might substantially improve the dispersion of the hazardous pollutant concentrations.

Also, experts in industrial processes and pollution controls will be needed in order to explain to a court the nature of the polluting process and what abatement options are available, e.g., plant shutdown versus reduced production. In any action for an injunction, a court can be expected to provide no more relief than is necessary, and place as light a burden as possible on the emitting source, in providing for effective curtailment of the air pollution emergency. The industrial expert will thus play a crucial role in the shaping of judicial relief in a Section 303 action.

This testimony—medical, scientific, meteorological, and technical—is essential to prevailing in a Section 303 suit. The burden of proof will be on the Government, which must show by a preponderance of the evidence that the defendant is the source of air pollutants which, by their very nature or because of existing meteorological conditions, have caused harm to individuals or are presenting and imminent and substantial risk of such harm. In order to assure the credibility of this testimony, sampling personnel should be prepared to testify to the reliability and quality assurance of the air samples evaluated by the experts.

The procedure for seeking an injunction are set forth in the Federal Rules of Civil Procedure, Rule 65 (copy attached). In the event that immediate relief is needed, Rule 65 provides for temporary injunctive relief in the form of a preliminary injunction which can be obtained from a Federal district court, after a hearing, in order to reduce further emissions of the suspect pollutant below emergency levels until a full trial can be held. The Government should be prepared to have its experts testify in court if preliminary or permanent injunction is sought.

The following should be kept in mind as elements of proof necessary to obtaining a preliminary injunction:

(1) Absent immediate injunctive relief, irreparable harm will be caused by the polluting source(s); (2) this harm would outweigh any harm to the source(s) from the granting of relief requiring the source(s) to abate emissions; (3) the risk to public health is sufficient to make success on the merits and the granting of a permanent injunction likely; and (4) the public interest necessitates immediate relief. See 7-pt. 2 Moores Federal Practice para. 65.04 (1980); See also *United States v. Midwest Solvent Recovery, Inc.*, 484 F. Supp. 138.144 (N.D. Ind. 1980). In addition, Rule 65 provides for injunctive relief in the form of 10-day temporary restraining order (TRO), which can be granted without a hearing while a motion for preliminary injunction is prepared.<sup>4</sup>

Expert testimony in the form of affidavit should suffice for the purpose of obtaining a TRO.

The proof necessary to obtain a TRO is that immediate and irreparable injury will occur if injunctive relief is withheld until the defendant can be given notice and an opportunity to appear. Rule 65 implies that a hearing on a motion for preliminary injunction should take place as soon as possible after the granting of a TRO. *Id.*, Para. 65.05–65.08; see also 4 West's Federal Forms Section 5297 (1970).

<sup>3</sup>Atmospheric stability refers the degree of turbulence in the atmosphere.

<sup>4</sup>Only once has a TRO been requested under Section 303. The incident occurred in 1971, in Birmingham, AL. After local efforts to curtail emissions from several sources failed, a TRO was requested and granted under Section 303, requiring various process modifications and cessations.

## 2. Administrative Order

Prior to the 1977 Clean Air Act Amendments, the only method of enforcement provided in Section 303 was injunctive relief from a Federal district court upon a showing of imminent and substantial endangerment from air pollutant emissions. The 1977 Amendments left this authority in place and added a provision authorizing the Administrator to issue an order to a source to take steps to curtail its emissions in the event "it is not practicable to assure prompt protection of the health of persons solely by commencement of . . . a civil action." Within twenty-four hours of issuing the order, however, the Administrator must file a suit for injunctive relief, or the order will expire. Upon such filing, the court may then extend the life of the order pending litigation. Violation of the order may be penalized up to \$5,000 per day per violation. This penalty may be sought in a civil action brought to enforce the order.<sup>5</sup>

Also in such an action, a source may challenge the Administrator's basis for issuing the order.

This administrative order mechanism was intended by Congress to enhance EPA's emergency response capability even beyond that provided by the TRO process previously discussed. As explained in the 1977 House Report:

Even more prompt action may be necessary where pollution levels exceed the never to be exceeded levels without prior forecast that this may occur . . . The committed bill reflects the committee's determination to confer completely adequate authority to deal promptly and effectively with emergency situations which jeopardize the health of persons. Thus, the section provides that if it is not practicable to assure prompt protection of health solely by commencement of a civil action, the Administrator may issue such orders as may be necessary for this purpose.

H.R. Rep. No.95-294, 95th Cong., 1st Sess. 327-28 (1977) (emphasis added). The administrative order is thus an available enforcement mechanism in those instances where even a TRO might be issued too late to effectively curtail an endangerment to public health. Such situations might be those involving emissions that are hazardous even in very limited duration of exposure, rendering a TRO too late to be fully effective, or situations which, although potentially quite harmful, are expected to be of very short duration, such that the emissions would cease before the TRO could issue e.g., the demolition of an asbestos-lined building). In such situations, the time required to gather the expert evidence in support of a TRO might defeat efforts to avert adverse public health effects, absent a more immediate enforcement mechanism.

The administrative order is just such a mechanism. Expert testimony is not required for issuance of an administrative order. What is needed, however, is evidence which reasonably leads the Administrator to believe that certain air emissions from particular sources are creating an imminent and substantial endangerment to public health. This evidence might be in the form of emissions data combined with adverse meteorological reports and medical bulletins. Provided the informal consultation requirement has been met, the Administrator may issue an order calling for abatement of emissions by whatever means the Administrator determines are necessary under the circumstances of the case. Because of the potential adverse economic impact of such an order upon the source, the order should require no more than what is clearly necessary to curtailing hazardous emissions. The fact that the order may only last twenty-four hours, during which time a TRO application and civil suit can feasibly be filed, and that the basis of the order may be challenged by any source subject to it in a proceeding to enforce the order, are indicative of Congress' intent that the order be immediately available although not necessarily supported by the best possible expert credible evidence.

Note that the administrative order may also be used to require additional sampling or monitoring by the suspected source with a view toward abating its emissions. This additional data can then be utilized in a subsequent civil action, if such an action is necessary to abatement.

Additional sampling and monitoring may also be required of a source through the use of Section 114 of the Clean Air Act. Section 113(a)(3) permits EPA to issue an order to a source if it fails to comply with a requirement of 114. Such an order is not effective until the person to whom it is issued has had an opportunity to confer with EPA.

<sup>5</sup>This is analogous to the provision in Section 113(b) of the Clean Air Act for a civil action to enforce, and seek penalties for, violation of, an order issued under Section 113(a) to comply with emission limitations.

Thus, Section 114 provides a mechanism for requiring source sampling and monitoring with a much lower standard of proof of violation than that required by Section 303. EPA may issue an order requiring sampling and monitoring under Section 114 for the purpose “(i) of developing or assisting in the development of any implementation plan under Section 110 or 111(d), any standard of performance under Section 111, (ii) of determining whether any person is in violation of any such standard or any requirement of such a plan, or (iii) carrying out any provision of this Act . . .” This is contrasted with the requirement under Section 303 that EPA have evidence that a source “is presenting an imminent and substantial endangerment to the health of persons, and that appropriate State or local authorities have not acted to abate such sources.” However, while the standard for issuing a 114 order is lower, a 114 testing order takes longer to enforce because it must be enforced by the issuance of a 113(a)(3) order after the source has been offered an opportunity to confer.

DELEGATIONS FOR ISSUING ADMINISTRATIVE ORDERS AND JUDICIAL COMPLAINTS UNDER SECTION 303

*I. Administrative Orders*

Pursuant to Delegation 7-49, authority to issue administrative orders under Section 303 rests with the Regional Administrators and the Assistant Administrator for Air, Noise, and Radiation. The Regional Administrators must consult with the Associate Enforcement Counsel for Air before issuing such orders. The Assistant Administrator for Air, Noise and Radiation must consult in advance with the Associate Enforcement Counsel for Air and notify any affected Regional Administrator or their designees before issuing orders. Because speed is of the essence in issuing administrative orders under Section 303, the Headquarters concurrences card be issued by telephone and followed up later in writing.

*II. Referral of Civil Actions for Injunctive Relief*

Pursuant to Delegation 7-22-A, all referrals to the Department of Justice of requests for civil actions for emergency TRO's must be made the Special Counsel for Enforcement. The Special Counsel for Enforcement must notify the Assistant Administrator for Air, Noise and Radiation and the appropriate Regional Administrator when a case is referred to the Department of Justice.

FORMS FOR OBTAINING INJUNCTIVE RELIEF MOTION FOR TEMPORARY RESTRAINING ORDER

The United States of America, by its undersigned attorneys, by authorization of the Attorney General and acting at the request of the Administrator of the Environmental Protection Agency, moves that this Court, in order to prevent irreparable injury to the United States and its citizens, enter immediately an order to restrain temporarily the defendants set for this in the complaint from discharging excessive (pollutant) into the ambient air pending action by this Court on the complaint filed this day by the United States in this cause, and in support of the motion, states:

Defendants are discharging from their plants and/or installations at (city, State), substantial amounts of (pollutant), into the ambient air. Such discharges (in combination with adverse weather conditions) have caused or are contributing to, concentrations of (pollutant), in the ambient air exceeding a level of (number) (units) of (pollutant). This level presents an imminent and substantial endangerment to the health of persons.

The appropriate State and local authorities have diligently attempted to decrease the level of contamination in the atmosphere. However, defendants continue to discharge (pollutant) into the ambient atmosphere causing imminent and substantial endangerment to the health of persons.

The presence of such levels of (pollutant) is a present and continuing danger to human health. Unless the discharges of (pollutant) are immediately restrained, the health of people in the area will continue to suffer immediate and irreparable harm.

Plaintiff further moves for said Temporary Restraining Order to be issued forthwith and without notice, on the ground that the discharge constitute and imminent and substantial endangerment to the health of persons.

Therefore, in view of the immediate danger to public health that the defendants are contributing to by the release of (pollutants) into the ambient air, plaintiff prays that the Court enter a temporary restraining order immediately.

TEMPORARY RESTRAINING ORDER

This cause came to be heard on the motion of plaintiff, upon the complaint herein and affidavits attached thereto, for a temporary restraining order; and, it appearing

to the court therefrom that immediate and irreparable injury, loss and damage will result to the plaintiff before notice can be given and the defendant or his attorney can be heard in opposition to the granting of a temporary restraining order for the reason that continued levels of pollution by (pollutant) will cause irreparable damage to the health of persons, it is

ORDERED, that defendants set out in the complaint filed herein, their agents, servants, employees and attorneys and all persons in, active concert or participation with them are hereby restrained from causing or contributing the alleged pollution and each defendant separately must take the following action:

(List each defendant separately and state what immediate action that defendant must take).

ORDERED, that this order expire within 10 days after entry, unless within said time it is for good cause shown extended for a longer period, and it is further

ORDERED, that this order expire within 10 days after entry, unless within said time it is for good cause shown extended for a longer period, and it is further

ORDERED, that plaintiffs complaint be set for hearing on preliminary injunction on (date) at (time) of that day or as soon thereafter as counsel can be heard, in the United States District courtroom in the city of \_\_\_\_\_, State of \_\_\_\_\_.

This order issued at city, state, this \_\_\_\_\_ day of (month), (year).

#### COMPLAINT (FOR CIVIL ACTION)

The United States of America, by its undersigned attorneys and by authority of the Attorney General alleges that:

1. This is a civil action to enjoin the above names defendant(s) from discharging any (pollutant) into the ambient atmosphere from their manufacturing operations in the (city, state) area. Such discharges contribute to the imminent and substantial endangerment to the health of persons as determined by the Administrator of the Environmental Protection Agency. Authority to bring this action is in the Department of Justice by 42 USC 7605.

2. This court has jurisdiction of the subject matter of this action pursuant to 28 USC 1345.

3. Defendant(s) are corporations doing business in (city, state) within the \_\_\_\_\_ District of (Federal district court).

4. During normal operation of the defendants' plants the defendants discharge (pollutant) into the ambient air.

5. The Administrator of the Environmental Protection Agency has received evidence that a combination of pollution sources, including the defendant's plants, are presenting an imminent and substantial endangerment to the health of persons of discharging matter into the ambient air.

6. The appropriate State and local authorities have diligently attempted to decrease the level of contamination in the atmosphere. However, the various sources emitting (pollutant) in significant quantities, including the defendants plants, continue to discharge (pollutant) into the ambient atmosphere to levels that cause significant harm to the health of human beings.

7. The average (pollutant) level in the ambient air for the past forty-eight (48) hours is approximately (number) (units). Such levels for such periods of time are harmful to the health of human beings.

8. The discharges of matter by the defendants should be eliminated pursuant to Section 303 of the Clean Air act which provides:

(a) Notwithstanding any other provisions of this Act, the Administrator upon receipt of evidence that a pollution source or combination of sources (including moving sources) is presenting an imminent and substantial endangerment to the health of persons, and that appropriate State or local authorities have not acted to abate such sources, may bring on behalf of the United States in the appropriate United States district court to immediately restrain any person causing or contributing to the alleged pollution to stop the emission of air pollutants causing or contributing to such pollution or to take such other action as may be necessary. If it is not practicable to assure prompt protection of the health of persons solely by commencement of such a civil action, the Administrator may issue such orders as may be necessary to protect the health of persons who are, or may be, affected by such pollution source (or sources). Prior to taking any action under this section, the Administrator shall consult with the State and local authorities in order to confirm the correctness of the information on which the action proposed to be taken is based and to ascertain the action which such authorities are, or will be, taking. Such order shall be effective for a period of not more than 24 hours unless the Administrator brings an action under the first sentence of this subsection before the expiration of such period. Whenever the Administrator brings such an action within such period, such

order shall be effective for a period of 48 hours or such longer period as maybe authorized by the court pending litigation or thereafter.

(b) Any person who will fully violate or fails or refuses to comply with, any order issued by the Administrator under subsection (a) may, in an action brought in the appropriate United States district court to enforce such order, be fined not more than \$5,000 for each day during which such violation occurs or failure to comply continues.

9. The continuous emission of (pollutant) into the ambient air the defendants contributes to the present situation which, if allowed to continue, will cause significant harm to the health of persons in the city area.

10. The United States of America and its citizens will suffer immediate and irreparable harm to their health unless the defendants are immediately restrained from discharging (pollutant) into.

WHEREFORE, THE UNITED STATES PRAYS

a. That the defendants, their officers, directors, agents, servants, employees, attorneys, successors, and assigns, and each of them cease the discharge of (pollutant) into the ambient air in a manner prescribed by this Court and not discharge such matter thereafter unless pursuant to instruction to do so from this Court.

b. That costs and disbursements of this action be awarded to the plaintiff; and

c. That this Court grant such other and further relief as it seem just and proper. (no signature necessary)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION

(Address)

IN THE MATTER OF \_\_\_\_\_

(source)

DOCKET NO (\_\_\_\_\_) )

SECTION 303 OF THE CLEAN \_\_\_\_\_)

AIR ACT, AS AMENDED, \_\_\_\_\_)

42 U.S.C. Section 7401 et seq., \_\_\_\_\_)

42 U.S.C. Section 7603 \_\_\_\_\_)

The Regional Administrator for Region (\_\_\_\_\_) of the United States Environmental Protection Agency (EPA) makes the following Findings of Fact, reaches the following Conclusion of Law and Issues the following Order:

FINDINGS OF FACT

1. The Administrator of EPA has delegated the authority vested in him by Section 303 of the Clean Air Act (the Act) as amended, 42 U.S.C. Section 7401 et seq., 42 U.S.C. Section 7603, to the Regional Administrator for Region (\_\_\_\_\_).

2. Section 303 of the Act, 42 U.S.C. Section 7603 provides that, upon receipt of evidence that a pollution source or combination of sources is presenting an imminent and substantial endangerment to the health of persons and that appropriate State or local authorities have not acted to abate such sources, the Administrator may issue such orders as may be necessary to protect the health of persons who are, or may be, affected by such pollution source or sources.

3. Defendants are discharging from their plants and/or installations at (city/State), substantial amounts of (pollutant), into the ambient air.

Such discharges (in combination with adverse weather conditions) have caused or are contributing to, concentrations of (pollutant), in the ambient air exceeding a level of (number) (units) of (pollutant).

This level presents an imminent and substantial endangerment to the health of persons.

4. (source) is a source which is presenting an imminent and substantial endangerment to the health of persons.

5.(state) and (local jurisdiction) authorities have not acted to abate (list sources).

OR

(state) and (local jurisdiction) authorities have diligently attempted decrease the level of contamination in the atmosphere. However, defendants continue to discharge (pollutant) into the ambient atmosphere causing imminent and substantial endangerment to the health of persons.

## CONCLUSION OF LAW

1. The Regional Administrator for Region ( ) The Regional Administrator, is vested with the authority of the Administrator under Section 303 of the Act, 42 U.S.C. Section 7603.

2. Source(s) have been found by the Regional Administrator to be presenting an imminent and substantial endangerment to the health of persons and to be an appropriate subject for the issuance of an order under Section 303 of the Act.

## ORDER

The Regional Administrator for Region ( ) hereby orders that defendants set out in this order, their agents, servants, employees and attorneys and all persons in active concert or participation with them are hereby ordered to refrain from causing or contributing to levels of pollution that will cause irreparable damage to the health of persons and each defendant separately must take the following action:

1. (List each defendant separately and state what immediate action that defendant must take.)

2. This order shall be effective for a period of not more than twenty-four hours unless the Regional Administrator files a civil action on behalf of the United States in the appropriate United States district court to immediately restrain any person causing or contributing to the alleged pollution to stop the emission of air pollutants causing or contributing to such pollution or to take such other actions as may be necessary.

3. This Order is effective immediately upon receipt by defendants. The Regional Administrator for Region ( ) hereby issues the above-identified Order which shall become effective as provided therein.

## STATEMENT OF ELIZABETH H. BERGER, RESIDENT, NEW YORK CITY

Chairman Lieberman, Ranking Member Voinovich, committee members, staff members, esteemed panelists and neighbors, thank you for inviting me to tell you about the doubts, concerns and questions which have confronted those of us living and working in Lower Manhattan every day since September 11th. We live in a time of deep uncertainty, but are required to make countless decisions that may affect our health and that of our children for decades to come.

I have lived south of Fulton Street for more than 19 years. My husband and I bought our first home here, brought our children home here from the hospital and helped site the local nursery school. We remember life downtown before there was a single all-night deli (it opened on Fulton Street for Op Sail in 1986), when restaurants closed early Friday evening and didn't reopen until Monday lunch (except the Roxy Diner on John Street, which stayed open through Saturday night), when the closest supermarkets were in New Jersey. In those days, we schlepped bags on the subway and had everything else delivered, basic things most New Yorkers take for granted: dry cleaning, fresh vegetables, laundry detergent.

But we loved being downtown. We loved the huge buildings on the narrow, winding streets, we loved being close to the water and really knowing in some powerful, visceral way that Manhattan was an island. We loved the views, all the subways and weird bus lines, the scale and the feeling that we were at the center and beginning of everything.

We loved the way we and other downtown pioneers turned a business district into a community. This was especially true as we had children: the World Trade Center was our indoor play space, our mall, our theatre. It was where we flew kites, went rollerskating, learned to ride two-wheelers, and the only place to buy a decent loaf of bread. Dancers performed there, and musicians, and Ernie and Bert. My children, who are 5 and 2, spent part of every day of their lives at the World Trade Center.

This is why it is so absurd to heed the call to return to normal. There is no more normal for all of us.

I saw the first plane before it hit. Our building was evacuated. It was 8 days before we knew that it was structurally sound, another few weeks before we were assured that 1 Liberty wouldn't topple on us. That entire time, I thought not of the apartment we might lose—of our home, the 5,000 family photos, the important papers, my grandmother's jewelry, my children's drawings and my husband-the-writer's life work—but of the destruction of our community: 20 years work gone in 18 minutes.

The theme of my remarks is uncertainty, but I never doubted that we would return. We helped build downtown, and we'll help rebuild it. It was after the city recertified our building for reoccupancy about 6 weeks after the attack, that I realized

that the question was not whether by how. From a health perspective, there has been little guidance and fewer answers.

When I first returned to our apartment, I just sat down and cried. It was a mess and we spent 2 hours cleaning it—not the dust that covered everything, thinly in some places, like when the butler in English movies goes upstairs and reopens the ballroom that has been closed for 10 years, and thickly in others, like a blanket—but the French toast that had been sitting on the table since my husband and son had hurriedly left 2 weeks before. It didn't occur to us to wear masks or take off our shoes. We just needed to straighten up. Recall, in this regard, that it is the city's job to certify for structural integrity, not for environmental safety; I knew this, but didn't quite get what it meant until later.

We then began the great education process which has made downtown residents experts in products and services we never knew existed: FEMA, HEPA, OSHA. We all learned fairly quickly which were the best cleaning companies and scientific testers, but what no one, to this day, can agree on is what clean means and how to measure it.

It took eight guys in white suits and respirators 5 days to clean my apartment. But is it clean? No one tells you what to keep and what to toss. In October, I attended a panel discussion at Cooper Union featuring leaders in the field of pediatric environmental health—who knew it existed—including, Dr. Landrigan's associate, and among six doctors there were seven opinions, ranging, in essence, from throw it in the washing machine to get out of town and don't look back.

What's in the stuff? Every day the air smelled different and the winds blew a different course.

We reluctantly made our own rules, divined from press reports, high school science as we remembered it and the advice of friends and neighbors. But even that was mixed. One scientist friend had his apartment tested and declared it safe for his family; the managing agent of his building, however, reported high levels of asbestos and lead. In the end, 248 stuffed animals, 8 handmade baby quilts, 5 mattresses, a trousseau's worth of sheets and towels, a kitchen full of food and 13 leaf-and-lawn bags of toys went into our trash, but not our books, draperies and upholstered furniture or our clothes, though the bill to dry clean them industrially was \$16,500 (and they all came back on individual wire hangers with individual plastic covers and individual twist-ties). We washed the walls, but didn't repaint. Some people we know repainted, but kept their mattresses. Some people kept their stuffed animals but threw away their furniture. Some people kept what they couldn't bear to lose and got rid of the rest. We have still not decided what to do about our floors: will stripping, sanding and resealing them contain the toxic mix of asbestos, fiberglass, concrete, human remains, heavy metals and the vague "particulates," or just release more of it into our indoor air?

Indoor air quality is a touchy issue in our building. Converted in the late 1970's, we have a primitive central air system that circulates air from apartment to apartment. Some people in our building hired professional cleaners. Others did it themselves, and a few locked the door and didn't come back for a while. After the guys in the suits left, we sealed our windows, filtered our vents and bought six triple-HEPA-filtered air purifiers, which we run 24 hours a day. My clean air is making its way through the building, as is that of my less fastidious neighbors.

The same is true for outdoor air. All of our building's systems and public spaces have been professionally cleaned, following City DEP guidelines, yet we are surrounded by Class B commercial buildings that have either not been cleaned or have been cleaned summarily. We live on the 11th floor, and see the porters, without protective gear, up on the roofs with push brooms. That stuff, too, is coming through our vents. My son's nursery school vigorously cleaned its outdoor play space, then stopped using it. PS 234 is now back, but the kids are not allowed to run in the yard. We don't live in a bubble. If the outdoor air's not good enough to breathe, how can we breath it inside?

In our case, much of this debate has been academic. The mantra of real estate is "location, location, location" and, given ours, we decided that it would be foolish to return our two young children to their home until the fires went out. Although we were urged to return to normal, we were chastened by early reports of high asbestos and heavy metal readings in the Warm Zone; though we were told we were in the Financial District Zone, our building's front door was 20 feet from the fence.

Our view was controversial. It was based on intuition, not hard science or "facts." Our pediatrician didn't necessarily agree. Several of our neighbors with children were back. But every time we waffled, something else would happen: the benzene plume, high asbestos readings on the debris, the fire fighters' cough. We have only been home for 3 weeks. All of us are happier, but are we safe?

We've opened our windows, but are avoiding the park. Some of our neighbors have HEPA window screens. Some still have the duct tape. Others have put their apartments on the market.

What's the right thing to do? Ours is a culture based on authority, and to date there has been none. We would do whatever we needed to do, if only we knew what that was. In this regard, the failure of the Federal regulators to recognize that ours is a residential community and that OSHA standards simply do not apply is an outrage. Burning computers, fluorescent bulbs, copiers, electrolytic fluid and bodies . . . let me tell you, everyone downtown knows that we are the baseline of the 30-year study on what happens when worlds collide. As a parent, that is the most frightening responsibility I have ever faced.

The attack on the World Trade Center was an attack on America, and has led me to consider the whole idea of being American in a new and unironic way. What I do find ironic, however, is that the only authority I have found with respect to cleaning up the mess is William James, the father of Pragmatism, arguably the only American contribution to world philosophy. As the Harvard professor said in a lecture he gave right here in New York City in 1907, at Columbia University, "we have to live today by what truth we can get today, and be ready tomorrow to call it falsehood." I first read that as a 19-year-old college student, and thought it was pretty cynical stuff. Now, as a 41-year-old mother of two, while I'm horrified by the implications for my children's future, I know it is the only way we can live.

Thank you.

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U.S. ENVIRONMENTAL PROTECTION AGENCY

Memorandum

January 11, 2002

Subject: Preliminary Assessment, Asbestos in Manhattan Compared to Libby Superfund Site; Why Cleanup of WTC Contamination is Ineffective to Date; Advantages of Cleanup Under Superfund Statute; and Summary Risk Assessment for WTC Fallout

From: Cate Jenkins, Ph.D.

To: Affected Parties and Responsible Officials

This memorandum compares data for asbestos in settled dusts and air inside residences in the town of Libby, MT, which is designated as a Superfund site due to this residential contamination, and similar data for the interior of buildings in Lower Manhattan contaminated by fallout from the World Trade Center (WTC). The reasons why the current cleanup of WTC dusts inside buildings is ineffective is also discussed, along with the advantages in addressing the cleanup through the Superfund statute.

In addition, this memorandum provides a summary of calculated cancer risks for occupancy of Lower Manhattan buildings, which was performed in more detail in my December 19, 2001 memo.<sup>1</sup> Whereas high level EPA and NYC officials have stated in sworn testimony and to the press that there were no such risks,<sup>2</sup> the appropriate offices in EPA have been effectively proscribed from conducting such a preliminary evaluation.

The analyses, projections, and opinions in this memorandum represent my own professional judgment and do not necessarily represent the official position of the U.S. Environmental Protection Agency, and has not been reviewed by EPA. This memorandum is not intended as any final or definitive assessment risks from continued and past exposures to asbestos in Manhattan.

1. ASBESTOS CONTAMINATION IN BUILDINGS, MANHATTAN COMPARED TO LIBBY SUPERFUND SITE

In Libby, MT, interiors of homes and residential soils have been contaminated with asbestos from an adjacent vermiculite mining operation. Homes have vermiculite insulation in attics, and vermiculite was used for gardening. In addition, there are numerous waste piles of vermiculite in the area.<sup>3</sup> On December 20, 2001, the Governor of Montana designated Libby for fast-track listing as a Superfund site under the Comprehensive Environmental Response and Liability Act (CERCLA).<sup>4</sup>

In Lower Manhattan, interiors of residences and offices were contaminated with asbestos, fiberglass, fine particulate matter, and possibly significant concentrations of other toxic materials from the fallout from the implosion of the World Trade Center (WTC).



Tables at the end of this memo provide levels of asbestos in settled dusts and air in two apartments before cleanup from the Ground Zero Task Force Study,<sup>5</sup> and levels of asbestos in settled dusts in one apartment after cleanup from a study by the New York Environmental Law and Justice Project.<sup>6</sup>

*Use of "PCM-equivalent" asbestos data from Manhattan for comparison to Libby*

In order to compare asbestos levels found in Manhattan with that from Libby, the data in the tables is for asbestos fibers longer than 5  $\mu\text{m}$ , width greater than 0.25  $\mu\text{m}$ , and an aspect ratio greater than or equal to 3 to 1. This is called "PCM-equivalent asbestos." The data from Libby only includes asbestos levels that are PCM-equivalent. The Ground Zero Task Force Study<sup>7</sup> of WTC contamination provided not only total asbestos levels, but also PCM-equivalent asbestos levels.

The reason why only fibers longer than 5  $\mu\text{m}$  (PCM-equivalent) are given in the Libby risk assessment is because many believe that asbestos fibers shorter than this cannot cause cancer, because they can be eliminated from the body. Not all agree.

*Comparison of Libby and Lower Manhattan data*

As can be seen from the above tables, the asbestos contamination in Lower Manhattan, up to seven blocks away from Ground Zero, is comparable or higher than that found in Libby, Montana, a designated Superfund site.

Most of the available data for Manhattan is before even a rudimentary cleanup. One particular piece of data, the residue inside an air vent at 105 Duane St., three blocks outside the boundary where EPA said there was any contamination (7 blocks from Ground Zero), is particularly alarming. This air duct sample was taken on December 3, 2001, long after all cleanups that had been thought necessary were completed.

The highest level of dust inside a building in Manhattan was 79,000 structures (asbestos fibers) per square centimeter ( $\text{s}/\text{cm}^2$ ). This was at 45 Warren St., an apartment building 4 blocks away from Ground Zero where all of the windows faced north, away from the World Trade Towers, locked in on all other 3 sides by other buildings. To the casual observer, this apartment would not be described as being heavily contaminated. There is a color photograph included at the beginning of the study,<sup>8</sup> where a dining room table showing only a light dusting from WTC fallout, the dark grain of the wood clearly visible.

In comparison, the highest concentration of interior dust found inside a home at Libby was only 3658  $\text{s}/\text{cm}^2$ . This means the highest amount of asbestos lying on a surface in Manhattan was 22 times that ever found in Libby.

The logical question thus arises: Why is EPA leaving people to their own devices in the cleanup of New York City, while intervening to clean homes at taxpayers expense in Libby because of an "imminent and substantial endangerment to public health"?

## 2. INEFFECTIVE CLEANUP OF WTC ASBESTOS TO DATE

To date, the cleanup of the WTC fallout containing asbestos, fiberglass, fine particulate matter, and possible significant concentrations of other toxic materials is not proceeding efficiently or effectively.

*Asbestos does not leave buildings with ordinary cleaning methods*

The asbestos contamination is not going to leave buildings in Manhattan by itself with ordinary cleaning any more than it will in Libby. In the case of Libby, MT, the EPA stated:<sup>9</sup>

This indicates that there are multiple locations around Libby that are likely to contain asbestos fibers in indoor dust, and that this dust may serve as an on-going source of potential exposure for residents.

Note that the dusts inside Libby residences were found to have the highest calculated cancer risks for the Superfund-designated site.

Complex regulatory strategies and whole environmental statutes address the necessary protocols for asbestos abatement inside buildings, just because it will not go away by itself after a few weeks, months, or years with ordinary cleaning measures. The National Emission Standards for Hazardous Air Pollutants (NESHAPS) under the Clean Air Act and the regulatory requirements under the Asbestos Hazard Emergency Response Act (AHERA) both include rigorous methods to stringently clean every surface, like inside air ducts, and removal of carpets, drapes, and upholstered furniture which cannot be effectively cleaned, even AFTER the offending asbestos objects such as insulation, ceiling tiles, and asbestos floor tiles have been removed from the building. During these abatements, trained certified personnel must be wearing HEPA respirators and protective clothing. Etc.

*EPA's crude air testing cannot detect hazardous levels of asbestos*

EPA has demonstrated a willingness and promptness in responding to concerns of citizens by coming out to apartments and other buildings and conducting an air test for asbestos. This test is called the "AHERA TEM clearance test," which stands for Asbestos Hazard Emergency Response Act transmission electron microscopy. EPA is using this AHERA TEM clearance test and claiming that if it shows 70 or fewer asbestos structures per square millimeter, then the air is safe.<sup>10</sup>

In evaluating data from the World Trade Center and the surrounding areas, EPA is using a protective standard under AHERA, the Asbestos Hazard Emergency Response Act, to evaluate the risk from asbestos in the outdoor and indoor air. This is a very stringent standard . . . The number of structures—material that has asbestos fibers on or in it—is then counted. The measurements must be 70 or fewer structures per square millimeter . . . .

This statement by EPA is false and a gross misrepresentation of the AHERA regulations which do not in any way claim that a simple air test alone showing 70 or fewer structures per square millimeter can be used directly to determine if air is safe.

*AHERA TEM clearance test not sensitive enough to detect hazardous levels of asbestos*

The first, and fatal problem in using the AHERA TEM test is that it is quite insensitive. It cannot detect airborne asbestos at levels that are shown to cause excessive cancers.

First, it is necessary to explain a very confusing way in which the results of the AHERA TEM test are reported. There are three different ways to express the results, using one or all of the following units of measure:

- structures per *square millimeter* (s/mm<sup>2</sup>)
- structures per *milliliter* (s/mL)
- structure per *cubic centimeter* (s/cm<sup>3</sup>)

The "structures per square millimeter" unit is the value the laboratory gets first, before converting it to structures per milliliter. The lab needs to use the volume of air pulled across the filter to make this conversion. Since a "milliliter" is the exact same volume as a "cubic centimeter," the last two units are identical and used interchangeably. See my December 19 memo for a more detailed explanation.

EPA has been giving test results using the "structures per square millimeter" units. EPA will typically describe results as "below 70 structures per square millimeter" or however much was detected above 70. But what does 70 s/mm<sup>2</sup> mean? This is not a SAFE level. This is only the lowest level that the method can detect. This 70 structures per square millimeter (s/mm<sup>2</sup>) level is equivalent to 0.02 structures per milliliter (s/mL):

The 0.02 s/mL (which is equivalent to 70 s/mm<sup>2</sup>) level is not a safe level. It is only the lowest level that the method can detect because of the method background (there is asbestos in the cellulose filters used to collect the air). The EPA has determined that a concentration of asbestos in air that is 0.0004 s/mL will result in an increased risk of cancer of 1 in 10 thousand.<sup>11</sup> An elevated cancer risk of over 1 in ten thousand is the action level, or trigger, for EPA to declare an imminent and substantial endangerment to public health under CERCLA, as explained in Section 4 of this memo. Thus, the AHERA TEM clearance text can only tell if the air has 50 times the safe level (or 10 times the safe level if it is assumed that only 20 percent of the asbestos is in the hazardous size range called "PCM-equivalent.").

*Air testing under passive conditions will not detect "real world" asbestos levels*

EPA is conducting the AHERA TEM clearance test under passive conditions when the dusts are not being disturbed. As discussed in the Ground Zero Task Force study<sup>12</sup> and my December 19 memo,<sup>13</sup> any activities which stir up dusts will result in vastly higher airborne asbestos concentrations.

I suggest that when a Government Agency comes out to test air for asbestos, be prepared to have the air drawn from a "human activity simulator." Have a large box with the open end sitting on carpeting or on a couch that was contaminated. Have a plunger like a broom stick mounted to a flat board about 1 foot square. (Use a broom if you have to.) Put the plunger through a hole in the top of the box. You will be making something the equivalent to a butter churn. Have 3-inch holes on both sides of the box so that air can enter and exit. Then, the EPA or NYC health inspector can draw air through the hole in one side of the box while you are beating the carpet or the couch with the paddle. If EPA tells you that this violates the testing protocols, reply that even using the AHERA TEM test in lieu of certified professional abatement violates the protocols.

*EPA's air testing violates the AHERA protocols*

By even performing the AHERA TEM clearance test in lieu of professional asbestos abatement, EPA is violating the AHERA regulations. This is because the AHERA TEM clearance test is only allowed in conjunction with a whole range of asbestos abatement procedures that go on prior to even taking the test.<sup>14</sup> It was designed to catch only gross contamination problems caused by some worker on the asbestos abatement project, such as emptying one bag of asbestos contaminated material into another inside a room that had previously been carefully abated.

*EPA use of 1 percent asbestos level for cleanups will result in ineffective cleanups*

There is another reason why the cleanup will be ineffective. Both EPA<sup>15</sup> and the NYC Department of Environmental Protection (NYC DEP) are claiming that only dusts over 1 percent asbestos or more are hazardous. The NYC Department of Environmental Protection (NYC DEP) advised building owners<sup>16</sup> to test dusts inside buildings to see if they were over 1 percent. They said that if the dusts were over 1 percent, a professional asbestos abatement contractor should be used for an inspection and cleaning:

EPA is using the 1 percent definition in evaluating exterior dust samples in the Lower Manhattan area near the World Trade Center. All affected landlords have been instructed to test dust samples within their buildings utilizing this standard. Landlords were notified that they should not reopen any building until a competent professional had properly inspected their premise. If more than 1 percent asbestos was found and testing and cleaning was necessary, it had to be performed by certified personnel.

This has presented problems, because there was no way for a landlord to test at the 1 percent level if the dust was present in a fine layer, and because dusts containing less than 1 percent are known to be hazardous by EPA.

*EPA determination that dusts and soils containing less than 1 percent asbestos are hazardous*

The U.S. EPA has clearly stated that levels of asbestos lower than 1 percent could present hazards:<sup>17</sup>

Levels of 1 percent or less could present a risk where there is enough activity to stir up soil and cause asbestos fibers to become airborne.

In one independent study, it was found that soils containing only 0.001 percent asbestos were still capable of producing measurable airborne asbestos concentrations greater than 0.01 fibers per milliliter (equivalent to structures per milliliter).<sup>18</sup> This air concentration is over the action level for declaring a public health emergency, as discussed above for the sensitivity for the AHERA TEM clearance test.

*EPA Region 2, by its own actions, has demonstrated its belief that asbestos in dust at levels lower than 1 percent are hazardous*

There is another very important reason to believe that dust containing less than 1 percent asbestos is unsafe: EPA Region 2 believes it is, and was willing to use taxpayer dollars to remove it from their own building in NYC. This is what happened:

First, the EPA found no asbestos in any of WTC fallout samples outdoors that was over 1 percent north of Warren St.<sup>19</sup> As a result, EPA told the press and everyone that the only contaminated areas were below Warren St. and West of Broadway, the "zone of contamination." Next, EPA referred everyone to the NYC Department of Health (NYC DOH) cleanup recommendations<sup>20</sup> inside this same "zone of contamination" south of Warren. These are the controversial recommendations which do not even recommend HEPA respirators, which just say "avoid breathing the dust" while you mop up the asbestos.

This is what happened next: EPA's offices are at 290 Broadway, which is 2 blocks north of Warren St., outside the "zone of contamination." Even though EPA said there was no asbestos over 1 percent up this far north at its offices, and that it was safe, EPA had its own offices cleaned by certified asbestos abatement contractors. At taxpayer expense.

Aside from considerations of criminal negligence and intentional failure to warn citizens in both the "zone of contamination" and outside this zone that they also should be using certified professional asbestos abatement contractors—aside from these considerations, EPA Region 2 at a minimum has demonstrated its recognition that dusts containing less than 1 percent asbestos are hazardous.

*There are no AHERA or other test methods for percent levels of asbestos in thin layers of settled dusts*

Unless the windows were blown out by the blast, WTC fallout inside buildings in Manhattan was usually in thin layers, too thin to scoop up into a jar or bag. Only dusts that can be put into a bag or jar can be tested for the percentage of asbestos by the PLM percent asbestos method.

If there is only a thin, visible surface dusting, or even an invisible layer of dust, you are required to use what are called “wipe” samples or “microvacuum” samples. Wipe samples can only be tested for the number of asbestos fibers per area, not a percentage of asbestos in the total dust. These are not AHERA methods or even EPA-validated methods, but they are used for Superfund investigations. Thus, it was impossible for a landlord to test premises in most cases for whether or not the asbestos was present at 1 percent or higher, because there was not enough dust to use the PLM method.

It is inexcusable to try to brush together enough surface dust to make up a “bulk” sample that can be placed in a jar for PLM percent asbestos testing. This violates the method, and results in a highly diluted sample due to the mixture with other dusts that are present, as well as subjecting the very fine asbestos to escape to the air during the brushing process.

Under the AHERA standard, which EPA claims it is using, the 1 percent level only applies to the material from which the asbestos dust originated. All of the sample collection methods for PLM asbestos analysis in the AHERA regulations at 40 CFR Part 763 address collection of asbestos containing materials themselves. There are very strict separate procedures for collecting samples of each particular type of asbestos containing material, such as floor or ceiling tiles, or insulation. There are no methods or protocols for taking dust samples from surfaces. Thus, trying to run a PLM percent asbestos test on dust violates the AHERA regulations.

*The PLM method for percent asbestos is too insensitive to find asbestos at levels of concern*

EPA used PLM percent asbestos analyses of thick WTC fallout on streets outdoors. Many, if not most, of these samples showed no detectable asbestos<sup>21</sup> See the tables at the end of this memo for a summary of the findings. The PLM method is unreliable at concentrations of 1 percent and less. In other investigations, EPA found that soil samples below the level of detection of PLM did in fact have high levels of asbestos when analyzed with SEM (scanning electron microscopy) methods.<sup>22</sup> Thus, many of the outdoor dust samples in Manhattan probably were actually contaminated with asbestos.

Likewise, if landlords did manage to test their fine indoor dust layers and found no asbestos by the PLM method, it could well have been there in hazardous amounts.

*Current EPA recommendations for Manhattan Cleanup Will Leave Most Asbestos*

To this date, EPA still recommends the unsafe and ineffective cleanup recommendations of the NYC Department of Health (NYC DOH). The EPA web page from early October until this present day specifically states that schools, businesses, and residences should be cleaned using the NYC DOH methods.<sup>23</sup> Not only are these methods ineffective, they are also unsafe to those who follow them, as detailed in my December 3 and 19, 2001 memoranda.<sup>24</sup>

*Dry-type HEPA vacuums do not remove asbestos from carpets*

The NYC DOH recommends dry-type HEPA vacuum cleaners, even though the EPA has found that dry-type HEPA vacuum cleaners simply do not remove the asbestos from the carpeting any better than a regular vacuum cleaner, removing essentially none at all.<sup>25</sup> Professional abatement firms recognize that dry HEPA vacuums are ineffective in removing asbestos. There is documentation of at least one certified asbestos abatement firm who removed and disposed of all carpeting which was over padding in common areas in an apartment building near Ground Zero, in recognition of the fact that there was no way to remove the asbestos.<sup>26</sup>

The same EPA studies also document the fact that even the wet-extraction HEPA vacuum cleaners are inefficient in removing asbestos from carpeting—only 60–70 percent.

*Upholstered furniture, drapes, vents and ducts not addressed by NYC recommendations*

The NYC DOH recommendations also do not address the problem of upholstered furniture, which is almost impossible to effectively clean. Draperies are another problem, often too large for washing in machines, and some must be dry cleaned.

Therefore, cross-contamination will occur if these drapes are sent to commercial facilities for cleaning.

The NYC DOH also does not address the problem of contaminated duct work, or air conditioners or other contaminated equipment, like the insides of computers which use cooling fans.

*Any EPA recommendation of professional asbestos abatement not enforceable*

EPA officials have claimed they recommended professional asbestos abatement for buildings "unless they only had a light dusting."<sup>27</sup> Even if EPA has issued such guidance, it will not result in effective asbestos removal, because EPA has no legal authority to enforce the use of certified asbestos abatement contractors. The EPA has stated that it is using the AHERA statute as the authority or standard for cleanup after the WTC disaster. This statute only requires schools to use certified asbestos abatement professionals. For the owners of buildings, the only requirement is that if the owner does choose to have an asbestos inspection, then a certified professional must be used. It does not require that any advice or action resulting from that inspection be followed. The owners of many buildings have not been hiring certified asbestos abatement professionals, even when they were heavily contaminated.<sup>28</sup>

For tenants, the AHERA has no effect whatsoever. Many, if not most, tenants have been cleaning their own apartments.<sup>29</sup>

*High cost of professional abatement prohibitive to most, preventing effective cleanup*

Because professional asbestos abatement is expensive, tenants have chosen to perform their own cleanups or hire unqualified persons. For a 2-bedroom apartment, the cost of professional abatement is \$5,000; for a 2-bedroom apartment, the cost is around \$10,000. That would not include the costs of replacement of any carpeting, upholstered furniture, or draperies that cannot be effectively cleaned.

Recently, Bonnie Bellow of the EPA Region 2 press office claimed that tenants do not have to pay for their cleanups; that all they have to do is apply to the Federal Emergency Management Administration (FEMA) for reimbursement. This is false, and not borne out by the many accounts of citizens trying to apply for such costs. Some insurance companies have paid for cleaning, but others have not. Sometimes volunteers cleaned out buildings, and sometimes the Red Cross handed out vouchers for cleaning, but not by professional asbestos abaters. There are no statistics on what has actually happened.

*Disorganized cleanup resulting in re-contamination of previously cleaned areas*

The disorganization of the cleanup is resulting in cross-contamination of previously cleaned areas. Some individual apartments may well be cleaned using professional abatement. But if another apartment is not cleaned, the air ducts for the whole building can become contaminated again. Dusts can be tracked from one area inside the building which is not effectively cleaned to another area which is cleaned.

### 3. ADVANTAGES FOR A CLEANUP UNDER SUPERFUND

At this time, I believe that the best solution to the problem in Lower Manhattan is to invoke one or more parts of the Comprehensive Environmental Response and Liability Act (CERCLA), or Superfund. It would bring order to the situation and begin to alleviate the current exposures to asbestos, fiberglass, fine particulates, and other toxic substances like mercury and lead. It would enable the use of better methods to test and monitor the contamination, particularly for asbestos. It would take the financial burden away from citizens and transfer them to the Government.

It would add credibility to the final solution after the action was completed. Under CERCLA, there would be a point in time where the Government could announce that the action was finished, and that Manhattan was restored. Otherwise, there will be no opportunity for the government to declare closure.

*Two types of action under Superfund are possible*

In Montana, the Governor exercised the "silver bullet" option under CERCLA by requesting that EPA put Libby on the fast track for listing on the National Priorities List, which means making it a Superfund site. As a result, Libby does not have to wait years for EPA to assess its hazards and make comparative cost-benefit judgments. Federal money would go immediately to the cleanup, although the State would be required to contribute 10 percent of the costs. The costs should not be a problem to New York, as the Federal Government is already contributing as much as it will take to put Manhattan back together.

Another option would be to declare a public health emergency under the CERCLA authority. Even though Libby is now scheduled for fast track Superfund listing,

EPA is now apparently intending to invoke this other authority to address the situation at Libby. EPA has never before invoked this authority under CERCLA. If EPA does invoke it for Libby, it should be no problem to use it for Lower Manhattan.

*Stigmatization of a Superfund balanced by public confidence and a point of closure*

There would be considerable stigmatization in a Superfund listing for Lower Manhattan, potentially increasing the rate of economic decline. However, the widespread knowledge of health concerns even without a Superfund listing may have already had that effect. Declaration of a public health emergency or a Superfund listing, followed by an efficient and organized cleanup, with all watchdog scientists agreeing on protocols, may actually help the public's perception and restore confidence. Right now there is nothing but chaos.

*Cleanup using AHERA is not working*

As seen from the preceding section, the cleanup is not proceeding effectively. This is because EPA is trying to use the AHERA statute as the authority. The AHERA statute is voluntary for all but schools. The AHERA statute places the financial burden on the public.

The AHERA statute also specifies certain antiquated test methods for asbestos, which offer some protection, but only if used in conjunction with all of the other rigorous asbestos abatement procedures which can only be performed by certified contractors. EPA is trying to adapt these insensitive test methods, the AHERA TEM clearance test for air, and the PLM test for asbestos, to situations which they were not intended by the regulations.

*Cleanup under CERCLA authority would allow the use of better testing methods*

Under the CERCLA statute, there is no prohibition against using the best testing methods available. See the tables at the end of this memo. The test methods which were used are described along with the data. For the Libby Superfund site, Dr. Eric Chatfield designed the testing protocols and chose the methods he believed were the best. These methods were not limited to methods that the EPA had developed and validated, but included methods developed by the American Society for Testing and Materials (ASTM) and the International Standards Organization (ISO).

Dr. Chatfield was also the lead investigator in the Ground Zero Task Force study of Lower Manhattan, where state-of-the-art methods were again used. The HP Environmental study, also included in the tables, utilized the best methods which could be devised for characterizing Lower Manhattan.

Whether addressed through a CERCLA action or any other means, Lower Manhattan has not undergone adequate testing. Within EPA itself, we do not have the expertise to design or carry out state-of-the-art testing protocols for asbestos. For other hazardous substances, we do have expertise, but not for asbestos. The experts I know of at this present time include the researchers responsible for the Ground Zero Task Force study (Eric Chatfield and John Kominsky), the researchers for the HP Environmental study (Hugh Granger, Thomas McKee, James Millette, Piotr Chmielinski, and George Pineda), and Michael Beard of Research Triangle Institute.

#### 4. SUMMARY, ASBESTOS RISK ASSESSMENT FOR WTC DUSTS

My December 19, 2001 memo<sup>30</sup> provided a detailed rationale for projecting cancer and asbestosis risks from WTC fallout by calculating exposures from the very limited data which is currently available. In that assessment, various exposure scenarios were hypothesized, and risks of lung cancer for smokers and non-smokers, mesothelioma (a cancer of the chest cavity), and asbestos risks were hypothesized. As stated at the beginning of this memorandum, I believe that initiating such an effort fills a critical need that was thwarted in the appropriate EPA offices by the constant reassurance of high level EPA officials that no such assessment was necessary.

*PCM-equivalent Correction Factor and Other Changes to Risks in December 19 Memo*

My December 19 risk assessment used the concentration of all asbestos fibers, not just "PCM-equivalent" fibers (those longer than 5  $\mu\text{m}$ , width greater than 0.25  $\mu\text{m}$ , and an aspect ratio greater than or equal to 3 to 1) in making calculations of risk. An explanation was provided as to why this correction was not made, along with providing a range of 80 to 90 percent non-PCM-equivalent fibers for WTC asbestos if such a correction were to be used. This was based on two studies: From the Ground Zero Task Force study,<sup>31</sup> the PCM-equivalent fibers ranged from 1.3 to 20 percent of total asbestos fibers/bundles for 8 different samples of settled dusts, with a mean of 8.7 percent. For the HP Environmental study,<sup>32</sup> for 3 air samples, PCM-

equivalent fibers ranged from 3.1 percent to 6.5 percent, with a mean of 5.6 percent. Because of the uncertainty from such limited data, if any conversion were to be made at this time for WTC fallout, then 20 percent of the total asbestos should be assumed to be PCM-equivalent.

No correction should be made for PCM-equivalents to asbestosis risks that were projected in the December 19 memo. This is because the ATSDR reviewed studies showing that asbestosis is associated with shorter asbestosis fibers.<sup>33</sup> In addition, it would probably be appropriate to use an uncertainty factor of 1,000 for asbestos risks, according to CERCLA guidelines,<sup>34</sup> so that the risks I had previously projected in the December 19 memo for asbestosis would be 1,000 times higher.

No correction should be made for the type of asbestos, *chrysotile* vs. *amphibole* vs. *amosite*, etc. This is because EPA does not recognize any difference in toxicity for the purpose of making risk assessments.<sup>35</sup>

*Cancer risk level constituting an imminent and substantial endangerment to Public health pursuant to Superfund*

The EPA generally considers an upper-bound lifetime cancer risk to an individual of between  $10^{-4}$  and  $10^{-6}$  as a safe range. A risk of 1074 represents a probability that there may be one extra cancer case in a population of 10,000 (1 per 10,000). A  $10^{-6}$  risk is the probability that there may be one extra cancer case in a population of one million people over a lifetime of exposure (1 per 1,000,000). The National Contingency Plan (NCP) (Superfund) requires that the  $10^{-6}$  risk level should be the point of departure; the goal in any response by the EPA to ameliorate exposures to carcinogens from man-made sources. A response action is generally warranted if the cumulative excess carcinogenic risk for any single individual affected by a site exposing humans to carcinogens exceeds 1 in 10,000 (the  $10^{-4}$  risk level) using reasonable maximum exposure assumptions for either the current or reasonably anticipated future exposures.<sup>36</sup>

*Cancer risks for Libby compared to Lower Manhattan*

The December 20, 2001 risk assessment<sup>37</sup> prepared by Dr. Weis of EPA's Carcinogen Assessment Group (CAG) found that for maximum concentrations of asbestos exposures to Libby residents through breathing suspended dusts inside residences, the cancer risk was between 1 in 1,000 to 1 in 100. This cancer risk exceeded the threshold of 1 in 10,000 necessary to be considered an endangerment to public health.

My December 19, 2001 preliminary risk assessment, based on much more limited data, projected maximum risks as high as 1 in 1000, to cancer risks of 1 in 10 for a persons either living apartments and/or working in buildings that retained much of the asbestos in carpeting, ducts, furniture, and draperies. If a correction factor for PCM-equivalents of 20 percent is applied to these projections, the risks range from 2 in 10,000, to risks of 2 in 100. For a laborer spending only 3 months cleaning out buildings in Lower Manhattan without proper protection, cancer risks of 1 in 5 were projected, which would be 4 in 100 if a correction for PCM-equivalents was applied. Other possible exposure scenarios were evaluated as part of my December 19 memorandum.

Risks could be much higher if there were also exposures to fiberglass, fine particulate matter, and other toxic substances at the same time. There are wide ranges of uncertainty in these calculated risks, because only limited data was available. However, I believe that these calculations establish the need for a more rigorous evaluation of risks.

Tables.—Lower Manhattan Asbestos Data

Settled Asbestos Dusts, Building Interiors Manhattan.—Fibers and Bundles (Structures) Longer than 5 Micrometers	PCM-equipment structures per square centimeter (s/cm <sup>2</sup> )
<b>Ground Zero Task Force Study</b> , <sup>38</sup> data from Table 21. High Exposure Building, Before Cleanup, 250 South End Ave. Fibers and bundles longer than 5 micrometers. Heavy visible dust layer, could still read addresses on envelopes on table and see the lines on a yellow legal pad on the table. Windows had been blown out from some apartments. [Note Table 21 says fibers/cm <sup>2</sup> , but title of table is "fibers plus bundles", which equals structures.] TEM analysis using American Society for Testing and Materials ASTM D6480-99.	
250SEA-10D-D1 (A) (sample collected with toothbrush sample) top of cupboard with glass doors .....	21,000
250SEA-10D-D1 (B) (wipe sample) top of cupboard with glass doors .....	19,000
250SEA-10D-D2 (A) (sample collected with toothbrush) living room high boy side table .....	18,000
250SEA-10D-D2 (B) (sample collected with toothbrush) living room high boy side table .....	28,000

Tables.—Lower Manhattan Asbestos Data—Continued

Settled Asbestos Dusts, Building Interiors Manhattan.—Fibers and Bundles (Structures) Longer than 5 Micrometers	PCM-equipment structures per square centimeter (s/cm <sup>2</sup> )
<b>Ground Zero Task Force Study</b> , <sup>39</sup> data from Table 19. Low Exposure Building, Before Cleanup, 45 Warren St., dust layer visible on dark table, grain of wood still visible. 5 blocks from Ground Zero, building faced north away from Ground Zero. Only light dusting. See photo in study itself. Fibers and bundles longer than 5 micrometers. [Note Table 19 says fibers/cm <sup>2</sup> , but title of table is “fibers plus bundles”, which equals structures] TEM analysis using American Society for Testing and Materials ASTM D6480–99.	
45WAR–2–D1, 2nd floor, living room table near window, wipe sample .....	2,300
45WAR–2–D2, 2nd floor, living room window sill, wipe sample .....	60,000
45–WAR–5–D1, 5th floor, living room, window sill, wipe sample .....	79,000
45–WAR–5–D2, 5th floor, roof level office, green wooden chair, wipe sample .....	22,000
<b>NY Environmental Law and Justice Project</b> , 105 Duane St., after cleanup. <sup>40</sup> Microvacuum method followed by American Society for Testing and Materials ASTM D–5755:	
Sample inside central air conditioning duct. Total asbestos concentration reported as 555,000 s/cm <sup>2</sup> . Estimated that 20 percent of the structures are over 5 micrometers, or 111,000 s/cm <sup>2</sup> .....	111,000

Note: The total asbestos levels found in Manhattan by the Ground Zero Task Force study are much higher. The reason why only the “PCM-equivalent” asbestos levels are given in the tables below is to make comparison with the Libby data possible. See the explanation at the beginning of this memo.

Thick WTC Fallout Dust Deposits Outdoors Manhattan.—Includes all asbestos, not just fibers longer than 5 micrometers	Weight percent (%) (all asbestos included, not just PCM-equivalent asbestos)
<b>Ground Zero Task Force Study</b> , <sup>41</sup> data from Table 22. Analyses by gravimetric matrix reduction (American Society for Testing and Materials ASTM STP 1342) followed by PLM analyses of larger fractions and TEM measurement of fine portion of samples.	
Roof of automobile, Church St. south of Duane St. ....	0.67
45 Warren St., roof, outside 5th floor loft, gaps in stone floor .....	1.05
250 South End Ave., Apartment 11D, exterior window ledge .....	2.25
250 South End Ave., ground level courtyard, top of wall .....	2.05
<b>HP Environmental Study</b> , Table 5. <sup>42</sup> PLM analyses:	
No. 1—Barkley St. west of Church .....	<0.25
No. 2—Barkley St. between Broadway and Church .....	ND
No. 3—Barkely and Greenwich .....	ND
No. 4—Barkey between Greenwich and Joe Dimaggio Hwy .....	ND
No. 5—Barkey at Joe Dimaggio Hwy .....	0.5
No. 6—Warren and Church .....	<0.25
No. 7—Murray near Broadway .....	0.75
No. 8—Murray and Greenwich .....	ND
No. 9—Chambers between Broadway and Greenwich .....	ND
No. 10—Murray between Greenwich and Joe Dimaggio .....	0.75
No. 11—Warren between Greenwich and Joe Dimaggio .....	0.75
<b>EPA data</b> on bulk dusts taken outside buildings in Manhattan <sup>43</sup> All the analyses performed EPA for Manhattan used the less sensitive PLM method. EPA did not fraction the sample and use electron microscopy techniques in addition to PLM as did the Ground Zero Task Force study above. EPA in its risk assessment for Libby, however, noted that soil samples showing non-detectable asbestos by PLM alone actually had high levels when analyzed by scanning electron microscope (SEM) methods. <sup>44</sup>	
48 of 177 dust samples .....	1–4.46
129 dust samples .....	ND



Airborne Asbestos, Building Interiors Manhattan.—PCM-equivalent fibers and bundles longer than 5 Micrometers	PCM-equivalent fibers per milliliter (f/mL)
<b>Ground Zero Task Force Study:</b> <sup>45</sup> data from Table 16. High Exposure Building, 250 South End Ave, before cleanup, passive conditions (no activities to disturb dusts). Fibers and bundles longer than 5 micrometers. TEM analysis using the International Standards Organization ISO10312 direct transfer method	
250SEA-10D-A1, Apartment 10D, den .....	0.063
250SEA-10D-A2, Apartment 10D, den .....	0.060
250SEA-10D-A3, Apartment 10D, living room .....	0.048
250SEA-10D-A4, Apartment 10D, living room .....	0.075
250SEA-10D-A5, Apartment 10D, bedroom .....	0.081
<b>Ground Zero Task Force Study:</b> Table 8. <sup>46</sup> PCM-equivalent fibers and bundles longer than 5 micrometers. Passive Conditions (no activities to disturb dusts) low exposure Building, 45 Warren St. before cleanup. TEM analysis using the ISO10312 direct transfer method.	
45 WAR-2-A1, 2nd floor living room .....	“not statistically significant” [detected but uncertain]
45 WAR-2-A2, 2nd floor living room .....	ND
45 WAR-2-A3, 2nd floor master bedroom .....	0.010
<b>HP Environmental Study:</b> Table 6. <sup>47</sup> Two building interiors near Ground Zero. Passive conditions, before cleanup. Analyses by the modified EPA Level II TEM method where samples were heavily loaded (all 3 samples below where asbestos detected), which uses indirect preparation to separate out interferences from other non-asbestos parts of WTC dusts. Study demonstrated that up to 10 times more asbestos was detectable by this method.	
Sample 2 .....	0.007
Sample 7 .....	0.167
Sample 9 .....	0.346
8 out of 11 samples, interior of 2 buildings near collapsed WTC towers .....	ND
<b>EPA data:</b> Passive conditions, after incomplete cleanup. EPA has been using the simple AHERA TEM clearance test method inside buildings at the request of tenants and others. This is a violation of the AHERA protocols, which only allow this test to be performed after professional and complete asbestos abatement, which must thoroughly clean all surfaces. The AHERA TEM clearance method is only meant as an inexpensive, but not an assurance by itself, that asbestos has been adequately abated. The use of a leaf blower or other strong fan in conjunction with taking the air sample would be needed for that in addition to wipe samples of surfaces. EPA Region 8 found that at Libby, even when there were activities going on to disturb dusts, air monitors worn by people sitting on couches, etc. always gave higher readings than a stationary air monitor in the same room (such as is the case in the AHERA TEM test). .....	usually not detected

Tables.—Libby Asbestos Data

Settled Asbestos Dusts, Building Interiors Libby.—Fibers and Bundles (Structures) Longer than 5 micrometers (µm)	PCM-equivalent structures per square centimeter (s/cm <sup>2</sup> )
<b>EPA Region 8 data</b> <sup>48</sup> Microvacuum sampling by American Society for Testing and Materials ASTM D-5755 with analyses by TEM and counting rules specified in International Standards Organization ISO 10312.	
33 out of 261 samples (13 percent) that had detectable asbestos .....	20–3658
228 out of 261 samples (87 percent) had non-detectable asbestos .....	ND

Residential and Garden Soils Libby.—Includes all asbestos, not just fibers longer than 5 micrometers	Weight percent (%) (all asbestos included, not just PCM-equivalent asbestos)
<b>EPA Region 8 data:</b> <sup>49</sup> Analysis by PLM. EPA found that for those Libby samples with non-detectable analysis by PLM, many were found to actually have high levels when scanning electron microscope (SEM) methods were used.	
Yard soil, 13 of 258 ( 5 percent) samples had detectable asbestos .....	1–5 percent
Yard soil, 106 of 258 (41 percent) samples had a trace asbestos .....	trace
Yard soil, 139 of 258 (54 percent) had non-detectable asbestos .....	ND
Garden soil, 43 of 109 (39 percent) had detectable asbestos .....	1–5
Garden soil, 59 of 109 (54 percent) had a trace asbestos .....	trace
Garden soil, 43 of 109 (39 percent) had non-detectable asbestos .....	ND
Driveway, 21 of 263 (8 percent) had detectable asbestos .....	1
Driveway, 141 of 263 (54 percent) had a trace asbestos .....	trace
Driveway, 101 of 263 (38 percent) had non-detectable asbestos .....	ND

Airborne Asbestos, Building Interiors Libby.—PCM-equipment fibers and bundles longer than 5 Micrometers	PCM-equipment MEAN fibers per milliliter f/mL	PCM-equipment RANGE fibers per milliliter f/mL
<b>EPA Region 8 data:</b> <sup>50</sup> Routine and Active Occupancy. Analyses by TEM.		
Routine activities, personal air monitor, 2 of 5 (40 percent) samples had detectable asbestos .....	0.35	0.023–0.048
Routine activities, personal air monitor, 3 of 5 (60 percent) samples had non-detectable asbestos .....	.....	.....
Routine activities, remote stationary air monitor, 4 of 10 (40 percent) samples had detectable asbestos .....	0.009	0.0003–0.036
Routine activities, remote stationary air monitor, 6 of 10 (60 percent) samples had non-detectable asbestos .....	ND	ND
Active cleaning activities, personal air monitor, 6 of 26 (23 percent) samples had detectable asbestos .....	0.010	0.004–0.013
Active cleaning activities, personal air monitor, 20 of 26 (77 percent) samples had non-detectable asbestos .....	ND	ND
Active cleaning activities, remote stationary air monitor, 3 of 17 (18 percent) samples had detectable asbestos .....	0.008	0.007–0.010
Active cleaning activities, remote stationary air monitor, 14 of 17 (82 percent) samples had non-detectable asbestos .....	ND	ND

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“Asbestos in Bulk Dust If a substance contains 1 percent or more asbestos, it is considered to be an “asbestos-containing material.” EPA is using the 1 percent definition in evaluating dust samples from in and around Ground Zero and other areas potentially impacted by the World Trade Center collapse. The majority of areas in which EPA has found levels of asbestos in dust above 1 percent are in the vicinity of the World Trade Center work zone. Daily summaries of this data and how it compares to the level of concern for public health are also available.”

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“If dust or debris from the World Trade Center site has entered homes, schools or businesses, it should be cleaned thoroughly and properly following the recommendations of the New York City Department of Health.”

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“If dust or debris from the World Trade Center site has entered homes, schools or businesses, it should be cleaned thoroughly and properly following the recommendations of the New York City Department of Health.”

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STATEMENT OF KERRY KELLY, M.D., CHIEF MEDICAL OFFICER, NEW YORK CITY  
FIRE DEPARTMENT

Good morning and thank you for inviting me to appear before this subcommittee. I am the chief medical officer of the New York City Fire Department. I responded to the World Trade Center at 9:30 a.m. on September 11th, and participated in the rescue and recovery efforts that thousands of our members undertook on that day and in the days that followed.

The FDNY response to the WTC event placed our members at the epicenter within moments of the first plane hitting the North Tower. Members from emergency squads, rescue companies, engines, ladders and medical teams from across the city responded to the call. Firefighters about to end their daily tour of duty stayed on; off-duty firefighters commandeered vehicles; retirees and members on sick leave found their way to the scene. Within a matter of minutes, these rescuers became victims, soldiers in the worst terrorist attack on our Nation's soil.

Three hundred and forty-three members lost their lives that day. Over 200 members were seen in emergency rooms for physical trauma. Many members required hospitalization and surgical intervention for significant orthopedic injuries. The rescue and recovery effort involved hundreds of members, following a job-wide recall during the first few days of the operation.

In the initial moments and hours after the collapses, firefighters and emergency workers continued to work without pause in the desperate search for survivors. The air was full of thick debris and dense dust clouds, and visibility was so bad that one could not see people more than three feet away. With the collapse of the towers, an avalanche of acrid debris, metallic meteors and a shower of gray dust descended on the survivors, blanketing the new wave of rescuers as they rushed in to assist. It seemed as though day had turned to night, but still our members continued searching for survivors in a surreal black blizzard of debris. Fine dust coated every crevice, making features indiscernible. Debris and dust choked breath and irritated eyes.

Due to the vast numbers of FDNY personnel at the scene, respirators were not available for all members working at the site. Many also found it more difficult to operate while wearing respirators, and many chose to carry on their search for survivors unprotected.

Members ignored or fought against symptoms, and many did not sleep for days, pushing themselves to continue the search for survivors. In the immediate aftermath of the collapse, as the rescue work began, many members complained of eye irritation, as well as cough and congestion. As the air quality improved, eye irritation symptoms improved, but cough complaints continued. Pulmocort inhalers, an inhaled steroid, were offered to offset the allergic cough symptoms.

Concerns for the physical and mental health of members were raised by FDNY medical staff in those first few hours and days. Due to the cough symptoms that members exhibited, questions were also raised about the exposure levels that were present at the scene. It was, and still is, unclear what exposures members might have experienced following the fall of two 110-story towers combined with the combustion of two planes and jet fuel.

Within a week of the tragedy, the Fire Department's Bureau of Health Services (BHS) began preparing for an unparalleled medical monitoring procedure for all members exposed at the site. BHS partnered with National Institute for Occupational Safety and Health (NIOSH) and the U.S. Centers for Disease Control and Prevention (CDC) on this project. We are very grateful for the funding we received from CDC to conduct this initial analysis of our members. From October 6-12, an initial sampling of 400 exposed members were given a comprehensive medical evaluation. BHS, NIOSH and CDC were satisfied with the logistics and implementation of the medical evaluation, and BHS immediately began the vast project of testing the remaining members.

We worked 7 days a week, with three shifts a day, and were able to evaluate approximately 180 members per day. From October 31 until January 31, the medical monitoring of all personnel who responded to the WTC was undertaken. Almost 10,000 firefighters and 800 EMS personnel have now been evaluated. I am proud to say that our initial medical evaluation of all the members who responded to the World Trade Center is now complete.

Medical monitoring consisted of ECGs, pulmonary function tests, chest x-rays, hearing evaluations, and blood testing consisting of cbcs, chemistries, liver functions, lipid profile, lead, beryllium, pcbs and urine mercury and urinalysis testing. In addition, testing of dioxins and hydrocarbons was done at the CDC lab on the initial group of 400. Blood from all remaining members was banked, to be tested at a later time if the need arises. Although some of these tests are part of routine

medical examinations, other more specialized testing was also conducted due to environmental concerns.

At the time of the medical monitoring members also completed a computerized survey regarding their physical complaints to assist the Department in tracking the symptoms that members are experiencing. BHS has compiled a very complete record of each of our members from prior annual exams to use as a baseline for comparison.

Since the testing was completed less than 2 weeks ago, the complete results from this computer survey are still being tallied. Preliminary blood tests have not indicated any significantly elevated levels of toxic metals or abnormal chemistries or blood counts. At the time of completing the computer survey, 25 percent of our members reported cough and shortness of breath on exertion. The pulmonary function tests taken during the medical evaluation have shown a decline that matches this complaint. In most cases, this change has not affected overall functional capacity. Some members remain "off the line" with active symptoms, while others have returned to work. Our current medical leave rate is a reflection of both the rise in respiratory symptoms and post-traumatic stress. There has been a two-fold increase in both respiratory problems and stress related problems in the last 5 months.

It remains to be seen how members will recover from this event.

However, in order to measure recovery, we must continue to monitor all of the members who responded to the WTC event. We are grateful to have received funding from CDC for one additional medical examination per member in the future. We remain concerned about potential health problems in the future. We are also concerned about longitudinal follow up with our members. Those who become ill, or experience a trauma of this level in their working life, may choose to retire from this job when they can no longer withstand the rigors of this work. We want to ensure that our members continue to receive monitoring in the future, whether or not they retire from the Department. For this reason, the Fire Department's Bureau of Health Services is now actively seeking funding for this project.

We must affirm our commitment to the members of our Department who gave so much to this city and this country, and who have inspired people around the world with their courage and determination. We owe it to them continue to monitor the effects that their exposure on September 11th will have on their future. BHS has the pre- and post-WTC records, the expertise and the logistical set-up to conduct an unprecedented and thorough investigation of the effects of the exposure our members experienced on that terrible day. Let's not forget that more of our members experienced a far greater level of exposure than any other group in this city.

As far as I know, there are no hard-and-fast answers to the potential effects of exposures. Many unknowns remain. That is why it is critical that we continue our monitoring.

The events of September 11th were catastrophic. In a matter of moments, our members became participants in a battlefield. The FDNY response was outstanding when we review the numbers of civilians saved and we measure the heroic efforts of so many individuals. Our losses are deep felt with the deaths of members from every rank and every branch of our service. Our memories are filled with the experiences of that day and the many days that followed. Both physically and emotionally, we have been challenged by this event. As we rebuild our Department, we must also restate our commitment to our members who worked so hard to save others. I am sure we can all agree it is no less than they deserve.

Thank you for your time.

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STATEMENT OF GEORGE D. THURSTON, SC.D., ASSOCIATE PROFESSOR OF ENVIRONMENTAL MEDICINE, NEW YORK UNIVERSITY SCHOOL OF MEDICINE

Thank you for holding this hearing, and for giving me this opportunity to contribute to the process of examining the environmental consequences of the attacks of September 11th.

I am George D. Thurston, a tenured associate professor of Environmental Medicine at the New York University (NYU) School of Medicine. My scientific research involves investigations of the human health effects of air pollution.

I am also the director of the National Institute of Environmental Health Sciences' (NIEHS) Community Outreach and Education Program at the NYU Department of Environmental Medicine. A goal of this outreach program is to provide an impartial scientific resource on environmental health issues to the public and to decision-makers, and this is my purpose in testifying to you here today.

In the aftermath of the attack of September 11th and the subsequent anthrax bioterrorism, we have come to realize that terrorism is more than a security threat:

it can also represent an environmental health threat. On September 12, my research center received an urgent request from the Office of the Director of the NIEHS, one of the National Institutes of Health, to respond to environmental impacts of the attack of September 11th by doing whatever we could to monitor the air pollution that was resulting from the disaster's dust and fires, and to assess its environmental health consequences. That very evening, we sent a research team into the World Trade Center Disaster Zone to collect numerous samples of the dust from locations surrounding Ground Zero. Figure 1 shows a map of the locations where we collected settled WTC dust samples on the evening of the 12th and on the 13th of September.

Our NYU Medical School research team also set up an ambient air monitoring station at the NYU Downtown Hospital at Beekman Street, just 5 blocks to the east-northeast of Ground Zero. We sampled for various types of particle air pollution: ultrafines, soot, fine particles, and inhalable particles from Friday, September 14 until the end of 2001, when the fires had been extinguished. Although our work is far from complete, we have weighed these samples to determine the ambient particulate mass concentrations, as well as analyzed the ambient air pollution samples and the WTC dust for their constituents. Our sampling data, therefore, applies to the general public living and working in the vicinity of the disaster, rather than to exposures at Ground Zero. So my testimony today focuses only on those community exposures and possible health effects among the general population in the downtown Manhattan area of New York City.

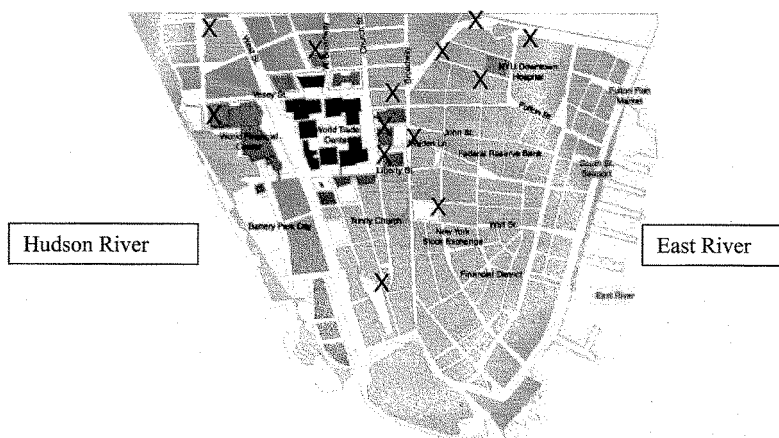


Figure 1. Sites of NYU Sampling of World Trade Center Dust on 9/12 and 9/13/2001.

It is of interest to note that the NYU Downtown Hospital was founded many years ago after an earlier terrorist bomber attack on Wall Street on September 16, 1920 that killed dozens of New Yorkers, and it was felt that downtown New York City needed a local hospital ready to respond to such emergencies. Some 81 years later, when this city needed it, the NYU Downtown Hospital was ready, and met that need. Moreover, despite having to run on diesel power and being in an emergency status, the hospital aided our environmental assessment efforts by providing us with space and power on its second floor, where we could run our sampling lines out to sample pollution in the ambient air.

Our analyses of the WTC dust samples revealed that some 99 percent of the dust was as particles too large to be breathed deeply into the lung, being largely caught in the nose, mouth and throat when inhaled. This large dust, however, contained approximately one-third fiberglass, with much of the remainder as alkaline cement dust. This large dust was, therefore, quite caustic and irritating to the eyes, nose and throat, consistent with the now famous "World Trade Center cough" that nearby residents reported. Only trace amounts of asbestos were found in our samples. The less than one percent that was as  $PM_{2.5}$ , or the particles that would reach deepest in the lung, was found to have a neutral pH, with no detectable asbestos or fiberglass. Thus, while our analyses are consistent with the Government's conclusion that the WTC dust is not likely to have short- or long-term serious health impacts on otherwise healthy local residents, we found that it is very irritating and capable of causing the symptoms reported by many residents.

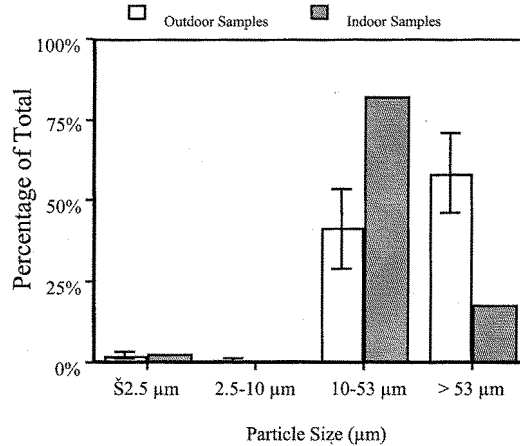


Figure 2. The Mass Size Distribution of WTC Dusts.

Our sampling of the ambient air pollution at NYU Downtown Hospital showed that air pollution levels were quite high in the first weeks following the attack, especially at night, but then diminished as the fires were brought under control. By early October, soot levels in the downtown area were generally similar to those that we measured at the NYU Medical School in Midtown (at First Ave. and 26th St.), although levels occasionally climbed in downtown on clear, calm nights throughout the fall. In Figure 3, the solid line on the left shows the declining trend in soot levels in September through December. Overall, our independent air pollution sampling results were largely consistent with the data reported by the U.S. EPA. In particular, although short-term peaks in  $\text{PM}_{2.5}$  particulate matter air pollution for a few hours did occur at night, the 24-hour averages were of  $\text{PM}_{2.5}$  were within the legal limits set by the U.S. air quality standards.

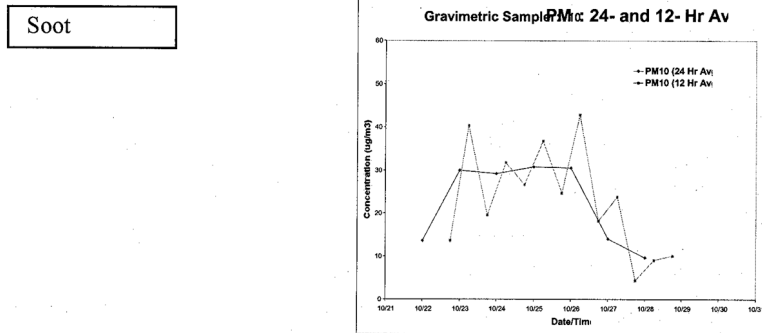


Figure 3. Concentrations of Black Carbon (Soot) and  $\text{PM}_{10}$  Mass Measured at NYU Downtown Hospital.

Despite the fact that individual pollutants in the community were apparently at safe levels for otherwise healthy persons in the general population, this does not mean that no effects might have been experienced by especially susceptible individuals, such as infants or persons with pre-existing respiratory disease. In addition, it is impossible to know what potential interactive effects might have occurred among the various pollutants, even at these low levels. Ultimately, only epidemiological follow-up studies of possible effects among especially susceptible individuals will provide a fuller determination of the issue of possible health effects from the various pollutants in the WTC plume.

Finally, I feel strongly that we must make sure to learn all the lessons that we can from this horrible catastrophe regarding the communication of risk to the public



in such emergency situations. Something like what happened to New York City on September 11th could, unfortunately happen again, and we must be prepared. It is an understatement to say that the public is skeptical of government pronouncements of safety in such situations. In this case, I feel that the EPA was too quick to declare the air “safe”, and did not well enough define what was meant by that term. Although the fine particle pollution was not of a level that would make otherwise healthy people very sick, the dust was caustic and irritating, causing many to have severe and upsetting symptoms, including eye, nose, and throat irritation. This caused people to further doubt governmental pronouncements of safety, even after more complete data were available confirming the EPA position. As a result, the press turned to the academic research community of New York City to fill the void. Fortunately, New York City is itself blessed with vast resources, including a host of some of the finest educational and research institutions in the world. Other locales may not have such local resources as were available in New York City, and be less able to meet such a disaster.

It has been my duty and honor to play a role in the academic effort to answer the environmental questions that New Yorkers had, and still have. But we must improve the current situation. While we cannot create governmental trust where there is none, I believe that we should draw from what happened in New York City to help the Nation better cope with such situations in the future. The Government should designate a suite of environmental parameters to be measured in such situations, and designate the appropriate health standards most appropriate for comparison in such short-term exposure situations. Moreover, I recommend that we create a mechanism by which blue-ribbon panels of the leading independent experts in the United States are formed in advance, perhaps by the National Academy of Sciences, to be on stand-by in case, God forbid, such an emergency occurs again. If this is done, there would then be an independent expert panel ready to be assembled, briefed, and to then give their quick-turnaround assessment of the public’s environmental risks, and of the appropriate actions that are needed to protect public health. Without such a new mechanisms, I fear that any future such disasters may be accompanied by the same unfortunate confusion, doubts, and distrust. Let us act now to help preclude this risk communication problem in the future.

Thank you for the opportunity to testify on this important issue.

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RESPONSES BY GEORGE THURSTON TO ADDITIONAL QUESTIONS FROM  
SENATOR CLINTON

*Question 1.* In your testimony, you were critical of EPA’s use of the term “safe”. This gets directly to the issue of risk communication. How can government entities improve methods of risk communication?

Response. The specifics of risk communication are going to vary from situation to situation, but a basic principle that I see as important is to define carefully what is meant in statements to the public, and to explicitly state the limitations on what is being said. The public wants to be informed of what is known and what is not known, as well as what are the most important factors for them to consider, so that they can take the most appropriate individual actions to protect themselves and their families. For example, when I have discussed the risks associated with particulate matter exposures in Lower Manhattan after September 11th, I have always tried to separate out the exposures experienced by workers at Ground Zero as opposed to the public that is located blocks away. I have also tried to always include a differentiation between the effects of short-term pollution exposures (of hours or days) versus those of long-term exposures (of months or years). Making these kinds of careful distinctions, rather than broad-brush generalities or reassurances, reduces the chances of potential misunderstandings among the public, and thereby is more likely to better maintain confidence in these more careful and qualified risk communication pronouncements.

*Question 2.* I agree with your call for parameters. Can you comment further on this—how should we proceed with this effort?

Response. There is a need to come up with exposure limitation guidelines for pollutant exposures from shorter-term exposures in such disaster situations, as opposed to the existing exposure limitation guidelines that are more often designed primarily to protect against more routine situations with longer duration exposures in the case of non-community (i.e., uncommon) pollutants, such as those pollutants more usually found in occupational settings. A critical feature of this guideline-setting process will be external review by scientists and the public outside the Government. Such peer review is generally a part of the routine standard setting process, but given the emergency situation faced by the governmental agencies involved in

this disaster, they did the best they could with what was available. But we must be better prepared with more directly applicable guidelines in the future, should such a horrible disaster ever occur again. A case in point was the exposure limit set by the U.S. EPA for short-term asbestos exposures. While the standard for acceptable limits in the air for short-term exposure applied by the EPA in this emergency situation may yet in the long-run be deemed as the most appropriate, there was no time for external peer review of the guideline applied in the days and weeks following the disaster, so this gave the impression to some that the guideline used by the EPA was potentially arbitrary, rather than on a solid scientific health-based footing. This doubt undermined trust by those individuals in the EPA pronouncements regarding the health implications of the ambient asbestos exposures they were measuring and reporting. This uncertainty and resultant mistrust must be addressed as soon as possible by conducting independent and public peer review of a new set of guidelines for *acceptable* vs. *unacceptable* pollutant exposure limits in disaster situations.

*Question 3.* Do appropriate health standards exist for short-term exposure situations, such as those experienced by many at the World Trade Center? Do such standards need to be developed? Should they be developed?

Response. As I noted above, health-based guidelines for *acceptable* vs. *unacceptable* exposures in such shorter-term exposures are not available for all pollutants, especially for those pollutants that are usually of greatest health concern from long-term exposure, and that are not usually experienced in such an acute manner by the general public. For these pollutants, the appropriate agencies, such as the U.S. EPA, must develop a set of best science health-based guidelines that have undergone the usual scientific and public peer-review process, so as to avoid the kind of uncertainty that was faced by these agencies and the public in the wake of September 11th.

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STATEMENT OF ERIC GOLDSTEIN, NATURAL RESOURCES DEFENSE COUNCIL

Good morning Chairman Lieberman, Senator Clinton and members of the Subcommittee, my name is Eric A. Goldstein and I am the director of the New York Urban Program at the Natural Resources Defense Council, Inc. ("NRDC"). NRDC, as you know, is a national, non-profit legal and scientific organization active on a wide range of environmental issues, including urban air quality. Since shortly after its founding in 1970, NRDC has placed a special focus on the New York region's environment and the quality of life of city residents. We are especially grateful to you for convening this hearing and for your continuing interest and dedication to safeguarding air quality and environmental health in New York.

In the aftermath of the September 11th tragedy, my NRDC colleagues Megan Nordgren, Mark Izeman and I began collecting data and conducting interviews as part of year-long study of the environmental impacts of the World Trade Center attacks and government's response to the problems identified. We are releasing a preliminary version of that study this coming Wednesday, and would ask you to consider incorporating this full document into the hearing record. This morning, I will briefly make three points and propose four recommendations for action by this subcommittee to help address air quality problems in the wake of the Trade Center disaster.

First, it is important to state what is widely known to anyone who lives or works in the vicinity of Ground Zero—the September 11th attacks, in addition to the horrific loss of human lives and huge economic dislocations, constituted an unprecedented assault on Lower Manhattan's environment. The collapse of the 110 story towers, the conflagration of vast amounts of toxic materials, the forceful distribution of debris and dust, and the long-burning fires at Ground Zero combined to create what was unquestionably the single largest air pollution episode in the history of New York City. NRDC's report estimates that at least 10,000 New Yorkers suffered short-term respiratory and other pollution-related impacts from the Trade Center's collapse and subsequent fires. Thousands of apartments and offices in the immediate vicinity of Ground Zero received significant loadings of polluted dust—everything from asbestos to fiberglass to pulverized cement to, in many cases, metals and other toxic substances.

There is, of course, much we do not yet know about the air quality impacts from the September 11th attacks. That is why the health studies now being undertaken by distinguished medical institutions like Columbia University's Mailman School of Public Health and Mt. Sinai's Selikoff Center for Occupational and Environmental Medicine, as well as similar work at New York University's Nelson Institute of Environmental Medicine, is so important.

But here in most condensed fashion is what we can say about air quality right now. In general, outdoor air quality in Lower Manhattan today is approaching or similar to levels in this area prior to September 11th, with the exception of the Ground Zero work-pile and localized hot spots, such as areas with heavy concentrations of diesel equipment or vehicles and, at times, areas where Trade Center debris is being moved or transferred to barges. The most worrisome air pollution problem facing Lower Manhattan now involves indoor pollution threats in some residences and offices that were engulfed with thick layers of contaminated dust and whose buildings were not properly cleaned.

In short, from what we now know, the bulk of the exposures have already occurred and the bulk of damage from the terrorist attacks has been felt. The air pollution challenges that remain are manageable and solvable. But, they exist and they shouldn't be swept under the rug.

Let me briefly turn to government's response to the environmental health challenge presented by the September 11th attacks. In many ways, the response of government agencies and their employees to the Trade Center attacks was heroic and a testament to the merits of public service, which is too often undervalued. Environmental and Health Agency staff performed many tasks with distinction. U.S. Environmental Protection Agency personnel, for example, undertook numerous assignments including the removal of hazardous waste from the Ground Zero site, the deployment of HEPA vacuuming trucks for collection of dust layers from city streets, and the establishment of sophisticated air monitoring and testing facilities. But when one closely examines the governmental response to air pollution impacts from the collapse of the Trade Center Towers and the subsequent fires, a more complicated picture emerges.

One major problem was overlapping jurisdiction among at least nine city, State, and Federal agencies, which meant that no single agency was in overall charge of the environmental aspects of the response to the September 11th attacks in New York. For example, no agency took the lead in insuring environmental safety for those working at Ground Zero. No agency took affirmative charge of the environmental clean up and inspection of environmental conditions prior to re-occupancy of residences and office buildings that were coated with debris and pollution. Many such problems, NRDC believes, resulted from shortcomings by the Giuliani administration, which handled so many other aspects of the September 11th response magnificently and which was in tight, overall command of the entire rescue, recovery and clean-up effort. The low profile of the City's Department of Environmental Protection—the 6,000 person department with wide-ranging New York City Charter duties to respond to environmental emergencies—lends support to the growing belief the department, for whatever reason, did not rise to the challenges posed by the September 11th attacks.

A second major problem involved communicating environmental health information to the public. There appeared to be no coordinated strategy for conveying such information to concerned citizens, no regular briefings by governmental leaders of environmental or health agencies, and no one place for citizens to turn for environmental guidance and advice. Moreover, government statements on air quality, at least as the public understood them, stressed the good news and de-emphasized issues that might raise further concerns. By focusing almost exclusively on long-term risks in their public statements, government officials omitted warnings regarding short-term health effects, particularly to Ground Zero workers and other sensitive sub-groups. Admittedly, government agencies had a very difficult assignment here, and were responding not to an industrial accident but an unprecedented act of war. Nevertheless, as a result of shortcomings on the communication front, a troubling credibility gap on environmental health issues emerged.

A third difficulty, and one of continuing concern, has been environmental safety shortcomings at Ground Zero. While the rescue, recovery and site clean-up operations have made remarkable progress under exceptionally challenging circumstances, the way environmental health issues have been handled represents a glaring exception to this post-September 11th record of accomplishment. A prime example has been the failure to require Ground Zero workers to wear appropriate respirators. The OSHA representatives—who will be speaking later and who will probably state that they were only at Ground Zero in an advisory capacity and did not or could not insist upon the wearing of respirators by the Ground Zero work force—certainly have some explaining to do. Among other on-site safety problems of significance were undue delays in establishing worker safety training procedures.

A final shortcoming in government's environmental response to the Trade Center attacks involves problems assisting Lower Manhattan residents on environmental safety and clean-up issues. In addition to the previously stated communications gaps, city agencies failed to provide complete and proper clean-up protocols to many

Lower Manhattan residents and failed to inspect even the most heavily contaminated buildings for environmental safety, prior to re-entry. Once again, no agency took overall responsibility for supervising the environmental clean up and safe re-occupancy of apartments (and office buildings) immediately surrounding Ground Zero. It was left, for the most part, to residents and building managers to sort these complex challenges out for themselves.

Let me conclude by listing four of the recommendations contained in the forthcoming NRDC World Trade Center report, on which we believe this subcommittee could be most helpful:

(1) Urge the New York City Department of Environmental Protection and the U.S. Environmental Protection Agency (with whatever other agencies they deem appropriate) to: (a) create an Air Pollution Assistance Center located in the Ground Zero vicinity, fully staffed with a range of government personnel who could provide one-stop advice for local residents and office workers, and (b) create a Joint Task Force that will promptly begin door-to-door visits to and inspections of individual buildings, to verify environmental conditions, at least in the immediate ring of buildings within a 10-block radius of Ground Zero;

(2) Prod the Occupational Safety and Health Administration and relevant New York City officials to commence without further delay enforcement of environmental safety rules at the Ground Zero work site;

(3) Assist medical institutions, such as those listed above, in securing monies for public health studies, and help obtain funds for a full health registry of all Lower Manhattan residents and workers who may have been affected by pollution in the aftermath of September 11th, and

(4) Consider convening a second hearing this spring to review whether Federal Clean Air Act pollution standards and/or pollution monitoring requirements for New York need revision in the wake of lessons learned from the September 11th tragedy.

Thank you very much for inviting NRDC to testify at this important hearing. We stand ready to assist this subcommittee in addressing the air quality impacts of the World Trade Center disaster in any way we can.

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STATEMENT OF MARIANNE JACKSON, DEPUTY FEDERAL COORDINATING OFFICER,  
FEDERAL EMERGENCY MANAGEMENT AGENCY

Good morning, Mr. Chairman and members of the subcommittee. I am Marianne Jackson, Deputy Federal Coordinating Officer for Federal Emergency Management Agency (FEMA) for the World Trade Center disaster. I thank you for this opportunity to update you on FEMA's disaster response operations in New York City, especially related to health concerns and clean up, since the World Trade Center attacks on September 11, 2001.

The events of September 11th have become indelibly etched in our collective memory because of the unthinkable and evil terrorist acts perpetrated against the citizens of this great nation. The twin towers at the World Trade Center complex collapsed and nearby buildings either partially collapsed or suffered extensive collateral damage. The sheer magnitude of this disaster caused untold suffering and generated thousands of tons of debris.

I appreciate being invited here today to give you an update on FEMA's continuing activities and the types of assistance we are providing, along with our partners, to help alleviate the suffering of the residents of New York City, to deal with the cleanup, and to monitor the potential health effects on the emergency responders. As you know, until you have seen the devastation in person, you can't even begin to appreciate the enormity of this disaster and the recovery that is involved. But I can assure you that tremendous work has already been accomplished.

The level of cooperation and professionalism exhibited by all of the Federal, State and local personnel and emergency responders has been outstanding. I am especially moved and deeply humbled by the heroic and unselfish efforts of the many emergency responders from right here in New York City and of those who came in from around the Nation to assist in the response and recovery. These people placed themselves in harm's way to help others in their time of need and I am forever grateful to them for their ultimate sacrifice and bravery. Many of these policemen, firemen, and emergency medical technicians tragically lost their own lives while doing what they do best, putting everything aside to rush to the scene to save lives, rescue the trapped and injured, and be the first responders. We will never forget what they did and are committed to doing everything we possibly can to ensure that any potential health effects they may encounter are monitored and followed up. Just as they gave for us, we must in turn reach out and do whatever we can to help them.

Some 3,500 Federal workers were deployed to New York to support the disaster response, about 1,300 from FEMA, and almost 2,000 from other Federal departments and agencies. All of these responders are caring people working together toward a simple goal to help the victims recover from this terrible national tragedy. There are still 491 people working on the recovery in New York at the Disaster Field Office.

#### BACKGROUND

As background, I want to describe how FEMA works with other agencies in responding to disasters. As you know, our mission is to reduce the loss of life and property and protect our Nation's critical infrastructure from all types of hazards. Our success depends on our ability to organize and lead a community of local, State, and Federal agencies and volunteer organizations. Our experiences in responding to natural disasters have taught us who to bring to the table and what questions to ask so that we may facilitate managing a wide range of emergencies. We provide the management framework and the financial resources to help State and local governments meet the needs, of their communities.

The Federal Response Plan (FRP) forms the heart of that framework. The FRP lays out the process by which interagency groups work together in Washington, DC, and in all 10 FEMA Regions, to enable the Federal Government to respond as a cohesive team to a wide range of natural and manmade disasters and catastrophes. This team is made up of 26 Federal Departments and Agencies, as well as the American Red Cross, and is organized into interagency functions based on the authorities and expertise of the members and the needs of our counterparts at the State and local level.

Since 1992, and again in response to the tragic events on September 11, 2001, the Federal Response Plan has proven to be a solid framework time and time again for managing major disasters and emergencies regardless of cause. It works during all phases of disasters, including readiness, response, recovery and mitigation. The framework is successful because it builds upon the existing professional disciplines and relationships among the participating agencies. Among Federal agencies, FEMA has the strongest ties to the emergency management and fire service communities. We plan, train, exercise, and operate together to prepare for and respond to all types of hazards all of the time. That puts us in a position to manage and coordinate programs that address their needs. Similarly, the Department of Health and Human Services has the strongest ties to the public health and medical communities, and the Department of Justice has the strongest ties to the legal, law enforcement, and victims' assistance communities. The Federal Response Plan respects these relationships and areas of expertise and relies upon them to define the decision-making processes and delivery systems so that we maximize the use of all available resources.

We received tremendous support from some our partners: transportation of assets and movement support provided by the Department of Transportation; telecommunications assistance from the National Communications System; logistical and managerial support provided by incident management teams from the U.S. Firefighting Service; mass care, feeding, and mental health support from the American Red Cross and other volunteer organizations; resource support from the General Services Administration; food stamp program support from the Department of Agriculture; assistance in resolving power restoration problems from the Department of Energy, a medical screening tool to assist in evaluating any potential medical outcome related to worksite exposure has been developed U.S. Army Corps of Engineers; invaluable support from the various branches of the Department of Defense; and extensive environmental monitoring and sampling support from the Environmental Protection Agency.

#### MONITORING AIR QUALITY

Immediately following the attacks on September 11th, the importance of air quality, emergency responder health, environmental degradation, and related issues emerged as critically important, in addition to responding to the immediate needs of the victims of the attacks. Right away we began working closely with the Environmental Protection Agency (EPA), the New York City Department of Environmental Protection and New York State Department of Environmental Conservation to monitor and address air quality concerns. Under the FRP we mission assigned and provided funding to EPA to conduct air sampling throughout Manhattan, Brooklyn and Staten Island. Air quality monitoring continues today with numerous monitoring sites providing data that can be used to evaluate health and safety

standards. Our funding will permit this monitoring to continue through September 30, 2002.

#### ENSURING APPROPRIATE SAFETY AND PREVENTIVE MEASURES

The health and safety of emergency responders is always a paramount concern of ours. Right after the attacks numerous Government Agencies such as the Occupational Safety and Health Administration (OSHA), National Institute for Occupational Safety and Health (NIOSH), within the Department of Health and Human Services (HHS), EPA, and State and city agencies dispatched representatives to the site to provide advice on health issues and establish appropriate safety measures and protocols. In fact, a comprehensive Health and Safety Plan was developed with input from numerous Federal, State, and New York City agencies. FEMA is a strong supporter of site safety. Our experience in disaster responses has taught us the importance of ensuring the safety of the emergency responders so that they do not themselves become disaster victims.

Federal personnel and teams deployed into the disaster area, such as the Urban Search and Rescue Teams, U.S. Army Corps of Engineers personnel, and medical personnel from the Department of Health and Human Services, arrived with the necessary protective gear and as a result of health and safety advisories that were issued were able to adopt the required safety protocols. In the first weeks, FEMA's Safety Officer closely coordinated with and participated daily in the New York City Interagency Health and Safety Meeting and, as a result, was able to pass on advisories and provide training from the meetings.

#### LONG-TERM HEALTH MONITORING OF FIRST RESPONDERS

We took measures to address immediate health concerns involving emergency responders through our coordination with the Department of Health and Human Services and its Public Health Service. Five Disaster Medical Assistance Teams, four Disaster Mortuary Teams, one Veterinary Medical Assistance Team, and one Mental Health Assistance Team, were dispatched to New York City to provide health care and related assistance. The Naval Hospital Ship USNS Comfort and burn nurses were also deployed to support the response.

Long-term health monitoring was funded by FEMA for medical surveillance of 11,000 firefighters and 4,000 State emergency responders working at Ground Zero. As of December 31, 2001, blood samples had been drawn by local clinics coordinated by the FDNY Medical Office. These samples are being used to help establish a health baseline. Follow-up and additional testing is to be completed by the Center for Disease Control (CDC) over the next 12 months. We provided \$9 million for immediate testing, analysis and program management with CDC as the lead agency.

In an effort to be cautious, we have asked the Urban Search and Rescue (US&R) Task Forces that deployed to the World Trade Center to notify us of any medical problems/illnesses resulting from or related to their deployment. We have encouraged them to use the Workman's Compensation Program as applicable and complete and provide us with copies of the Federal Employee's Notice of Traumatic Injury and Claims for Continuation of Pay/Compensation Form (Form CA-1).

A Centers for Disease Control doctor took voluntary blood samples from members of the California-8 and Florida-1 US&R Task Forces to study long-term effects and will provide FEMA the results of that study. In addition, another doctor who is a member of Indiana Task Force-1, created a database of medical problems he was seeing while in New York at the Jacob Javits Center. Also, the Ohio Task Force developed a survey for their members to capture any illnesses that they may have and provided the survey to the other Task Forces.

Personal Protective Equipment (PPE) requirements are incident specific and the US&R Task Forces and Incident Support Teams (IST) are trained on evaluation and detection to determine the level of appropriate gear. PPE requirements for this incident were briefed to the Task Forces and IST during deployment. The standard equipment was P-100 APR's (respirators) and an ample stock was maintained at the Jacob Javits Center for IST and Task Force members to use.

FEMA will continue to encourage the 28 US&R Task Forces to monitor their World Trade Center deployed personnel for any medical issues and to use the Workman's Compensation Program.

In another critical health area, we provided support to address the long-term mental health of responders and others who may have been affected by this tragedy. We coordinated and facilitated the actions necessary for the National Association of Fallen Firefighters to work directly with the Fire Department of New York (FDNY) in providing immediate and long-term crisis and grief counseling to fire fighters and their families. We also funded Project Liberty, a long-term mental health disaster

recovery program administered by the New York State Office of Mental Health. To date almost \$23 million has been approved for this program.

#### ASSISTANCE FOR CLEAN UP TO ENSURE SAFE REENTRY OF BUILDINGS

As you know, because of the amount of dust and debris that resulted from the building collapses, clean up of residences and the surrounding area has been a major priority. We provided housing assistance grants to be used for clean up of residences. In addition, the New York State-administered Individual and Family Grant program provided grants for items such as High Efficiency Particulate Air (HEPA) vacuum cleaners, air filters, and other eligible items to help residents with reentry into their homes. In many cases landlords and/or insurance companies funded clean up. I should also mention that voluntary agencies were very active and helped with clean up for Special Needs residents.

We also supported the New York City Department of Health through their Community Teams and our own Outreach Teams in distributing to residents flyers containing recommendations on actions needed in order to be able to re-occupy buildings and homes. This flyer addressed clean up and safety and health concerns and was developed to facilitate individuals moving back into their homes.

The Small Business Administration (SBA) was on site September 12 and opened their first office to serve the public on September 14. Through SBA, low interest loans are available to homeowners, businesses, renters and non-profit organizations to repair or replace damaged property. Additionally for businesses Economic Injury Disaster Loans (EIDL) were available to pay necessary obligations until business operations returned to normal. SBA assistance for physical loss has provided home loans for 306 individuals totaling nearly \$4.7 million and 428 business loans totaling over \$26 million. Eligible government clean-up costs and monitoring activities are being funded 100 percent through FEMA's Public Assistance program. For example, the New York City Board of Education's clean up of schools near Ground Zero is an eligible expense as is the clean up of city vehicles such as fire trucks and police cars.

#### LESSONS LEARNED

We learn from every disaster experience and incorporate these lessons learned wherever possible into our planning and processes to improve the next disaster response. The World Trade Center and Pentagon disaster responses are no different. We have learned from both. We recognize the need to have alternate operating facilities and flexible response and operations plans that provide for actions such as establishing a Fire Support Branch, an External Logistics Team and robust and redundant communications networks. I should add, however, that the Federal response to the World Trade Center attack clearly reinforced the soundness of the Stafford Act and once again validated the effectiveness of the Federal Response Plan and current FEMA policies and procedures for responding to a disaster event.

#### AUTHORITY AND RESOURCES

All of FEMA's work, the response and rescue efforts, the recovery programs, and plans to prevent future events, have been created out of the authority the Environment and Public Works Committee has provided through the Stafford Act. This legislation has served us well and has provided the necessary authority and flexibility to empower us to do our best. You can be proud of your work and its results. All of us at FEMA thank you for your leadership. We believe current enabling legislation and resources are sufficient for FEMA to respond appropriately.

There is no doubt that the disaster response and recovery in New York City will be a long-term process, but the President has said that we will provide whatever assistance is needed to get the job done. I can assure you that FEMA will be there as long as needed.

Thank you Mr. Chairman, I would be pleased to answer any questions you may have.

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#### RESPONSE BY MARIANNE JACKSON TO ADDITIONAL QUESTION FROM SENATOR LIEBERMAN

*Question.* Like so many other Federal employees, the members of the FEMA Massachusetts Task Force 1 have private health insurance which does not provide health care screening after deployment in potentially hazardous conditions such as the World Trade Center complex. Some members have already reported health problems. General concern has been expressed as to the long-term health effects of

“Ground Zero” exposure. In order to provide both adequate care and answers to such long-term effects, what is FEMA doing to screen and monitor these members who were deployed to WTC? Is what we are doing sufficient? If not, and since time may be critical, what can be done to expedite a solution?

Response. As we watched the images of fire and smoke on September 11th and the days that followed, we immediately recognized that there was a potential risk to the health and well being of the rescue workers and we moved quickly to assign the mission for air monitoring to the U.S. Environmental Protection Agency through the Federal Response Plan. As the disaster response unfolded, FEMA Urban Search and Rescue (US&R) personnel worked closely with local incident management officials and supporting Federal agencies to determine and provide appropriate levels of personal protective equipment based on the best available information. In addition, FEMA met with Department of Labor representatives to identify and coordinate requirements and procedures for processing any US&R workers compensation claims arising from the WTC and Pentagon responses.

As US&R Task Forces returned home, higher than expected illnesses were reported by some of the Task Forces. FEMA encouraged Task Force personnel to file Federal worker compensation claims and contact FEMA’s Worker’s Compensation Agent, LIFECARE, to receive information on how to seek treatment if they suspected their illness was related to the response, and to also provide a record of those individuals who took part in the response and the dates of their mission deployment. FEMA has surveyed all participating Task Forces to develop data on which members worked these disasters and the amount of time they worked in the impact areas. This information is still being received from the Task Forces and compiled.

In February and March, FEMA hosted a series of meetings involving the Department of Health and Human Services, the Environmental Protection Agency, the Occupational Safety and Health Administration, the National Institutes of Health, and the Agency for Toxic Substances and Disease Registry to discuss possible approaches for properly addressing the long-term health effects of the September 11th attack on the responders and others. Participants in the meeting were tasked with developing recommendations for action. A number of strategies were proposed the week of March 11th and are under an expedited review. FEMA continues to monitor US&R responder health issues and support processing of all workers compensation claims received from the Task Forces.

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RESPONSES BY MARIANNE JACKSON TO ADDITIONAL QUESTIONS FROM  
SENATOR CLINTON

*Question 1.* What assistance has been provided to the schools and to local tenants (commercial and residential) through FEMA for cleanup of indoor air and dust?

Response. The following assistance has been provided for cleanup of indoor air and dust:

CLEANUP AT PUBLIC SCHOOLS

FEMA has provided funding, or is currently developing estimates for funding, in all cases where the New York City Board of Education has requested clean up of dust at public school buildings owned by the Board. This funding, estimated at \$4.7 million, covers cleanup of contents and equipment, cleanup of interiors and exteriors, testing for hazardous materials, and abatement of those materials if discovered.

AIR MONITORING AT SCHOOLS

FEMA is providing funds to the New York City Department of Environmental Protection (DEP) for rooftop air monitoring at city schools. Immediately after the collapse of the World Trade Center Towers, DEP began conducting monitoring for asbestos, acid gases, metals, and volatile organic contaminants at schools in each of the five boroughs; DEP discontinued this activity after one month, incurring costs of approximately \$730,000. DEP continues to monitor for asbestos at four schools immediately adjacent to the World Trade Center site. FEMA is considering funding this activity through completion of debris removal operations; the cost is estimated at \$240,000.

The New York City Board of Education has requested assistance with interior air monitoring at six schools in the vicinity of the World Trade Center site. The estimated cost of this monitoring is \$3 million. FEMA has agreed to fund testing for the period prior to occupancy of the buildings (estimated costs of \$1.5 million), but has not yet determined the eligibility of on-going air monitoring inside the buildings



after the students have reoccupied them. This determination is based on the assumption that students would not be allowed in the buildings if a potential health hazard existed.

#### CLEANUP OF NEW YORK UNIVERSITY (NYU) FACILITIES

FEMA has not yet provided funding for the cleanup of the New York City public school buildings at 90 and 100 Trinity Place. The Board of Education spent approximately \$2.5 million to clean the interior, exterior, and ductwork of these buildings, as an emergency health and safety measure. However, the Board of Education leases these buildings from NYU, which is responsible for such work. FEMA can provide funding for such work only to NYU as the entity with legal responsibility for these facilities.

#### CLEANUP OF RESIDENCES AND COMMERCIAL BUSINESSES

FEMA, in cooperation with the New York State-administered Individual and Family Grant Program, is providing eligible occupants with high-efficiency air filters that trap minute particulate matter. Others have received funds for general clean up and smoke abatement. The Small Business Administration Disaster Loan Program assists commercial businesses.

*Question 2.* What were the greatest challenges that FEMA faced in its response to the September 11th attack on the World Trade Center?

*Response.* Among the major challenges facing FEMA in response to the attacks of September 11th were obtaining operational information, communications interoperability, and flight restrictions.

From an operational standpoint, trying to gather information about the incident, what happened, what assistance was needed, along with the requirement to gather information about what else might be occurring presented a challenge. The attack, which directly affected the New York City Office of Emergency Management and the Fire Department of New York, impacted the flow of information. The attacks essentially created 4 major incidents that we had to respond to that developed in rapid succession, with the very real possibility that additional attacks were likely. As a result, it was necessary that we moderate our initial response until we had a better understanding of the big picture. Once we had a better handle on the situation, we were then able to deploy additional resources to New York City and the Pentagon.

From a communications standpoint, communications interoperability issues impacted our capability to collect and exchange information. The inability to have common communications capability at the initial stages of the response slowed our ability to gather information, and to coordinate the Federal response. Cell phone saturation created another major communications challenge. This event clearly pointed out the high level of dependence of Federal, State and local responders on cell phones for communications and the vulnerabilities that can be associated with this mode of communication.

The decision to impose flight restrictions certainly was a good one, and undoubtedly saved a great number of lives, but it limited our ability to deploy and move resources and emergency teams. Because our contingency planning had never anticipated that a flight restriction would be put into effect, we had not planned on how to move emergency teams from all parts of the country without air transport. While the flight restrictions did delay some of the initial responses, we were able to work around the problem and move teams by ground transport. Since September 11th, we have worked with U.S. Department of Transportation to develop alternative movement plans and established plans for flight restriction waivers and priority air shipments.

*Question 3.* It appears that there have been more applications to FEMA for human assistance in conjunction with the September 11th attack on the World Trade Center deemed ineligible or denied by FEMA than have been reimbursed. Please confirm and explain why this is the case? How does the ineligibility/denial rate compare with other disasters?

*Response.* Traditionally, FEMA's Mortgage and Rental Assistance Program averages a 20 percent to 30 percent eligibility rate. The current rate for New York is 28 percent. Several factors contribute to this low rate. Two of the more prominent criteria for program eligibility are that the applicant must have suffered a loss of household income totaling 25 percent or greater and that the applicant have delinquent mortgage or rental payments as a result of the disaster. Of the applicants determined ineligible, 64 percent did not meet the criteria in these two categories. That is, household income was not affected to any substantial degree and/or the applicant was not delinquent on a housing payment.

It should be noted that these determinations are made based on the initial application. If circumstances change, applicants can re-establish their eligibility.

*Question 4.* What resources can FEMA provide to conduct long-term health monitoring of first responders, other rescue and response workers, as well as workers, residents, and school children in Lower Manhattan?

Response. FEMA will provide the following resources:

#### FIRST RESPONDERS

FEMA has provided funds to the U.S. Department of Health and Human Services, Public Health Service, to conduct baseline testing of first responders. The funding, \$9 million, was used to take blood samples from 11,000 fire fighters and 4,000 New York State employees. This work is now complete.

#### CIVILIAN WORKERS

The New York City Office of Labor Relations has indicated that they may request FEMA funding for first-phase medical monitoring of civilian workers at the World Trade Center site. The city estimates the cost for providing this testing to 2,000 workers to be \$140,000. At this time, the city has not provided sufficient information on the proposed request for FEMA to evaluate the eligibility of this activity. If FEMA determines that the testing is necessary to respond to an immediate threat to health—as with the testing done for first responders—the cost of the testing would be eligible.

*Question 5.* What is the estimated budget and expected time frame for completion of cleanup?

Response. The estimated budget and timeframe for completion is as follows:

#### ASSISTANCE TO THE CITY OF NEW YORK

The current cost estimate for removal of debris at the World Trade Center site is \$1.325 billion. This estimate includes:

- \$750 million for work at the site by the City of New York and its contractors.
- \$575 million for disposal of debris at the Fresh Kills landfill, including barging contracts.

This estimate does not reflect funds that may be recouped through the sale of recycled steel; however, that amount is expected to be relatively small. The City of New York expects to complete work at the site by May 30, 2002.

#### DIRECT FEDERAL ASSISTANCE

FEMA is providing funds to the U.S. Environmental Protection Agency for the following activities related to debris removal operations:

- Assessment of hazardous substances and oil releases—\$13 million (complete)
- Development and implementation of decontamination plan—\$15 million (complete)
- Set-up of hygiene station at the site—\$4 million (complete)
- Operation of wash stations at the site and landfill—\$24.5 million (until March 31)
- Hazardous materials advisory activities—\$1.5 million (until March 31)
- Air monitoring at the site and landfill and in Lower Manhattan, the four other boroughs, and New Jersey—\$25.7 million (through September 30)

FEMA is also providing funds (approximately \$1 million) to the U.S. Army Corps of Engineers for technical support at the landfill. The total amount of Direct Federal Assistance is \$84.7 million.

*Question 6.* There are reportedly many building roofs and terraces in and around Ground Zero that have not been cleaned since September 11th. Will FEMA provide assistance in this regard?

Response. Yes, FEMA will provide the following assistance:

#### PUBLIC BUILDINGS

FEMA has provided funding, or is developing estimates for funding, for cleanup of dust at facilities owned by public entities throughout Lower Manhattan. This funding covers cleanup of contents and equipment, cleanup of building interiors and exteriors, testing for hazardous materials, and abatement of those materials if discovered.

## PRIVATE BUILDINGS

The New York City Department of Environmental Protection (DEP) has requested assistance with inspection and cleanup of buildings within the area of Lower Manhattan bounded by the Chambers Street, Battery Place, Pearl Street, and the Hudson River. DEP estimates that, of the approximately 500 private buildings located within this area, 250 buildings will require cleaning of facades, roofs, and terraces. The U.S. Environmental Protection Agency has provided FEMA with a determination that a possible health threat exists due to the presence of this dust. Consequently, FEMA has agreed to assist DEP with the cleanup of exteriors of these buildings as an emergency measure.

The cleanup, currently estimated at approximately \$10.5 million, will include testing for asbestos-containing materials and any abatement measures necessary if such materials are discovered. FEMA will fund a one-time cleanup of the buildings, as well as any overtime costs DEP incurs for contract management and inspection. DEP is responsible for ensuring that building owners are aware of the effort, identifying those structures that require cleanup, and securing right-of-entry and indemnification for work on these buildings. Additionally, the city is responsible for ensuring that there is no duplication of benefits with insurance proceeds. FEMA will not provide funding for a series of cleanup efforts for these structures, nor for long-term monitoring activities.

## CITY STREETS

Immediately after the collapse of the towers, DEP began testing surfaces to identify and isolate asbestos-contaminated areas. The results showed that many surfaces, including streets, sidewalks, buildings, vehicles, and playgrounds, were contaminated with hazardous levels of asbestos. DEP closed streets and businesses in contaminated areas and conducted round-the-clock asbestos cleaning and removal. The estimated cost of this activity, which is eligible for Federal assistance, is \$114,000.

*Question 7.* What resources can FEMA make available for tenant groups and individual residents to hire professional environmental cleaning firms to remediate their homes? What assistance has FEMA provided in this regard to date?

Response. Under the Stafford Act, FEMA is charged with providing temporary housing while individuals work on their permanent housing solutions. Temporary housing is provided as a grant of up to \$10,000 to make emergency repairs to a home to make it livable, including any applicable clean up. If the home cannot be made livable quickly for this amount, FEMA provides funds to rent alternative accommodations for up to 18 months while the individual completes permanent repairs.

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STATEMENT OF CARL JOHNSON, DEPUTY COMMISSIONER, NEW YORK STATE  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Thank you for providing the New York State Department of Environmental Conservation (NYSDEC) with the opportunity to testify about our efforts to assist the residents and businesses of Lower Manhattan to recover from the devastation caused by the destruction of the World Trade Center Complex. We share, with Governor Pataki and our sister agencies, the highest level of commitment to managing the cleanup, and we appreciate the excellent coordination among all levels of government involved in this effort.

As with other New York agencies that have never reacted to a disaster of this magnitude, in many respects NYSDEC's efforts at the World Trade Center are unprecedented. Although these efforts spanned many environmental media and critical issues, I will focus my testimony today on the air quality issues noted in the subcommittee's letter of invitation to Governor Pataki.

## AIR QUALITY MONITORING AND ASSESSMENT

As soon as possible after the attacks on the World Trade Center, NYSDEC began to work with other State, Federal and local environmental and health agencies to monitor and assess the environmental impacts from the devastation. We established a multi-jurisdictional air-monitoring group to coordinate this effort, which initially focused on worker safety during the rescue efforts. Safeguards were put in place to prevent excessive exposure to contaminants released by the destruction of these buildings, and these safeguards remain in effect today.

Next, along with our sister agencies, we began the process of identifying specific monitoring needs and then put in place the process of collecting that information. NYSDEC, along with USEPA, OSHA, the State Department of Health, and the city of New York, continue this aggressive air monitoring effort. All of the data is posted on the EPA website as it becomes available. NYSDEC collects data specifically on asbestos, PM<sub>2.5</sub>, PM<sub>10</sub> and dioxin.

#### *Asbestos*

Asbestos was used in the early stages of construction on Tower One, and as a result, asbestos levels have been detected occasionally in the samples we have collected. There are 18 monitoring locations in Lower Manhattan at which asbestos samples are collected. NYSDEC is responsible for seven of these sites, primarily located outside the exclusionary zone, in conjunction with USEPA. We operate the equipment and change the filters on a daily basis. Once our staff remove a filter, we forward it to USEPA for analysis. This data, like other asbestos data, is then uploaded to the USEPA website to ensure that the public has access to this information as quickly as possible.

In determining, together with our sister agencies, a standard to be used in monitoring asbestos levels, we decided on the asbestos standard most protective of public health—the Asbestos Hazard and Emergency Response Act (AHERA) standard of 70 structures per millimeter squared. This standard, which USEPA established, is used primarily for indoor air purposes and in schools to determine when it is safe for activities to resume in a school building once it has been cleaned of asbestos. Applied to outdoor air, this is a very conservative standard of comparison.

Our multi-agency agreement to use the AHERA standard ensures that there is a consistent approach used in analyzing the asbestos results. These results must be obtained using Transmission Electron Microscopy (TEM)—a method required to analyze for asbestos because it identifies individual asbestos fibers and does not confuse asbestos fibers with fiberglass or other fibers.

To date, more than 5,500 asbestos samples have been taken in Lower Manhattan, with only 31 of the total samples above the TEM AHERA level. Of those 31 samples, 27 were collected prior to October 9. The remaining four were reported after that date. All of the levels above the standard were observed in or very near to the exclusionary zone around Ground Zero.

Thousands of asbestos samples have been taken at the Staten Island Landfill to which debris is taken, with only 40 of the samples above the TEM AHERA level. All of the levels above the standard were observed within the exclusionary zone at the Landfill.

While we continue to monitor for asbestos, it is clear from the findings that the asbestos levels detected in the ambient air have not generally been above what is considered a safe indoor air standard—one that is protective of the children in our schools.

NYSDEC also collects data from nine sites located in all five boroughs of New York City. To date, this data does not indicate that the TEM AHERA standard has been exceeded.

I would like to bring to your attention the results of the residential monitoring study performed jointly by the New York City Department of Health (NYCDOH) and ATSDR. In this effort, indoor dust and air in buildings around the World Trade Center in Lower Manhattan were sampled. The results of the study are only now becoming available, and appear to indicate that asbestos levels in indoor air are below USEPA standards. In some locations, asbestos was found in settled dust.

#### *Particulate Matter*

NYSDEC uses two types of sampling techniques to monitor for small particles in the air, also known as particulates. At present, we are sampling for both PM<sub>2.5</sub> (fine particulates) and PM<sub>10</sub> (both fine and coarse particulates) levels in Lower Manhattan. We have selected five new monitoring sites in Lower Manhattan—the Coast Guard Station in southern Manhattan, Park Row (near City Hall), the Borough of Manhattan Community College, Albany Street at West Street and Wall Street at Broad Street. Equipment at these sites is a combination of both continuous air quality monitoring devices and filter based air quality monitoring devices. The continuous air quality devices provide information on the levels of PM<sub>2.5</sub> 24 hours a day, 7 days a week. This data is reported automatically to two websites, one operated by the NYSDEC and the other operated by USEPA. Both are available to the public.

To date, the particulate levels in Lower Manhattan, as well as throughout the rest of the city, have not demonstrated significant increases. In fact, readings have been consistent with levels recorded prior to the attacks on the World Trade Center. At no time has there been a level of particulates monitored that exceeded the National

Ambient Air Quality Standards for a 24-hour period for either  $PM_{2.5}$  (65 micrograms per cubic meter) or  $PM_{10}$  (150 micrograms per cubic meter). In fact, on only one day since the attacks occurred has there been a daily average recorded at any monitor throughout New York City that exceeded the 40 micrograms per cubic meter level that USEPA uses as a guideline for concern for sensitive individuals. Also located at our new monitoring sites are monitors to collect  $PM_{10}$  data. There has been no exceedance of this standard.

There has been some discussion about occasional spikes in the particulate levels which could present public health concerns. These short-term increases in particulate matter have been infrequent, and were present previous to the World Trade Center collapse.

#### *Dioxin*

Finally, the Department has been involved in the field work for dioxin monitoring. The Department maintains three sites and collects samples for dioxin analysis by USEPA. As in the case of asbestos and particulate levels, dioxins have been detected in some of the samples. However, the presence of dioxin is also consistent with the nature of a disaster such as this one, where fires continued burning for an extended period of time. While the early results were above USEPA's 30-year public health exposure guideline, since the fires were extinguished these levels are decreasing. Similar decreasing concentration trends have been observed for lead and PCB measurements.

#### *Odors*

The presence of odors in Lower Manhattan and concerns about eye, throat, nose and respiratory irritation are a cause of concern to those who live and work in this area. Odors, which can result from fires such as those that burned after the World Trade Center's destruction, have abated substantially. Short-term exposures to contaminants near the immediate area of the World Trade Center may have contributed to the irritation which some residents reported.

We monitor air quality for specific parameters and measure the results against standards that have been set as the result of lengthy public processes. Outside of the immediate area of the World Trade Center, we have not seen a significant cause for concern through our air quality monitoring. At the site, DEC and other agencies have consistently and strongly recommended that workers use appropriate safety equipment to minimize their exposure to these irritants. NYSDEC will continue its air monitoring activities and expand them as needed in consultation with the city and Federal agencies. We will maintain these activities until this effort is completed.

#### TRANSPORTATION CONFORMITY

I would like to raise to you a critical priority for the State of New York, along with the city of New York and neighboring counties. In nonattainment areas, the Clean Air Act Amendments of 1990 wisely requires State Implementation Plans for air quality and transportation plans, programs and projects to conform—so that the transportation projects which are put in place help congested areas, such as South-eastern New York, to attain National Ambient Air Quality Standards.

In the 10-county region which includes New York City, Long Island, and the lower Hudson Valley, the New York Metropolitan Transportation Council (NYMTC) is the Metropolitan Planning Organization (MPO) responsible for implementing this program. NYSDEC, the State Department of Transportation, USEPA and Federal transportation agencies oversee this process. NYMTC's state-of-the-art computerized simulation models, and its efforts to implement the conformity requirements of Federal law, are among the best in the Nation.

Among the many tragedies of September 11th, NYMTC lost three of its staff; its office space; and its computer hardware, models, and data bases in the terrorist attacks. While the Clean Air Act contemplated many circumstances under which natural disasters could affect a transportation network, it never contemplated an act of terrorism that would destroy an MPO's offices and much of its institutional knowledge. On one single day, over 100,000 jobs relocated from Lower Manhattan, and other jobs have been lost since then, making much of the previously used data obsolete.

NYMTC, along with other public and private businesses that had been housed in the World Trade Center, is struggling now to recover from this devastating loss. Along with moving to temporary offices in Long Island City, NYMTC is working to reestablish its models, and to develop data bases on the vastly different commuting patterns that now affect the transportation networks and air quality of New York City and surrounding counties. As it does so, we recognize the serious problem that

the New York Metropolitan Area cannot proceed with major new transportation projects—even those needed to replace the networks damaged or destroyed on September 11th—without a limited and temporary waiver from the Clean Air Act's conformity requirements. Governor Pataki, along with transportation organizations, businesses, and commuters in this region, are greatly concerned about the need for this waiver, and I urge your strong support for it.

Already, we are working with staff from the Senate Environment and Public Works Committee, along with House Committee staff, on this problem. On behalf of Governor Pataki, I want to thank Senator Clinton and the committee staff for their sympathy and interest in the State's waiver request. As they have noted, environmental concerns with the waiver need to be considered as part of this process. We agree with this concern, and have met several times with environmental organizations to discuss the proposed waiver; how the State intends to oversee its implementation; and how we will ensure the maintenance of air quality during the period covered by the waiver. Our task is made easier by Governor Pataki's strong and well-demonstrated commitment to measures that protect and improve New York's air quality. We believe that the citizens and workers of the New York Metropolitan Area can rest assured that every effort will be made to continue to improve New York City's air quality while we work to recover from the devastation of September 11th.

#### DIESEL TRUCK EMISSIONS

I also would like to raise the issue of idling trucks related to the cleanup. State regulation provides that no truck shall idle for more than 5 minutes, except in situations where the truck is to stand for more than 2 hours at a temperature below 25 degrees Fahrenheit. NYSDEC environmental conservation officers enforce this regulation, and encourage the reporting of idling complaints to the Department's Regional Office. In addition, the city of New York has an even more stringent requirement that allows only 3 minutes of idling, which city officers are able to enforce.

#### CONCLUSION

I want to reiterate Governor Pataki's appreciation to the subcommittee for providing us with the opportunity to relate to you the actions that the State has taken and will continue to take since the morning of September 11th to respond to and clean up the devastation caused by the destruction of the World Trade Center Complex. For the number of staff hours that have gone into our efforts to date, the information that I have provided to you today is indeed brief. I hope, though, that it provides you with a sense of the commitment we feel to ensuring that public health and environmental quality are safeguarded throughout the activities we are undertaking to clean up this site.

I want to remind you, as well, that the State's commitment to Lower Manhattan will not end when all of the debris is removed from the site. We will continue to monitor air quality in this region, and we look forward to developing—along with the city of New York, the New York State Legislature, other State and Federal agencies and the citizens of Manhattan—environmentally sound plans for the future of this devastated area.

Thank you again for allowing me to testify before you today.

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#### RESPONSES BY CARL JOHNSON TO ADDITIONAL QUESTIONS FROM SENATOR CLINTON

*Question 1.* Please provide further information on the State's efforts to reduce diesel emissions at the site.

Response. Late last year, the New York State Department of Environmental Conservation (Department) asked the Northeast States for Coordinated Air Use Management (NЕСAUM) to convene appropriate State, local and Federal representatives to discuss efforts that could be undertaken to reduce diesel emissions from the ongoing recovery efforts at the World Trade Center site. The NESCAUM discussions also began to develop development of diesel emission control practices for use during the reconstruction phase that is scheduled to begin this year.

Given the nature of the cleanup, the Department recognized quickly that the only option for reducing diesel emissions during the recovery phase would be to require trucks and diesel equipment operating at the site to use ultra-low-sulfur diesel fuel (ULSD). During recovery, our options are limited to the use of low-sulfur diesel because of the lead time required to construct and install retrofit equipment on diesel engines. The retrofit equipment would not be available for diesel engines and trucks prior to the completion of the recovery effort at the site.

Since the initial meeting, the NESCAUM group has been working to make the switch to low-sulfur diesel at the World Trade Center site. The fuel is available and could be provided to the site for a small difference in price. We are working with Mayor Bloomberg's office to recruit various construction companies currently under contract at the site to make this switch.

We also are working with FEMA to ensure that the city of New York is reimbursed for the use of the low sulfur diesel during the recovery phase.

*Question 2.* There have been reports that some of the trucks transporting debris from the site are uncovered and not fully wetted down. Who is responsible for monitoring this operation? What further actions can be taken to ensure that this operation is conducted in a manner that is as clean as possible?

Response. During the course of the debris removal operation, the Department's law enforcement personnel have monitored truck tarping and decontamination activities. Our law enforcement staff have been instrumental in ensuring that dust control measures are in place and are being used. Any questions about dust control measures have been addressed immediately.

Shortly after the September 11th attack, measures were put in place to reduce the environmental impacts of the recovery and removal operation. These activities included the use of wash-down stations to decontaminate trucks and wetting down their loads to control dust. Continuously, roadways around Ground Zero have been wetted down to reduce dust. Using two piers which are nearer to Ground Zero than other transport points to the Staten Island Landfill, Pier 6 and Pier 25, also helped reduce the environmental impacts of the removal of debris. The shorter transport distances reduce truck emissions and the chance for dust to come off the loads.

*Question 3.* Why are the debris barges not being required to be covered in some fashion?

Response. Barges transported from the Marine Transfer Stations at 59th Street and Hamilton Avenue were covered by the netting systems that historically were used at these transfer stations to cover residential solid waste. Barges coming from Pier 25 and Pier 6 did not have these netting systems, and the size of the barges makes it difficult to cover them.

Other actions have been taken to control dust, and to protect against the loss of materials recovered from the World Trade Center site. The debris is wetted down to control dust, and the barges are not filled completely. Freeboard (essentially empty space at the top of the barge) is maintained from the top of the barge down to the top of the debris as an effective way to keep recovered debris from blowing. The relatively slow speed of the barges also reduces the possibility for debris to be blown away in transit. The transport route of the barges is well separated from the general public to minimize their potential exposure.

*Question 4.* What actions will be taken during the rebuilding process to reduce as much as possible the noise, dust, diesel exhaust, and other forms of pollution at the site?

Response. As part of our discussions with NESCAUM and other State, local and Federal entities, we are looking at the long-term issues associated with emissions from the rebuilding activities that will begin later this year at the World Trade Center site. It is our intent to require the use of ULSD in all diesel equipment associated with the reconstruction efforts at the site. The fuel is available in the New York Metropolitan Area and can be readily supplied once a contractor selected for the reconstruction activities requests it.

With respect to retrofitting diesel engines, the Department will continue to work with New York City and contractors to maximize the use of diesel retrofit control technologies during reconstruction activities. We are seeking to identify a contractor that can pilot the use of both low-sulfur diesel and retrofit technologies. Through this pilot, we will establish a basis to demonstrate to the contractors involved in the reconstruction efforts that the diesel control program will not affect equipment operation and will not affect productivity. These are proven diesel emission reduction technologies, and the pilot project is meant to demonstrate that it is logistically possible to incorporate these strategies into the rebuilding efforts.

With respect to dust from the site, the City of New York should require the continuation of the dust control practices that are currently in place at the World Trade Center as part of the recovery effort.

STATEMENT OF THOMAS R. FRIEDEN, M.D., M.P.H., COMMISSIONER, NEW YORK CITY DEPARTMENT OF HEALTH AND JOEL A. MIELE, SR., P.E., COMMISSIONER, NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Good morning. I am Dr. Thomas Frieden, Commissioner of Health for New York City. With me today is Commissioner Joel Miele of the New York City Department of Environmental Protection. We appreciate having the opportunity to be here today. I am very pleased that the committee is holding these hearings. This is a complex and highly technical subject, and we would like to take this opportunity to explain how the situation is being monitored and let you know our views on the implications of these findings.

As I have reviewed the record of activities of DOH and other agencies since the first day of the disaster, one of the most vivid pictures to emerge, and one that I find quite extraordinary, is the tremendous cooperation and coordination among Federal, State and local environmental, occupational and health agencies. The degree of teamwork among more than a dozen agencies is probably unprecedented. For the first several weeks after September 11th, health and environmental agencies met daily to discuss environmental health issues. These meetings and conference calls continued three times a week through the end of 2001. Weekly conference calls continue.

#### I. DEPARTMENT OF HEALTH ROLE

Following the attack on the World Trade Center, the New York City Health Department had a multifaceted role in overseeing and coordinating many health-related issues. Immediately after the attacks, the Health Department established surveillance systems to (1) monitor emergency departments in the immediate area to assess acute injuries among victims, (2) assess hospital staffing and equipment needs citywide, (3) monitor illness and injuries among rescue workers at the World Trade Center site, and (4) detect unusual disease syndromes that might represent a bioterrorist event at emergency rooms throughout the city.

Other responsibilities included monitoring water and food safety in the immediate area, conducting rodent and vector control, initiating a worker safety program, and providing regular advisories to the public and the medical community regarding issues of public health concern related to the attack. The Department also facilitated development and coordination of environmental sampling plans and results.

Many individuals were exposed to large amounts of smoke, dust, and airborne substances during and after the initial collapse of the World Trade Center buildings. The potential release of contaminants, including asbestos, particulate matter, volatile organic compounds, dioxins, PCBs, metals and other substances during and after the explosion was a primary public health concern from the very beginning, and air monitoring was established immediately, and continued over time. The Health Department closely reviewed, and continues to review, the numerous air quality, debris sample results and personal air monitoring tests being conducted by various agencies. The data from air quality tests thus far have been, in general, reassuring. None of the testing done to date has shown results that would indicate long-term health impacts.

The numerous substances of potential concern have led to some confusion about health effects over the short and long term. Some substances, such as the particulate matter from the dust or the smoke in the air, can be irritating but are not expected to have long-term effects. Other substances, such as asbestos, are not expected to have short-term effects, but if elevated over long periods of time can have serious health effects. Asbestos was one of the substances of greatest concern since it was a known building component in the World Trade Center. However, except for a few transient spikes found in air sampling during the initial weeks, the asbestos levels have been within standards.

An indoor study conducted by Department of Health and the Federal Agency for Toxic Substances and Disease Registry (ATSDR) of both air and dust samples taken in November and December of 2001 at 30 residential buildings in Lower Manhattan showed no elevated levels of asbestos in the air. Dust sample tests showed low levels of asbestos in some samples and the presence of fiberglass in some other dust samples. Asbestos and fiberglass can be a problem if they become airborne. Airborne fiberglass can cause cough and skin, throat and eye irritation. While there are no known long-term effects of fiberglass, it is classified as a possible carcinogen. While these findings are not unexpected, they underscore the importance of properly cleaning surfaces to minimize exposure. DOH has issued advisories to building owners and residents about appropriate cleaning methods. DOH has issued advisories for residents about appropriate cleaning methods.



The standards used are very conservative. For example, for asbestos, we are using the indoor air quality standard for reentry into a school after asbestos removal. This stringent standard is being applied to outdoor air quality in the residential areas. Stringent standards are also being used for other substances, such as dioxins, identified at the perimeter of the site. It is both duration of exposure and concentration of the substance that are important to determine health effects. Many of the standards were based on exposures for prolonged periods of time. This is a key point. Some substances may cause short-term effects; others have the potential to cause long-term impact. In some instances, the health effects of exposures are not known. Standards for other substances have been designed to include many safety factors so that acceptable levels of exposure are far below the levels at which health effects are expected to occur.

Many residents living and working in the community have reported short-term health effects, such as acute breathing problems; worsening of existing respiratory disease such as asthma; eye, nose, and throat irritation; nausea, and headaches. Many residents also continue to experience emotional and stress-related illness and anxiety.

Students of Stuyvesant High School, who returned to their school on October 9, 2001, reported similar complaints. DOH performed an analysis of these complaints, which shows that the average daily rate of headaches, respiratory, skin, eye, throat, and injury complaints of Stuyvesant was higher in October and November of 2001 than in the previous year, and higher than four other NYC public high schools. The data also shows that complaints decreased from October to November 2001.

DOH has also been working with the U.S. Centers for Disease Control and Prevention to develop a protocol for a World Trade Center Registry, which, if funded, would generate and maintain a database that can be used as a basis for conducting studies that can provide a more complete picture of short- and long-term health and mental health impacts among affected populations.

The City Health Department recognizes residents' concerns and will continue to work closely with local, State and Federal agencies to monitor air quality and to inform the public of findings as soon as results are available. Together with the City Department of Mental Health, which is also under my jurisdiction, we are addressing resident's mental health concerns by promoting the ongoing Project Liberty program, a statewide disaster-recovery initiative that offers free crisis counseling, education and referral services. DOH will continue its community outreach and education efforts. Now I would like to turn to Commissioner Miele to discuss DEP's role in our joint efforts.

## II. THE ROLE OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

In addition to DEP's operation of the city's sewer and water systems, our expertise in regulating asbestos in New York City was a significant portion of our responsibilities following September 11th. Since 1985, DEP has been the New York City agency with responsibility for regulating asbestos abatement. Starting September 12, DEP operated a network of outdoor air monitors that have been used for monitoring outdoor asbestos levels. Aside from repairing water and sewer infrastructure, assessing and mitigating risks caused by the presence of asbestos-containing material has dominated DEP's work in responding to the Trade Center attack.

Since September 11th, DEP or its contractors analyzed 3060 samples from 37 outdoor monitoring sites in Lower Manhattan; 500 samples collected adjacent to the four schools in the vicinity of the Trade Center; and 328 samples taken in the four boroughs of the city outside of Manhattan. The map and all sampling results to date from the sites shown on this map are available to anyone on DEP's website: [www.nyc.gov/dep](http://www.nyc.gov/dep). Of these samples, only 9 of the total of 3864, or 0.2 percent, exceeded the Federal re-occupancy standard for indoor air. These 9 samples were all taken in the vicinity of Ground Zero. As Commissioner Frieden noted, there is no established standard for asbestos in outdoor air. Unlike carbon monoxide, nitrogen oxides and other gases whose presence in outside air is regulated under the Clean Air Act, asbestos is a once-prevalent building material, and previous work at standard-setting has focused on establishing safe levels for asbestos *within* buildings. On September 12, when my colleagues and I were creating our monitoring networks, we knew that there were no reliable, scientifically-based, acceptable standards that would tell us what level of asbestos in outdoor air might be considered "safe" or "un-safe." Therefore, we opted to use EPA's indoor post abatement re-occupancy of schools standard as our threshold level of concern since we felt it was more protective.

Let me briefly explain our sampling methodology. The samples are collected on filters and examined under PCM (Phase Contrast Microscopy) utilizing a specific

method developed by the National Institutes for Occupational Safety and Health. The PCM analysis counts all fibrous particles, including asbestos. PCM sample results are compared to the clearance/re-occupancy standard for indoor air following an asbestos abatement project. This standard is 0.01 fibers per cubic centimeter. Samples found to be above this standard are re-examined using TEM (Transmission Electron Microscopy). The TEM analysis identifies the type of particles collected. TEM results are compared to the clearance/re-occupancy standard for indoor air in *schools* after an asbestos abatement project. This standard is 70 structures of asbestos per square millimeter. The standard was established pursuant to the Federal "Asbestos Hazard and Emergency Response Act", usually known as "AHERA".

Based on all Federal, State and local test results, public health experts have consistently expressed confidence that, based on sampling, airborne asbestos levels do not pose a threat to human health. Health professionals have stated that short-term exposure to airborne asbestos, at levels equal to or lower than 0.01, carries an extremely low risk of causing asbestos-related illness.

Before allowing occupants in any residential or commercial building near the Trade Center site, the city's various agencies, acting through its Office of Emergency Management, required building owners to take these steps:

- assess the building's structural strength and stability using qualified professionals;
- restore gas and electrical service;
- restore building water service, including flushing, re-filling and cleaning roof tanks where necessary;
- assess the presence of hazardous materials such as asbestos, and remediate as required under applicable city regulations using qualified professionals; and
- inspect, clean and repair mechanical and HVAC systems.

While property owners were accomplishing these tasks, DEP and its sister agencies, again acting through the Office of Emergency Management, assumed responsibility for cleaning streets, sidewalks and common areas so that there was a safe outdoor environment to reach the buildings for contractors and workers who were retained by owners and managers to effect all necessary exterior and interior cleanup of private buildings. To assist property owners, DEP engaged in the following tasks, among others:

- developed and distributed advisories to building owners and occupants;
- established HELP lines for concerned owners or tenants to respond to complaints or concerns about proper abatement procedures for contractors;
- provided telephone consultation to building owners, contractors, consultants and tenants related to asbestos clean up;
- performed site inspections and conducted building surveys;
- reviewed sampling data submitted by building owners, their contractors and consultants;
- reviewed the scopes of work for clean up of asbestos-containing material; and,
- developed emergency certification procedures and offered daily certification exams to ensure a properly trained and qualified work force was available.

Although city, State and Federal agencies have provided oversight and guidance on interior clean up, that task remains the responsibility of building owners and occupants. For example, some building owners identified the presence of asbestos-containing material (ACM) during their assessment for hazardous materials in areas of the buildings under their control. Once material is identified as ACM, New York City rules require that a licensed contractor with certified asbestos workers perform the clean-up activities. As noted above, DEP technical staff has been continuously available to assist in the development of plans for handling asbestos clean-up activities. At the completion of the cleanup activities, the city's regulations require clearance air sampling by licensed professionals prior to allowing re-occupancy of areas where asbestos work had been performed.

As general guidance to Lower Manhattan residents, the Department of Health developed a fact sheet "Recommendations for People Re-Occupying Commercial Buildings and Residents Re-Entering Their Homes." This fact sheet, along with others on related topics, was distributed very widely in Lower Manhattan. These fact sheets offer general information on air quality issues as well as practical, "how-to" information on dealing with dust, debris and other potentially hazardous conditions that residents face as they return to their homes.

Finally, I have a few words concerning the potable water supply and the marine waters that surround the city. Although I believe the Subcommittee's major objective is to review issues associated with air quality, I would like to take a few minutes to assure the subcommittee that neither New York Harbor, nor the city's potable water supply were degraded by the Trade Center attack.

As a result of the attack, DEP and EPA were concerned that rainwater washing off the Trade Center site and into the sewers and the harbor could be polluted. Manhattan's sewers—as well as most city sewers—are combined sewers, meaning rainwater flooding into the sewers from the streets ends up in the same pipe as the sanitary flow. During a rainstorm, a percentage of this combined flow ends up at our treatment plants, and the remainder of the combined flow is discharged untreated into surrounding waters through outfalls located at the bulkheads. In the case of Lower Manhattan, the combined sewers serving that area lead to a very large pumping station at East 13th Street in Manhattan. From there, the sewage is pumped to Greenpoint, Brooklyn where it is treated at the Newtown Creek wastewater treatment plant.

DEP routinely samples raw sewage going into the Newtown Creek plant, as well as treated effluent coming out of Newtown Creek, several times each day. We also regularly take samples from open waters at various locations in New York Harbor, including near the Battery. DEP tests these samples for “conventional parameters,” such as temperature, pH, dissolved oxygen, suspended solids and coliform. These conventional parameters have consistently remained within their normal ranges since September 11th.

Using the more sophisticated testing capabilities that EPA has at its disposal, beginning September 11th, their staff immediately began supplying us with results from tests for “unconventional parameters” on samples of run-off from the Trade Center site, harbor waters, and sewage. These unconventional parameters include PCB's, dioxin, asbestos and other organic chemicals and contaminants for which the city's harbor water quality laboratories do not routinely test. Initial runoff samples taken near Rector Street showed elevated levels of PCB's, dioxin, asbestos and metals. Follow-up samples showed concentrations of these substances below levels of concern. Samples of harbor water and samples of effluent from the Newtown Creek plant also show the presence of “unconventional parameters” at levels too low to be of concern.

Finally, let me reassure all New Yorkers that continuous sampling of the drinking water supply at the reservoirs, in the aqueducts, and within the city's distribution system have shown all parameters to be within the normal range and below any levels of concern.

Thank you Mr. Chairman and Senators for this opportunity to present testimony. We look forward to answering your questions.

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RESPONSES BY THOMAS R. FRIEDEN TO ADDITIONAL QUESTIONS FROM SENATORS  
LIEBERMAN AND VOINOVICH

*Question 1.* In your testimony, you mentioned a World Trade Center Registry. Can you elaborate on this concept?

Response. Over the past few months, the New York City Department of Health (NYCDOH), in collaboration with the Centers for Disease Control and Prevention (CDC), has developed a protocol for a comprehensive WTC Registry. Such a registry is an important public health tool that will provide a population base for assessing potential short- and long-term health impacts. The Registry will include workers and responders to the WTC site and Fresh Kills Landfill, evacuees of impacted WTC buildings, residents, and people working within defined perimeters at the time of and shortly after the disaster. The registry could include more than 100,000 people and would provide a system of followup for 10–20 years. Substantial funding is, therefore, needed to implement and maintain the Registry. It is our understanding that the Agency for Toxic Substances and Disease Registry (ATSDR) has requested funding from the Federal Emergency Management Agency (FEMA) for the Registry and that if the funding is awarded, ATSDR would collaborate closely with the New York City Department of Health, which would administer the Registry.

*Question 2.* In February, the Department of Health put out a press release regarding some preliminary findings on indoor air, which you also mention in your testimony. There is a discussion of fibrous glass found in indoor air samples. Can you please elaborate on this? At what levels did the fiberglass occur? Can people remediate this dust in the same way that they do asbestos-containing dust?

Response. As mentioned in the original testimony, the New York City Department of Health, in collaboration with the New York State Department of Health (NYSDOH) and the ATSDR, conducted Residential Air and Dust Sampling in 30 Lower Manhattan buildings. In each building, attempts were made to collect dust and air samples from one common area (e.g. lobby, hallway); an outdoor area (e.g. near front entrance); and two individual apartments. Fifty-nine apartments were sampled. Fibrous glass was detected in settled dust samples from 23 of the apart-

ment samples, 11 of the common areas, and 9 of the outdoor area samples. Fibrous glass, when detected, ranged from 2 percent to 35 percent of total detectable fibers in the indoor samples and from 15 percent to 72 percent in the outdoor samples. The results of the dust samples underscore the importance of wet cleaning and HEPA vacuuming to reduce dust in indoor environments. Sampling was also conducted to better clarify what, if any, fibrous glass was found in the air samples. These results, which are pending, will be included in the final ATSDR report.

*Question 3.* In your press release, you indicate that there were two dust samples which had greater than 1 percent asbestos—the definition for asbestos—containing material. Were these indoor dust samples or outdoor dust samples?

Response. Two of the dust samples were determined to be asbestos-containing materials (as defined as material that contains 1 percent or greater of asbestos as assessed by Polarized Light Microscopy (PLM)). Both of these samples were collected outdoors and professional asbestos-abatement work was completed.

*Question 4.* Is the Department of Health making detailed information from this indoor air sampling available on its website? If not, why not?

Response. The NYCDOH and ATSDR will provide a full report to the public, not only on the website, but also through public meetings, as soon as the final report is available from ATSDR. Two community meetings were, already held to explain the asbestos and fiberglass results: The final report is expected to be completed in late spring 2002. Information on this study is also available on the ATSDR website at, [www.atsdr.gov](http://www.atsdr.gov). In addition, New York City has recently established a toll-free WTC, Hotline that can be accessed at (212) 221-8635. The Hotline responds to WTC-related indoor and outdoor air quality inquiries, provides referrals for specific requests, and maintain a data base to identify problems to be addressed.

*Question 5.* Do you have adequate resources to meet response needs? Has access to resources been an obstacle to fulfilling your responsibilities in this regard?

Response. As with other responding agencies, the New York City Department of Health has had to stretch existing resources to respond to expanded public health needs following the WTC disaster. Although assistance from State and Federal public health agencies has been very helpful, there is still much that needs to be accomplished. For example, the WTC Registry will need substantial funding for establishment and maintenance over 10–20 years. We are also working with other agencies to ensure an efficient integration of activities and to decrease duplicative efforts as we seek additional funding. The NYCDOH is anticipating further funding from FEMA to continue to address the needs of Lower Manhattan.

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STATEMENT OF THOMAS J. SCOTTO, PRESIDENT, DETECTIVES ENDOWMENT  
ASSOCIATION, INC., NEW YORK CITY POLICE DEPARTMENT

On behalf of all of the members of the NYC Police Department, I wish to express our appreciation to this committee for affording us the opportunity to express our concerns regarding the aftermath of the tragic events of September 11, 2001.

Since that date, members of the NYC Police Department have worked around the clock at the World Trade Center and the Staten Island Landfill.

As such, they have been exposed to a number of identifiable toxic substances and perhaps 100's of other combinations of these *toxins* that may never be identified and the long-term health effects of which are still unknown.

The major concerns of police officers can be grouped into 3 categories.

1. The development of a uniform procedure to provide physical exams over an extended period of time to monitor the overall effects of their exposure to the elements at Ground Zero and the Staten Island Landfill.

2. Assuring essential and required medical treatment within the basic health coverage provided by the city.

3. In recognition of the fact that many of the illnesses which result from contact with toxic substances can take in excess often 10 years to appear:

(a) Revise the current pension provisions to protect the families of those who retire and then may suffer a debilitating and/or terminal illness as a result of their exposure to Ground Zero and the Staten Island Landfill environment.

(b) Revise the current legal requirement which imposes an unrealistic time limit on ones ability to commence an action against the city.

STATEMENT OF EDWARD J. MALLOY, PRESIDENT, BUILDING AND CONSTRUCTION  
TRADES COUNCIL OF GREATER NEW YORK

Good morning Mr. Chairman and members of the subcommittee. My name is Edward J. Malloy. I serve as president of the Building and Construction Trades Council of Greater New York, an organization consisting of 60 affiliated local unions and district councils representing more than 100,000 working men and women in New York City. I also serve as an appointee of Governor George E. Pataki to the 11-member Board of Directors of the Lower Manhattan Redevelopment Corporation. Thank you for the opportunity to testify before the subcommittee and for bringing this hearing to New York.

On the morning of September 11, 2001, nearly every unionized construction project in New York City shut down as workers rushed to Ground Zero. In the early days of this tragedy, it is estimated that more than 10 thousand of our members volunteered their skills on the site. In the ensuing weeks and months since, when the City of New York's Department of Design and Construction (DDC) assigned recovery and clean-up responsibilities to a team of the area's most respected contractors, approximately two thousand of our members per day were employed in two around-the-clock shifts of 12 hours each. Today, as this recovery and clean-up effort moves toward conclusion, several hundred of our members remain on the job.

In testifying before the subcommittee this morning, we would like to draw your attention to two areas of interest and concern. The first is the record on measurable safety and health data and the partnership between labor, management, and Government which has produced rather impressive results in this regard. The second is the less certain issue of how we address safety and health exposures which are not as easily detectable as common bumps and bruises. On this second front, although significant efforts through our safety and health partnership have been made to prevent such exposures, there is an immediate need for clinical medical services to be made available to identify and treat any conditions that may not have been prevented or yet detected.

First, on November 20, 2001, the Building and Construction Trades Council of Greater New York joined with the Building Trades Employers Association, the Occupational Safety and Health Administration (OSHA), and other public and private entities working at Ground Zero to implement an emergency safety and health partnership agreement on the site. A copy of this agreement is attached to our testimony for your consideration. It should be stressed that prior to this agreement being executed, labor and management in our industry had been working under less formal but effective means with OSHA and DDC to assure the implementation of a safety and health program in which every member of the building and construction industry on the site was required to participate.

The results of this partnership and other cooperative efforts are encouraging. With more than 2 million hours of labor completed, there have been 96 claims for workers' compensation reported. Of these claims, 13 have resulted in lost time due to injury or illness. No deaths or life-threatening injuries have occurred. All experts with whom we have consulted advise that the number of injuries and illnesses, as well as their relative severity, are well below what might have been expected. It is our intention, with both a continuation and expansion of the commitment to safety and health, that this record be maintained and improved. As we are sure the subcommittee is aware, however, the circumstances of this project dictate that good providence in addition to the most diligent human attention to safety and health concerns will be required if our intentions are to be fulfilled.

The second matter of concern pertains to the need for clinical medical services to be made available to every individual who has either resided, volunteered, or been employed at Ground Zero or in the nearby vicinity, particularly in the earliest days of this tragedy when it would seem that the potential for exposures to contaminants was at its highest. We appreciate Senator Hillary Rodham Clinton's efforts to secure \$12 million for this purpose and submit to the subcommittee that additional funding must be provided to assure that every individual whose health has potentially been adversely affected by activities at or near Ground Zero is able to receive clinical medical services.

It is vitally important that individuals who may have been exposed to contaminants be screened and, if necessary, treated. Doing so will assure to the highest degree possible that conditions which can be treated and resolved are, and that conditions which may entail longer term consequences can be treated in a way that mitigates or even eliminates such consequences.

Taking action on this matter in a timely fashion will not only minimize the potential for human suffering, but also represent a responsible approach to minimizing

the negative fiscal implications of healthcare and insurance costs which have come to be associated with the events of September 11th.

It is also really important that these services be made available in a well-organized and centrally-accountable manner so that a comprehensive and professional evaluation can be made of what the systemic exposures to contaminants and health problems at Ground Zero have been. To date, the majority of scientific evaluation of which we are aware has occurred with regard to monitoring contaminants in the air, water, and soil. It has not occurred as thoroughly in monitoring the blood, respiratory, and other body systems of human beings who may have been harmed by these exposures. We have attached for your consideration an initial proposal by the Mount Sinai Medical Center to provide the clinical medical services needed to address this situation for members of the building and construction industry. We of course support such services being made available to any other affected individuals.

Mr. Chairman and members of the subcommittee, the losses and devastation caused by the events of September 11th are well-known. It is imperative that every effort be made to assure that no further unnecessary and preventable tragedies result, whether 10 days or 10 years from now. The provision of funding to make clinical medical services available to all individuals who need them is among the most important work that we believe the Federal Government can undertake going forward. We do not hesitate to argue that it is a particular moral obligation to assure that those men and women who responded so selflessly and even heroically to the events of September 11th receive every possible consideration for their well-being that can be offered. We will be pleased to cooperate with you in every way to achieve this goal.

Thank you.

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WTC EMERGENCY PROJECT PARTNERSHIP AGREEMENT BETWEEN U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION AND SITE CO-INCIDENT COMMANDS NYC DEPARTMENT OF DESIGN AND CONSTRUCTION (DDC), NYC FIRE DEPARTMENT (FDNY); EMPLOYEE ASSOCIATION, BUILDING & CONSTRUCTION TRADES COUNCIL OF GREATER NY (BCTC); EMPLOYER ASSOCIATIONS, BUILDING TRADES EMPLOYERS' ASSOCIATION (BTEA), CONTRACTORS ASSOCIATION OF GREATER NEW YORK (CAGNY), GENERAL CONTRACTORS ASSOCIATION (GCA); PRIME CONTRACTORS, AMEC CONSTRUCTION MANAGEMENT, INC., BOVIS LEND LEASE LMB, INC., TURNER/PLAZA CONSTRUCTION JOINT VENTURE, TULLY CONSTRUCTION. CO., INC.

Whereas the United States Department of Labor Occupational Safety and Health Administration (OSHA) and the undersigned parties mutually recognize the importance and value of contractors, employees, employee representatives, and Federal, State and city government agencies exerting leadership by bringing their respective skills to bear in a cooperative, focused, voluntary effort to ensure a safe and healthful environment for all personnel involved in the WTC Emergency Project.

Accordingly, to advance our mutual goal, we strongly agree on the need to continue to develop a working relationship that fosters mutual trust and respect for each organization's respective role in the WTC Emergency Project. We recognize and embrace the responsibilities inherent in those roles and are committed to work as partners to achieve the following shared strategies and objectives:

- Prevention of occupational related fatalities and serious injuries and illnesses for all workers involved in the WTC Emergency Project
- Compliance with and implementation of the WTC Emergency Project Environmental, Safety and Health Plan
  - Immediate abatement of all serious hazards
  - The sharing of all exposure monitoring data to include sampling for air contaminants, noise, heat and cold, radiation and biological agents
  - The sharing of all safety hazard data

All of the undersigned parties agree to continue to work in cooperation with organizations assisting in the WTC Emergency Project to achieve the above mentioned goals of this agreement including but not limited to; NYC Office of Emergency Management (OEM), New York City Police Department (NYPD), NYC Department of Health (DOH), NYS Department of Environmental Conservation (DEC), NYS Department of Labor—Public Employee Safety and Health Program (PESH), Port Authority of NY & NY, Liberty Mutual Insurance Company, Environmental Protection Agency (USEPA), Building and Construction Trades Department of AFL-CIO (BCTD).

This agreement shall be in effect until the completion of the WTC Emergency Project. Should any party choose to withdraw prior to the WTC Emergency Project's

completion, a notice of intent to withdraw will be provided to all parties 30 days prior to any proposed termination. Changes may be made by any party to this agreement with the written concurrence of all parties.

References:

1. WTC Emergency Project Environmental, Safety and Health Plan
2. Strategic Alliance between USDOL/OSHA, BTEA & BCTC—November 21, 2000

MT. SINAI I.J. SELIKOFF—CENTER FOR OCCUPATIONAL & ENVIRONMENTAL MEDICINE

PROPOSAL: MEDICAL SURVEILLANCE PROGRAM FOR CONSTRUCTION AND INFRASTRUCTURE REPAIR WORKERS EXPOSED TO ENVIRONMENTAL CONTAMINANTS FROM THE WORLD TRADE CENTER DISASTER

BACKGROUND

Hazardous exposures, such as asbestos, silica, fibrous dusts, heavy metals, PCBs, polycyclic aromatic hydrocarbons, dioxins, and noise, related to the World Trade Center disaster may result in short-term and long-term illness among people working at or near Ground Zero. Short-term health effects of exposures may include asthma/reactive airways disease, chemical burns or irritation of the nasal passages, throat, and upper airways, sinusitis, persistent cough, musculoskeletal disorders, noise-induced hearing loss, and psychological problems, such as post-traumatic stress disorder. Some of these health problems can become long term if left untreated.

Therefore, there is a great need for medical surveillance to detect current illness, recommend treatment regimens, and provide baseline examinations should other health problems related to the disaster arise.

*Medical Surveillance Program*

A three-phase program is proposed:

- *Planning Phase.*—Identify exposed workers; analyze exposure data; develop educational and benefits information materials; develop secure and confidential data base to support project administration and long-term followup.
- *Clinical Examination Phase.*—Conduct baseline exams; provide results to examinees; coordinate clinical followup; continue outreach; manage data base.
- *Evaluation Phase.*—Analyze results from medical exams; generate report and disseminate results; develop recommendations for long-term clinical followup and preventive measures to reduce disease incidence in this population.

*Contents of Baseline and Followup Medical Surveillance Examinations*

The actual contents of the baseline and followup exam will be based on review of current data and updated as new information becomes available. For this proposal, the examination includes:

- *Standardized History.*—Detailed work history at or near the WTC site; current symptoms; prior medical and occupational/exposure history.
- *Physical examination.*—Particular attention to the nose, throat, respiratory, musculoskeletal and neurological systems.
- *Laboratory tests.*—Complete blood count; blood chemistries; urinalysis.
- *Pulmonary function tests.*
- *Chest x-ray.*
- *Hearing tests.*

*Frequency and Scheduling of Examinations*

- *First examination (baseline):* As soon as possible.
- *Second examination:* One year later. Additional examinations for some individuals may be recommended by examining physicians.
- *Third examination:* Fifteen years later.

*Estimated 2-Year Cost:* \$10,510,000.

- *Year 1:* Planning Phase and Baseline Examination Phase; Administrative costs: \$800,000; 7000 clinical examinations: \$4,655,000. (\$665. per individual).
- *Year 2:* Followup Examinations; Administrative costs: \$600,000; 7000 clinical examinations: \$4,655,000. (\$665. per individual).

*Mount Sinai Center for Occupational and Environmental Medicine*

The Mount Sinai Irving J. Selikoff Center for Occupational and Environmental Medicine, situated in the Department of Community and Preventive Medicine at

Mount Sinai School of Medicine, has expertise in evaluating and managing occupational and environmental exposures, illnesses, and injuries. The Center integrates occupational medicine, industrial hygiene, ergonomics, social work, occupational health education, and coordination of return to work for workers who have suffered occupational injuries and illnesses. Our program emphasizes prevention as well as diagnosis, treatment, and management of occupational and environmental health problems. The Center specializes in addressing the very types of exposures and health consequences experienced by workers at the WTC disaster site.

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STATEMENT OF STEPHEN M. LEVIN, M.D. MEDICAL DIRECTOR, MOUNT SINAI—IRVING J. SELIKOFF CENTER FOR OCCUPATIONAL AND ENVIRONMENTAL MEDICINE, DEPARTMENT OF COMMUNITY AND PREVENTIVE MEDICINE, MOUNT SINAI SCHOOL OF MEDICINE

Chairman Lieberman, Senator Clinton, and members of the subcommittee. I am pleased to appear before you today to discuss the health impacts of the attack on the World Trade Center on September 11th, our understanding of the short-term and longer-range risks to health, and a perspective on what needs to be put in place to meet the needs of the thousands of workers and volunteers who played a role in the response to this disaster.

My name is Stephen M. Levin, M.D. I am Medical Director of the Mount Sinai—Irving J. Selikoff Center for Occupational and Environmental Medicine, in the Department of Community and Preventive Medicine at the Mount Sinai School of Medicine in New York. Our Center is funded by the New York State Department of Health and is part of a statewide network of occupational medicine clinics established by the State legislature to examine and treat workers who have developed illness or injury caused by their exposures at work. We have an explicit mission—to find ways to prevent occupational illness, placing us in the domain of public health. We provided over 6,000 patient services in the last year, and since September 11th, we have examined more than 250 men and women who worked or volunteered at or near “Ground Zero.” Most of these individuals came to us because they had respiratory symptoms that developed after their exposures there.

Our Center has long experience with the health consequences of exposures in the construction environment, and we were able, therefore, to predict, unfortunately all too accurately, what health risks were posed by the exposures at and near Ground Zero—exposures to the wide range of airborne irritants present in the smoke and dust caused by the fires and the collapse of the towers, just reviewed by Dr. Thurston. As with most cases of illness caused by environmental agents, the likelihood of developing illness and the severity of that illness depend largely on dose—how much exposure has occurred.

I want to discuss today what we have observed among adults who were exposed at the World Trade Center site. My colleague and Department Chairman, Dr. Philip Landrigan, in the next panel will talk about risks to children. Among the people fleeing the buildings, the firefighters, police, and emergency medical technicians who responded, and the citizens who tried to help after the planes hit the towers—there were many who were caught in the huge, dense cloud of dust and combustion gases released by the collapse of the buildings. These groups had some of the worst exposures, inhaling high concentrations of smoke and dust. Those who came to the Ground Zero area after the collapse, in the first days and weeks after September 11th, to perform rescue and recovery work or to restore essential services there, also had heavy exposures, as they selflessly and often heroically did what they could in the effort to save lives. The thousands of construction and support workers who have been involved in the removal of debris from the site, often working 12 hour days, sometimes 6 or 7 days a week, also had all too frequent exposures to the dusts and gases which until recent weeks were a constant feature of the site.

We were concerned that these exposures would cause respiratory tract difficulties, and that is, in fact, what we have seen clinically. Problems range from persistent sinusitis, laryngitis, bronchitis, and among some, the first attacks of asthma they have ever experienced. The problems have been especially severe among those who had respiratory problems prior to September 11th—many have noticed a marked worsening of their pre-existing sinus problems or breathing difficulties. But what is perhaps most striking is the occurrence of respiratory problems—chest tightness, cough, shortness of breath, wheezing—among individuals who were in excellent physical condition before. The experience of our patients parallels that of the firefighters who have been evaluated by Dr. David Prezant, who I believe is here today and perhaps can comment later. High rates of respiratory illness have been found



among the firefighters, a group well recognized to be physically fit prior to this exposure.

Some of our patients, once away from Lower Manhattan, have noticed a general improvement in their symptoms, but find that exposure to cigarette smoke, vehicle exhaust, cleaning solutions, or other airborne irritants provokes reoccurrence of their symptoms, in ways that they never experienced before September 11th. Not all who were part of the effort at or near Ground Zero developed persistent respiratory problems; some are more susceptible to the effects of such exposures than others. The difficulty is, we have no way to predict who the susceptibles are. It is very important that, in addition to preventing further exposure to irritants as much as possible, treatment with appropriate medications be instituted as quickly as possible, to prevent these conditions from becoming lifelong, disabling illnesses.

In the past 2 months, we have seen similar respiratory problems emerging among some of the office workers who returned to buildings situated in the periphery of Ground Zero, especially those located downwind from the debris pile and the fires which were actively burning until December. For most, the symptoms of eye, nose, throat, and chest irritation are transient and not of serious concern. But we have patients with new onset asthma since their return to work in nearby buildings - people who were never previously asthmatic. Fortunately, most of my patients report that their symptoms are generally improving, now that the fires have for the most part been extinguished and the airborne irritant burdens have decreased.

A clinical feature, which surprised us in its frequency and intensity, is the degree of psychological distress among the early responders. Many of our patients who came to us for respiratory problems also reported persistent flashbacks of images and sounds of human trauma and horror they had witnessed, especially early on. Police officers, construction workers, and others have had sleep difficulties, depression or irritability, and many had difficulty controlling their tears whenever reminded of what they had seen, even months after the events themselves. The group debriefing sessions that many participated in at the site was simply insufficient to help such individuals resolve the effects of this experience on their emotional well-being.

To address the specific issue of exposure to asbestos at and near Ground Zero, it is important to note that asbestos has been found in the debris at the site itself and in settled dust on surfaces in nearby buildings. Fortunately, the concentration of asbestos fiber in outside air is low, and poses a correspondingly low risk of disease. For those who work at the Ground Zero site itself, respiratory protection to prevent inhalation of asbestos fiber is necessary, and the use of such respiratory protection is the current policy for workers at the site, although compliance can hardly be described as universal. A special group at increased risk for asbestos-related illness (twenty or more years from now) are the workers engaged in clean-up operations in offices and residential buildings near the site. For the household resident or office occupant whose exposure during the cleaning of settled dust is brief, there is a very low increase in risk of illness, even if the wrong methods are used. Such risk should be avoided, and Dr. Landrigan will likely address the special risk for children in such settings. The risk to unprotected building service workers, however, who perform dust-disturbing tasks day in and day out for perhaps months is of much greater magnitude. This group requires training and protection. Many are hired off the street, are not English speaking, and are among the most vulnerable of workers. That they should have been permitted to be exposed to asbestos dust in this fashion is a public health failure.

From the perspective of what needs to be done now, our clinical experience, taken together with what has been learned from the study of the NYC firefighters, points to the need for developing a medical surveillance program for those who placed themselves at risk in the course of their efforts—whether as employed workers or volunteers. A registry of those who were present at or near Ground Zero must be established as quickly and comprehensively as possible. Medical examinations, to identify persistent respiratory, musculoskeletal, and psychological conditions should be made available to all who were there, and treatment should be initiated where findings warrant it. The longer treatment is delayed, the more difficult treatment becomes, and the less successful the clinical outcome. If resources are made available, a consortium of medical institutions under the guidance of occupational/environmental medicine expertise can be established, working in coordination with the appropriate government agencies, to provide clinical evaluations and treatment programs. I am confident that we would receive full cooperation from relevant employers and labor organizations to facilitate the development of the registry and the clinical surveillance program itself. The many workers and volunteers who have given so much of themselves deserve no less.

Thank you, and I will be pleased to answer questions.

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STATEMENT OF MARILENA CHRISTODOULOU, PRESIDENT, STUYVESANT HIGH SCHOOL  
PARENTS' ASSOCIATION

On behalf of the six thousand parents at Stuyvesant High School, I want to thank you for holding this hearing on a matter of great concern to our community.

Stuyvesant High School is an academically excellent school for which each student must take a competitive examination in order to gain admission. Approximately 20,000 students take the Specialized Science High Schools' entrance examination for the 750 available spaces at the school. It is the most competitive school in the New York City Public School System and arguably in the country.

The school, located four blocks north of the World Trade Center, was heavily impacted by the events of September 11th. The 3,000 students and 200 staff members were evacuated in the middle of a cloud of toxic dust and debris as the second tower was collapsing. Almost immediately, the school building was commandeered for use by rescue and recovery agencies and personnel.

The Board of Education (BOE) reopened the school on October 9. We were the first school in the Ground Zero area to return to its building. Some of the remaining six schools have only returned last week and one school, PS 89, has initiated legal proceedings against the BOE seeking an injunction against the return. The goal of our Parents' Association (PA) has been to ensure that the return to Stuyvesant would occur only when the streets were safe for walking and the building was safe for occupancy. Our single most important concern is the issue of air quality—both inside and outside the school—specifically, the possible presence of airborne contaminants and related potential adverse health effects. Unfortunately, it is my opinion that the return to Stuyvesant was premature and that environmental conditions in and around the school continue to pose a potential threat to our children's health and well-being.

As the inside of the school tested positive for asbestos, the BOE conducted an asbestos abatement prior to reoccupancy. We were encouraged by the fact that the BOE's cleanup should have taken care of not only asbestos, but also all other particulate contaminants. In addition, as a result of negotiations with the PA, the BOE agreed to undertake environmental sampling inside and outside the school (which continues to this day). Results are reviewed by H.A. Bader Consultants, Inc., the PA's hired environmental engineers, and by the PA Environmental Health & Safety Committee.

The excavation operations and the few remaining fires at Ground Zero continue to release a variety of contaminants into the Lower Manhattan air. These contaminants, all of which are associated with potential adverse health effects, include asbestos, lead, crystalline silica, dioxins, carbon monoxide, diesel and gasoline exhaust, PCB's, heavy metals, and benzene and other volatile organic compounds. In addition, several hundred trucks a day carry pulverized debris and steel girders coated with remnants of asbestos fireproofing from Ground Zero past Stuyvesant to the waste transfer barge operation located immediately adjacent to the north side of the school on Pier 25. This is the main debris removal operation from Ground Zero. Additional contaminants are released into the air as loads are transferred from trucks to barges. Diesel emissions from the many trucks and cranes at the barge are another source of contaminants.

Our experience since returning to school has been and continues to be problematic. Our children are getting sick. We are also concerned about the possible delayed health effects (like cancer) 10-20 years from now from exposure to the chemicals in the air.

CONTAMINANTS ARE ENTERING THE SCHOOL

Our goal is to prevent contaminants in the outdoor environment from entering the school and affecting our children. The primary route of outdoor contaminants into the school (assuming windows and doors are kept closed) is through the ventilation system. The main defense against contaminants is the filtration in the ventilation system. To date, the BOE has failed to take adequate measures to protect our children. Despite repeated requests from the PA, the BOE still has not cleaned the ductwork of the ventilation systems. After months of stalling, the BOE finally upgraded the filters at the end of January. Although these replacement filters provide an improvement in efficiency, they still do not provide adequate protection, according to evaluations by two independent professional ventilation engineers working with the PA.

Results from environmental sampling conducted by the BOE demonstrate that, on more than 50 percent of the days from October 9, when our children returned to school, to February 1, measurements of respirable particulate matter (PM<sub>2.5</sub>) inside the school have exceeded EPA guidelines for children. These particulates may pose a greater danger because they may contain a mixture of toxins. Levels of lead dust in excess of regulatory limits were found inside Stuyvesant on several occasions in December, January, and February.

#### THE BARGE OPERATION IS A MAIN SOURCE OF CONTAMINANTS

It is clear that the close proximity of the barge to the school is putting our children at a greater risk of exposure to toxic contaminants. The PA's environmental engineer has measured and compared airborne concentrations of particulate matter at Ground Zero and on the north side of the Stuyvesant building, and found the particular matter to be higher at Stuyvesant. As the north side of the school faces away from Ground Zero and towards the barge operation, the only reasonable explanation is that we have elevated levels of particulates coming from the barge/truck operation. The PA expert also reports that levels of particulate matter at Stuyvesant have consistently been double the levels at Barclay Street, one block from Ground Zero.

On several occasions, the EPA notified the PA that, weeks earlier, it had monitored high levels of certain contaminants in outdoor air at its monitoring station, between the school and the barge, in excess of EPA regulatory limits. These contaminants included asbestos, tetrachloroethane, and isocyanate. Unfortunately, the EPA has not been monitoring the latter contaminants on a regular basis nor is it monitoring and disclosing the full array of possible contaminants. Further, there is no system in place for proactive notification of the residents, workers, and students in the area to enable them to take protective measures (like staying at home) on days when levels of contaminants in the air are high.

Carting of the Ground Zero debris material to the barge constitutes an unacceptable risk to our children and to the surrounding community along the truck route. We are in the unique position to observe the truck and barge operation, and we can report to you that, despite assurances from government officials, the trucks are not always adequately covered; on cold days the debris cannot be hosed down to prevent the release of dust; and the levels of visible dust in the air and on the pavement are high.

To date, government agencies have been unwilling to either relocate the barge operation to a less damaging site or to take effective measures to protect the community. There was discussion to containerize the debris at Ground Zero prior to trucking them to the barge; to install particulate traps by the barge; and to use low-sulfur fuel for the trucks and the cranes. To date, none of these measures has been implemented.

Even simple measures such as halting barge operation on below-freezing non-hose down days, rerouting trucks from Pier 25 to Pier 6 during the hours when school children are outdoors, and directing trucks hauling loads with high dust content to Pier 6, have not been implemented.

There are 4,500 school children, some as young as 4 years old, within two blocks of this barge operation. We are at a loss to understand how the Government could locate a toxic dump right next to a school in the middle of a residential community. The BOE has taken no effective action to have the barge relocated, or to ensure its operation in an environmentally safe manner.

In summary, our children are exposed to three sources of contaminants: the air inside the school, the toxic composition of the Ground Zero debris trucked and dumped at the barge, and the diesel emissions and combustion byproducts generated by the trucks and the cranes.

#### INCIDENCE OF ILLNESS AMONG STUDENTS AND STAFF

Since the return to school on October 9, a number of students and faculty have reported and exhibited clinically diagnosable symptoms of illness. Many parents report that their children have experienced unusual rashes, nosebleeds, coughing attacks, and chronic sinus and respiratory problems, including new onset asthma and chemical bronchitis. Parents have reported to us several emergency room visits. It has been reported that several custodians have chemical bronchitis. Since the return to Stuyvesant on October 9 through December 14, at least 11 students have left the school due to air quality problems. These students, who will not be allowed to return by the BOE, have chosen to leave one of the most prestigious public high schools in the Nation, and to forfeit a public educational opportunity that essentially cannot be replaced.

Several faculty members have left or taken sabbaticals for health reasons or medical concerns. The teachers' union has filed a grievance over environmental conditions at the school. The National Institute for Occupational Safety and Health ("NIOSH"), a branch of the Centers for Disease Control, has begun an investigation of environmental conditions and health effects among teachers at Stuyvesant (and other Lower Manhattan locations). However, NIOSH can only investigate the health impact on workers and has no jurisdiction to conduct an evaluation of our children. Neither the BOE nor the NYC Department of Health have conducted an epidemiological study of the students. The incidence of student illness cannot be adequately characterized based only on attendance rates and visits to the school nurse's office.

Stuyvesant's student population is very diverse. Many of our students come from first and second generation non-English speaking immigrant families. We are concerned that many of these families do not have the wherewithal to seek early medical care. Dr. Stephen Levin, of the Mt. Sinai Selikoff Center for Occupational and Environmental Medicine, has advised us that early detection and treatment of respiratory illness is critical in terms of preventing such illness from becoming chronic. (I would like to take this opportunity to thank Dr. Levin for his help during this period).

In conclusion, these developments call into question any unequivocal assurances from government agencies, including the EPA and the BOE, about the health and safety of our children.

#### IMMEDIATE ACTION IS NEEDED

The following courses of action should be implemented to protect environmental quality and public health:

(a) *Barge Operation*.—The truck/barge operation on Pier 25 should be relocated to an area where there is less residential and educational impact.

(b) *Ventilation Protocols*.—The Government should immediately issue protocols for proper preventive measures to be taken by schools and other institutions in the area with regard to installation of protective air filtration and cleaning and operation of ventilation systems.

(c) *Cleaning of Buildings and Enclosed Structures*.—The Government should mandate regular proper cleaning (i.e., wet-cleaning and HEPA-vacuum) of building interiors and other enclosed structures in the area, including foot-bridges such as the one outside Stuyvesant.

(d) *Cleaning of Streets and Sidewalks*.—The Department of Sanitation, as well as entities such as the Battery Park City Authority, should be required to regularly wet-clean the streets and sidewalks in the area, as it is necessary for dust suppression.

(e) *Environmental Monitoring and Notification*.—The Government should take action to ensure complete environmental testing, both indoor and outdoor; full and timely disclosure of results; and immediate and full notification of elevated levels of contaminants to residents, workers, and students in Lower Manhattan.

(f) *Monitoring of Incidence of Illness and Medical Coverage*.—The Government should assume responsibility for implementing a centralized and coordinated effort to monitor and track incidence of illness among residents, workers, and students in the area. A central registry of all residents, workers, and students who have been exposed to contaminants as a result of the September 11th attacks should be established. The Government should assume responsibility for early detection and medical treatment of illness related to the World Trade Center disaster. Also, in my opinion, a dedicated fund should be established to pay for medical costs associated with any future health problems of registered individuals as a result of WTC chemical exposure.

Thank you for the opportunity to address you today.

#### STATEMENT OF JULIE HIRAGA, TEACHER AT PS 89 IN MANHATTAN REPRESENTING THE UNITED FEDERATION OF TEACHERS

Good morning, Chairman Lieberman, Senator Clinton and members of the committee. My name is Julie Hiraga. I am a second grade teacher at PS 89 in Manhattan and am here representing Randi Weingarten, president of the United Federation of Teachers. Thank you for this opportunity to testify on the health issues that concern those of us who live and work in Lower Manhattan.

The brutal attack on the World Trade Center on September 11th was a trauma we are all still learning to overcome, but slowly we are trying to return to normal. At PS 89, one of seven schools in the immediate vicinity of Ground Zero, the teachers and paraprofessionals quickly led children out of harm's way even as the Twin

Towers fell and smoke and debris filled the air. Miraculously, not one student was injured or lost in the attack.

Following the disaster, our schools were relocated to other sites, and some were moved yet again. For the children in PS 89, our two moves took their toll, emotionally and educationally. The adjustments were especially disruptive for students who had to take State tests in reading and language arts. Unfortunately, children did not start getting counseling until January. Still, the teachers have been doing their best to keep students calm and focused on learning.

This has been a very frightening time for all of us, but the teachers of PS 89 want to return to our normal routine. Right now, we are scheduled to go back to our home school on February 28, and although there's a lot of excitement and optimism, there's also some anxiety about safety. Teachers are concerned about having to keep windows closed and not having an outdoor play space for the children.

Also, the school is on the truck route for debris removal. These huge trucks emit diesel fumes and their cargo throws a lot of dust in the air. Teachers are worried about the long-term impact on their health and wonder if symptoms may not emerge for some time.

Parents, too, are worried about air quality and health issues and we wonder how that will affect student enrollment. Right now, we have only half the students we had before Sept. 11 because parents have moved or withdrawn their children. Now parents of about 30 more students have applied to withdraw their children when we go back to our building because they are concerned about health and safety. The problem is compounded when children hear some classmates talk about their parents' worries and become fearful.

Having our union as a watchdog has helped allay some of those fears. The UFT's two industrial hygienists and its consulting physician made presentations to our staff and made sure that our questions were answered. They reviewed all the air-testing data and assured us that they will continue reviewing the reports. They said that air testing and sampling of a number of contaminants that could prove harmful to students and staff will continue on a regular schedule, both inside and outside every affected school.

The union's representatives have also been very responsive to our concerns and needs. They explained what was being done to control the dust, such as watering down the trucks and installing matting under all exterior school doors to hinder dust seepage. They helped our school get a new, more efficient filtration system and a new HEPA vacuum for our custodial staff. They even sent us snacks and towelettes, and that gave us a real morale boost when we needed it.

We've also had a chance to see what has happened at the other schools that reopened. Stuyvesant High School was the first to reopen on October 9. Teachers in my school followed events there very closely. Stuyvesant is further from Ground Zero than PS 89, but the fires were still burning when students and staff returned. Many of my colleagues wondered if the air was safe, even though experts who reviewed the sampling data tried to reassure everyone.

Since some staff and students at Stuyvesant complained of respiratory problems, the union asked the Federal Government to conduct its own evaluation. As a result, on January 29 the National Institute for Occupational Safety and Health (NIOSH) began the first survey comparing staff symptoms at Stuyvesant High School with those at a high school out of the affected area (Fiorello LaGuardia High School in midtown Manhattan).

We also saw that the union's experts were not content with acceptable facts and figures alone. They conducted on-site visual inspections of all the affected schools to make sure they were properly cleaned and prepared for reoccupancy. A good example is what happened at the High School for Economics and Finance, which was had been scheduled to reopen on January 30. Both the monitoring data and a preliminary inspection showed that everything was ready. But then additional work was done, releasing new dust and debris. Because union representatives made a follow-up visit on the Sunday before the scheduled reopening, they saw these new potential hazards and kept students and staff from moving back until the board cleaned the school again.

In the meantime, our sister school, IS 89, reoccupied the top two floors of our shared building on January 22. It is doing well, which is encouraging. I also hear that the staffs at PS 150 and PS 234, which had many of the same concerns we had, are glad to be back in their own buildings.

So to sum up, there are lingering concerns about our students' psychological and educational welfare, as well as about parental reactions. All of us at the school have had concerns about air quality and other health hazards in the aftermath of September 11th. However, the independent monitoring and involvement of the union's health and safety experts has helped reassure us.

Thank you.

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STATEMENT OF BERNARD ORLAN, DIRECTOR OF ENVIRONMENTAL HEALTH AND SAFETY, NEW YORK CITY BOARD OF EDUCATION

Mr. Chairman, Ranking Member Voinovich and Senator Clinton, I am happy to appear before you on behalf of Chancellor Harold O. Levy and the New York City Board of Education. We appreciate this opportunity to speak about how the events of September 11th affected public schools in the area of the World Trade Center. My name is Bernie Orlan and I am director of Environmental Health and Safety for the New York City Board of Education.

As you know, last September 11th, we were forced to evacuate a number of schools in the downtown area. While this has been noted numerous times, it is worth pointing out again that this evacuation was accomplished without a single injury—either to a teacher or a child. Teachers and other staff kept their charges safe. Indeed throughout the system, teachers, principals, assistant principals and support staff worked tirelessly to get children home safely and in the aftermath of that day have helped our students get back to the business of learning.

In the days following the disaster, many of our school buildings were used by various agencies including FEMA and the city's Office of Emergency Management for rescue and ultimately, recovery operations. Other school facilities were used by the Red Cross as emergency shelters. Once permission was granted by the city to normalize activity from 14th street to Canal Street and areas east of Broadway, schools in this area were tested for particulate dust, asbestos and other compounds including carbon monoxide and carbon dioxide. We also established baseline levels for general air quality. The results of these and other tests verified that the buildings were safe for children and staff to return.

This left us with seven schools contained in six buildings that could not immediately be reoccupied. These included two high schools south of Ground Zero and one high school, one intermediate school and three elementary schools north of Chambers Street, which is north of Ground Zero. In all, more than 5,000 students were displaced.

Four schools were being used by emergency workers and agencies. Once these buildings were turned back to the Board of Education jurisdiction, we began exhaustive environmental testing, beginning with tests for asbestos debris. Very little of this was found. Nonetheless, the decision was made to clean each school as if it were contaminated. Following the strict AHERA protocol designed by independent monitors certified by both NYS Dept of Labor and the U.S. Environmental Protection Agency, teams of approved asbestos abatement handlers began a top-to-bottom cleaning, first by HEPA-vacuuuming and wet wiping the buildings. Following the cleaning, the buildings were retested and found to be clear of contaminants that would have come from the collapse of the World Trade Center.

Just as the teachers and staff safeguarded the children as they ran from their schools, it is our duty to safeguard them on their return.

Before the schools could reopen, a battery of environmental testing was performed in and around each school. These included wipe and air sampling for asbestos, respirable particulate concentrations, mercury, PCBs, silica, fiberglass, hydrocarbons, dioxins, metal and cyanides. I have provided a summary of these test results as an addendum to these remarks. For the record, in and around the schools, we have not found any of these materials in any concentration known to be hazardous. While we expect to find background levels of some of these materials in the air—in particular respirable dust—since mid-December when the long-burning fires were extinguished, in daily tests, we found all of these tests to show these contaminants to be absent or on rare occasion, present in quantities that measure for the most part below conservative safety guidelines.

At this point, only PS 89—which shares a building with IS 89—and the High School for Economics and Finance, have yet to return to their buildings. With the return to their home sites, we take a three-pronged approach to safeguarding the physical health of our staff and students. At every school, we perform more than 100 separate air tests a day. We are also sampling over 24-hour periods, in order to collect and examine all particulates and we continue to provide periodic environmental surveillance for the contaminants of concern. Barrier mats at school entrances help prevent people from tracking debris into the school. All ventilation systems were inspected and upgraded to enhance their efficiency to capture the finer dust particles. In addition, medical and metal hygiene staff are located at each school to provide assistance and documentation as necessary.

In conclusion, we have done everything we can do to ensure that our students are learning and our teachers are teaching in a clean and secure environment. We will continue to monitor their environment and will continue to share all the information we collect with parents, their environmental consultants, the unions and the public. We will continue to work diligently and tirelessly for the health and safety of our community so that they can continue to focus on our overall mission of teaching and learning.

I am happy to take your questions.

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STATEMENT OF PHILIP LANDRIGAN, M.D., M.Sc., CHAIR, DEPARTMENT OF COMMUNITY AND PREVENTIVE MEDICINE AND PROFESSOR OF PEDIATRICS, DIRECTOR, CENTER FOR CHILDREN'S HEALTH AND THE ENVIRONMENT, MOUNT SINAI SCHOOL OF MEDICINE

Mr. Chairman and members of the subcommittee: My name is Philip J. Landrigan, M.D. I am a pediatrician, chairman of the Department of Community and Preventive Medicine and director of the Center for Children's Health and the Environment of the Mount Sinai School of Medicine. A copy of my curriculum vitae is attached to my testimony. Thank you for having invited me to testify before you today.

I will focus my testimony on the impacts of the September 11th World Trade Center attacks on the health of children.

#### DEMOGRAPHICS

On September 11, 2001, 46,000 children ages 0–19 resided in Lower Manhattan below 14th Street. Approximately 11,000 of these children were under the age of 5 years, and 3,000 lived within a half-mile radius of the tower. Twelve hundred children were attending the three primary schools closest to the World Trade Center (P.S. 89, P.S. 150, and P.S. 234); 300 children were in attendance at I.S. 89; and 4,000 children were at Stuyvesant High School, the Leadership High School and the High School for Finance. We estimate that 1,700 women in Lower Manhattan were pregnant on the morning of September 11th.

#### EXPOSURES

When the twin towers were destroyed, the communities of Lower Manhattan were enveloped in smoke and soot. Women, children and persons of all ages were placed at risk of exposure to dust, debris, asbestos, fibrous glass, products of combustion, volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs) and dioxins. For many weeks last fall and into early winter, these communities were subjected intermittently to the smell of acrid smoke from the long-burning fires. Many offices and apartments were coated with dust that entered those structures through shattered windows or inadequately protected air handling systems.

You have learned much today already about these exposures. In particular, you have been informed of the risks to workers by my Mount Sinai colleague, Dr. Stephen Levin. To provide further background on the nature of these exposures, I attach to my testimony articles prepared by our group at Mount Sinai that were published in November in *Environmental Health Perspectives*, the journal of the National Institute of Environmental Health Sciences (NIEHS).

#### THE SPECIAL VULNERABILITY OF CHILDREN

Children are particularly vulnerable to environmental toxins such as those released into the air of Lower Manhattan on September 11th. Several factors act together to increase children's risk.

- Children live closer to the ground than adults and thus are more like to inhale any materials stirred up from dust.
- Children breathe more air per pound of body weight per day and thus take into their bodies proportionately larger quantities of any toxic materials suspended in the air.
- Children's developing lungs and other organ systems are more sensitive than those of adults.
- Children have more years of future life in which to develop delayed diseases that may result from exposures to dust, asbestos or other toxic materials.

#### PRENATAL TOXICITY

Potential for toxicity *in utero* affecting the next generation is a further dimension of the September 11th disaster. The possible physical and psychological con-

sequences of the attacks on pregnant women and their children are not known and need to be explored.

To address this issue, researchers at Columbia University Center and the Mount Sinai School of Medicine have developed a joint project to examine infants born to women who were pregnant on September 11, 2001 and who were either acutely or chronically exposed to the fires and explosions. The acute exposure group will consist of pregnant women who actually were in the World Trade Center or in nearby office buildings at the time of the attacks. The chronic exposure group will consist of women who live and work in the communities of Lower Manhattan. Samples of blood and other biological fluids will be taken from these women to assess their exposures. Their infants will be evaluated at birth and periodically over the first several years of their lives. Outcomes will be assessed.

#### COMMUNITY HEALTH NEEDS

Protection of the health of community residents in Lower Manhattan, particularly young children and pregnant women, requires that we take strong and consistent action on several fronts.

##### *Sound Health Recommendations*

The most immediate need in the communities of Lower Manhattan is for scientifically sound, evidence-based guidance (1) about the risks to children and families and (2) about what families can do to minimize those risks.

To formulate health recommendations for families and communities in Lower Manhattan, we have relied heavily on the extensive environmental assessment data collected by the U.S. Environmental Protection Agency, State and city agencies, the Board of Education and private consultants. Although there is always room for more sampling, the aggregate amount of data that has been collected in Lower Manhattan since September 11th is astounding. It represents the most comprehensive environmental sampling that has ever been undertaken in any community in the United States. Most of these data, including all the data collected by governmental agencies, are of high quality and very credible.

In the early weeks after the disaster, while the sampling data were still quite incomplete, we urged prudent avoidance. At that time the smell of acrid smoke hung heavy over Lower Manhattan, especially at night and on days with little wind. Although the actual measured levels of airborne pollutants were below Federal standards, there were intermittent peaks of exposure. Accordingly, we developed recommendations in collaboration with the Ground Zero Elected Officials Task Force and the Manhattan Borough President that urged families to take the following prudent steps:

- Limit the amount of time you spend out of doors near the WTC site.
- Limit vigorous outdoor exercise and vigorous play by children in the affected area. Both increase the rate of breathing.
- For ongoing clean up, use a HEPA vacuum (they can be rented) and a damp mop or rag on floors, walls and furniture to clean your apartment. Brooms stir up dust.
- Be sure all air-handling systems in your building are properly cleaned.
- Frequently change filters on air conditioners and other ventilation equipment, and run air conditioners on 'recirculate' with vents closed.
- Use HEPA air filters at home or in the office.
- Keep windows closed.
- Take your shoes off at the door.

More recently, now that the fires have largely been extinguished, we have continued to monitor health risks to community residents, particularly to children. Much of this assessment has focussed on the schools and on the question of whether to reopen the schools and playgrounds in Lower Manhattan.

##### *School Health Risks*

Based on our review of the most recent data, we are comfortable that the indoor environment of the schools in Lower Manhattan is now clean and safe for children and adults.

The public schools in Lower Manhattan have undergone an extensive array of environmental tests more thorough than any that have been performed in any other New York City public school. Measurements of contaminants (fine particulates, PCBs, dioxins, lead and other metals, asbestos, and volatile organic compounds) have found levels that in virtually every instance are well below applicable standards and background levels. The following paragraphs summarize our interpretation of these data:



- *PCBs, Dioxins, and related compounds.*—These compounds are produced by almost any sort of combustion and are found widely in our industrialized society. If one were to test air and surfaces in any large city, trace levels of these compounds would frequently be detected. The air and surface test results undertaken in the schools in Lower Manhattan found all levels to be either undetectable or far below even the most conservative standards. For instance, the highest reported wipe sample level of dioxin in P.S. 89 was 0.032 ng/M<sup>2</sup>. This is nearly 1,000 times below the New York State Department of Health standard.

- *Fine Particulates (PM<sub>2.5</sub>).* These particles are ubiquitous in a city environment. They arise principally from the combustion of fuel in car, truck, and bus engines as well as industrial exhaust. The U.S. EPA guideline of 40 micrograms/m<sup>3</sup> is based on a 24-hour average. All of the EPA 24-hour average measurements of fine particles near the schools in recent months have been well below this level. In any urban environment, levels of fine particulates fluctuate from moment to moment and day to day. In fact, spot measurements taken at 13th Street, where P.S. 234 was temporarily housed, revealed levels greater than 100 micrograms/m<sup>3</sup>. The levels of fine particulates in Lower Manhattan are now more a reflection of background urban air pollution than a result of the continuing WTC clean up. Indeed these levels may increase when the roadways are re-opened to general traffic.

*Asbestos.* Although “no asbestos is good asbestos”, the levels of asbestos fibers in the air in Lower Manhattan and in and around P.S. 89 are at background levels for the city, and the levels in the schools are well below the AHERA standard of 70 structures/mm<sup>2</sup>.

That said, however, we need to be watchful for the long-term consequences of exposure to asbestos. Almost no data exist on the possible long-term consequences of low level asbestos in early childhood. Causes of malignant mesothelioma have, however, been reported in the grown children of asbestos workers who were exposed to take-home asbestos; among non-working women in the asbestos mining townships of Quebec who were exposed in the community; and among long-term residents of a community near an asbestos-cement plant in Northern Italy.

Last, with regard to the question of playgrounds, we have advised that they be kept closed for the present time, because trucks are still rolling by on the West Side Highway carrying construction materials and potentially asbestos. Although measured levels of particulates and asbestos are below Federal standards, we believe that prudence should dictate that children not play outdoors in immediate proximity to the highways where these trucks are running.

I have attached to my testimony a copy of a letter that we submitted on February 5, 2002 to the parents, staff and community of P.S. 89. Previously we had submitted a similar letter to the family of P.S. 150. We have provided similar advice pro bono to the New York City Board of Education.

#### *Home Health Risks*

Many apartments in Lower Manhattan were heavily inundated by dust on September 11th. Dust entered these apartments through shattered windows and also through air handling systems.

Cleanup of apartments has been very uneven. Some have been effectively and thoroughly cleaned with HEPA vacuums, while others appear not to have been adequately cleaned. Although data are more fragmentary and incomplete than for the schools, there appear to have been apartments and buildings where children may have been significantly exposed to particulates and asbestos.

#### FUTURE NEEDS

##### *Follow up Assessment*

It will be very important to continue to follow up vulnerable populations who were present in Lower Manhattan on September 11th and in the succeeding weeks and who were therefore placed at risk of exposure to toxic materials liberated from the fires and explosions at the World Trade Center. Specific follow up assessments that are needed are the following:

- *Follow up of women in Lower Manhattan who were pregnant on September 11th and their children.*—As I have noted above, studies are already underway as a joint endeavor between the Columbia University School of Public Health and the Mount Sinai School of Medicine. They need to be sustained for at least 3–5 years.

- *Follow up of children residing in and attending schools in Lower Manhattan.*—To date, only scattered assessments of children in Lower Manhattan have been undertaken; these initial studies are proceeding under the leadership of CDC, ATSDR, the New York City and New York State Departments of Health. While these studies will provide useful information on the impact of the environmental exposures on

September 11th on the health of children in New York, with a particular focus on asthma and other respiratory problems, they have some shortcomings. One problem is that the number of children included is relatively small. Second, the planned duration of follow up is limited—only one year. This will limit these studies' ability to address parent's concerns about the possible long-term consequences of the events of September 11th on their children's health. Third, the studies currently underway are not assessing the impacts on children's mental health of the events of September 11th. Those psychological impacts are expected, however, to be substantial.

A need exists therefore to generate high quality information on the short and long-term health consequences, including the mental health consequences on children, of the events of September 11th.

#### BROAD NATIONAL NEEDS

The events of September 11th and the anthrax attacks that followed underscored the weakness, deterioration and current state of disarray of the public health infrastructure in the United States. They underscore how ill prepared are most doctors and hospitals to recognize, respond and care for victims of chemical and biological attack. Most American physicians have never seen anthrax or smallpox, the two agents judged most likely to be used in biological terrorism. Most hospitals do not have plans for the proper isolation of victims or the protection of their staff.

The lack of preparedness for chemical weapons is equally low. It is sobering to note that in the aftermath of the Tokyo subway attack with sarin in 1995 many secondary cases of chemical poisoning occurred in hospital workers caring for the victims of the attack. These cases resulted because health care workers were untrained and because hospitals had no plans in place for the chemical decontamination of the victims prior to treatment.

A major need exists in the United States to strengthen programs for disease tracking. The extremely sensible recommendations of the Pew Commission on Public Health need to be heeded by health officials at every level of government. Training programs in public health and disaster preparedness need to be established for doctors, nurses, and other health care providers. Hospitals, particularly major hospitals in urban centers, need to be provided the resources and materials needed to develop response plans. These plans need to be closely coordinated with prehospital responders including fire departments, emergency medical technicians, and the Federal Emergency Management Agency.

#### CONCLUSION

Many questions of profound importance for public health were raised by the attacks on September 11th. Many of these questions remain to be answered, and some will not be answered for decades. The urgent need now is to put in place the studies and to establish the registries and the disease tracking systems that will enable us to answer these questions in the future. New York, Washington and all of the United States need to press forward and not be paralyzed by these terrible attacks. At the same time, we must put in place the prudent safeguards that will prevent further loss of life. Thank you. I shall be pleased to answer your questions.

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#### STATEMENT OF LEE SAUNDERS, ON BEHALF OF JUDITH BERGER-ARROGA OF DISTRICT 37, AFSCME

Thank you Senators Lieberman and Clinton for giving us this opportunity to address your subcommittee. My name is Lee Saunders and I am the Administrator for District Council 37, AFSCME. I am testifying on behalf of the 125,000 members of District Council 37. Our members are the "Everyday Heroes" who helped in hundreds of ways at "Ground Zero" and elsewhere to keep this city working during the terrible tragedy that occurred on September 11, 2001. I am here today to request that the Federal Government provide funding for appropriate medical testing, treatment and surveillance as well as continued safety training for our remarkable members—city workers who selflessly and valiantly put themselves in harms' way following the September 11th attack to assist the citizens of this great city.

From the moment the first plane hit, our members who work as Paramedics and Emergency Medical Technicians rushed to the scene to begin the rescue effort. Moments after the attack DC 37 lost three members—two EMTs, Carlos Lillo and Ricardo Quinn from Local 2507 and Farther Mychal Judge a Chaplain from Local 299. Scores of other members were injured in the aftermath. Hundreds of other DC 37 members played and continue to play important roles in the rescue, recovery and clean-up effort in and around the World Trade Center.

Our Local 983 Urban Park Rangers were among those who assisted in the evacuation of Battery Park City and the surrounding areas. Our Local 1322 and 376 members who work for the Department of Environmental Protection immediately responded by ensuring that the water supply to fight the huge fires was adequate. Our Motor Vehicle Operators from Local 983 also responded immediately to address critical transportation needs. As I speak, they continue to haul debris from "Ground Zero" hundreds of times a day. Local 375 HAZMAT workers also played a critical role to make certain that chemical hazards were abated quickly. Engineers and Architects from Local 375 have been there from day one to provide technical expertise in overseeing the overall safety of the rescue and recovery operations. Other members of DC 37, such as Local 768 Public Health Sanitarians, Local 420 Mortuary Care Technicians and Local 371 Social Service Workers, have all played vital roles by tending to the health and safety needs of those adversely affected by this terrible event. Until recently, Local 372 School Lunch Aides fed thousands of meals a day to the rescue and other workers at "Ground Zero".

Since September 11, 2001, DC 37 has spoken out on the need for adequate funding for the city to address the multitude of concerns of our residents as well as our members who have so valiantly assisted in the rescue and recovery efforts. To aid New York City in its recovery, it is critical that the \$20 billion promised by President Bush be made available promptly to enable the city to meet its crushing and immediate economic needs.

More particularly, an adequate portion of the \$12 million that Senators Schumer and Clinton have proposed to deal with worker health issues must be specifically earmarked for the medical testing, treatment and surveillance of employees who were exposed to the numerous dangerous chemicals and other toxins in and around "Ground Zero". To date, only some of the employees working at "Ground Zero" have received baseline medical examinations. Unfortunately, hundreds of others have not. In order to adequately protect the health of these heroic workers, this money must be appropriated in an expeditious and efficient manner. We must not allow unnecessary bureaucratic hurdles and lack of coordination on the part of city, State and Federal agencies to further delay this essential funding. Monies for medical testing, treatment and surveillance of workers should be allocated to the New York State occupational health clinic network, which is well equipped, trained and staffed but presently lacks adequate funding to deal with the huge numbers of workers potentially affected by this disaster.

Failure to allocate adequate funding to address these pressing occupational health issues will unduly burden the city's health insurance carriers and delay the needed medical treatment and surveillance that workers need now. Our government should not place the burden of continued good health on these heroic workers who have already given so much.

DC 37 urges this subcommittee to immediately commit necessary Federal funds to New York City to be used in the following manner:

- To fund the Occupational Health Clinics in NYC in order to provide appropriate medical testing, treatment and surveillance.
- Develop training programs on safety and health related issues for workers taking part in the rebuilding of the city.
- Develop a worker registry to identify workers affected by the 911 attack.

I would like to thank you for your time and will answer any questions you may have.

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STATEMENT OF MARJORIE J. CLARKE, PH.D., SCIENTIST-IN-RESIDENCE,  
LEHMAN COLLEGE

My name is Marjorie J. Clarke, Ph.D. I'm a scientist-in-residence at Lehman College, and an adjunct professor at Lehman and Hunter College, City University of New York. I was the Department of Sanitation's specialist on emissions from incinerators in the 1980s, the author of a book and numerous publications on the subject of minimizing emissions, and I served on a National Academy of Sciences committee on Health Effects of Waste Incineration, co-authoring the NRC publication by that name. I also served on the New Jersey Standard-Setting Task Force on Mercury emissions from incinerators in the early 1990s. My graduate degrees are in geology, environmental sciences, and energy technology. More details about my credentials can be gleaned from the above website.

I thank the Senate Environment Committee for having this hearing on the health impacts on lower Manhattan due to the World Trade Center collapses and fires. I hope that, once you have fully investigated the statements and actions by EPA and other governmental agencies at all levels, investigated the precedents set by earlier

EPA actions that have applied to similar situations elsewhere but not in Lower Manhattan, that you will work hard to investigate what happened, why it happened, to make recommendations for improvements in procedures, standards, communications, and research, and to seek to have implemented the many good recommendations that were made at the hearing and subsequent testimony. It's vital to understand that not only are there immediate problems to remediate (clean up, treatment of illness), but there are many more problems to solve so that the next time there is an environmental disaster of any kind, procedures are in place for every aspect of the myriad of issues that result. As important as remediating current problems and preventing new ones, I hope you will publicize everything that you find so that the public understands, and is therefore more likely to support all recommendations.

There are several issues of importance to and lessons to be learned by New York State in the way the environmental agencies have handled air quality issues in Lower Manhattan since September 11th.

First, I concur with the Ground Zero Task Force, that there still needs to be a Cleanup Oversight Agency—I'd go further and say that there needed/needs to be one agency responsible for monitoring health and providing health assistance, and another for environmental sampling, analysis and public dissemination of the results. There was a long delay before all the environmental and health agencies even began to talk with one another about sampling of air quality and accumulated dust. I heard from a high level policy official at City DEP that it took 2 weeks for discussions to start between the head of NYCDEP (Miele) and the local USEPA office. When did DEC begin to coordinate with these other agencies? Can we learn specific lessons from each breakdown in communications and preparedness and devise specific procedures for all to follow in the future?

Second, the WTC collapses and fires actually constituted a brand new, combination type of air pollution source, with aspects of a (1) crematorium (most of the bodies will never be found because they were cremated, and their ashes scattered all over downtown and surrounding areas intermingled with the asbestos, fiberglass and concrete dusts), (2) a solid waste incinerator of unprecedented proportion (described below), (3) asbestos factory (but on a scale thousands of times the size and intensity of what would be found even in a badly operated factory) and (4) volcano (the initial cloud was similar to nuee—ardente—hot gas and dust cloud—in some respects, depositing ash in a large area). There are many toxic, carcinogenic and irritating pollutants, standards need to be rewritten to assess the impacts of synergy—to protect the public health.

Since this is a new type of air pollution source, with characteristics of a crematorium, a solid waste incinerator, an asbestos factory, and even an ash-spewing volcano, no emissions standards exist and therefore, none of the existing standards for other sources directly applied. Many of us remember the bitter battles between Brooklyn residents and the city over the Brooklyn Navy Yard plant. The emissions from this plant would have been controlled well over 90 percent for most pollutants, and yet we have an incinerator downtown which continues to burn totally uncontrolled. New York State wrote a law banning the construction of this incinerator due to public pressure. Yet the extent of environmental contamination by this incinerator would have paled in comparison to what people have been living with for months. The emissions from the World Trade Center fires were orders of magnitude more than any incinerator, many months have passed, and we have heard very little about a serious attempt to contain the emissions from the site. No attempt had been made to put out the fires (i.e. by cutting off the sources of oxygen from above and the tunnels below.) No procedures have been established to require or do this. Why wasn't there discussion to erect a temporary structure (dome) over the site, and install incinerator emissions controls to clean the air inside the dome so that the workers could do their work in safer conditions and the cleanup around the downtown be finished, once and for all? (Now every time there is a wind, the debris is picked up and dispersed)

Third, there has been a toxic and carcinogenic "soup" of air pollutants in the downtown air, constantly being generated by fires, and worse, smoldering embers that incompletely combust thousands of tons of toxic precursors present in the form of fine particles and gases—the perfect recipe formation of dioxins, furans, and similar products of incomplete combustion.

It's hard to imagine a more perfect machine for generating toxic and carcinogenic air pollution. First, there were thousands of tons of asbestos, fiberglass, silica, and very alkaline concrete which was pulverized into various size fractions, but much of which was extremely fine in size. Then there was a tremendous source of heavy metals, PCBs, and acids just from the building's contents (latex paints typically contain mercury—think of the number of gallons there was on the walls). Lead came

from volatilization of lead from car batteries, leaded glass in computer screens, lead solder, and lead pigments among other sources. Mercury would have come from batteries, fluorescent lighting, paints, thermostats and thermometers, mercury light switches, and other sources. The same is true of cadmium, chromium, arsenic, and other heavy metals. Most of this was initially pulverized; much of that was then in a form easy to volatilize given a high enough temperature.

In addition there were combustible products and packaging all over the buildings—everything from products and packaging made of paper, cardboard, wood and plastic, including furniture, floor coverings, textile partitions just to name a very few. Fire is easier to start when the combustible matter is a very fine size because the temperature and oxygen can get to all surfaces quickly (try to start a log burning vs. small scraps of paper). The source of heat in the WTC came not only from burning of the jet fuel, but also from the cars underground, as well as from the combustible materials in the building (paper and plastic are highly combustible).

The paper and plastics are not only important because they fed the fires, which volatilized metals and other toxic gases, but also because under conditions of a few hundred degrees to 1800 degrees Fahrenheit, dioxins, furans, and similar compounds form, *de novo*, when paper and plastic smolder where insufficient oxygen and temperature is present to burn them thoroughly. In the 1970s, before it was known that municipal solid waste incinerators needed to be designed and operated very carefully to combust the waste thoroughly, some incinerators created tens of thousands of nanograms/cubic meter of dioxin emissions. The stack size of one of these incinerators was a tiny fraction of the equivalent stack size of the World Trade Center air pollution source. In the pile, there was certainly little oxygen, there was a great deal of dioxin precursors (paper and plastics), and the temperatures were perfect for incomplete combustion, so the smoldering would have permitted the generation of an enormous quantity of toxic and carcinogenic organics.

Dioxin is a family of 210 discrete man-made chemicals that are some of the most carcinogenic and toxic chemicals known. Dioxin is the contaminant of Agent Orange that was responsible for birth defects across Vietnam after that war ended. Dioxin adheres very tightly to particulate matter in incinerators, and is stored in fatty tissues in human beings for long periods of time. Dioxins are created in large quantities in poorly designed, uncontrolled incinerators, when products such as paper, cardboard, wood are incompletely burned with such substances as PVC plastic, benzene, and other chlorinated ring structures. The Trade Center was full of fuel for such incomplete combustion. The optimal temperatures for formation of dioxin are roughly between 400 to 1800 degrees Fahrenheit. European dioxin emission standards from an incinerator with a small stack (as compared with the area of Ground Zero) are 0.1 nanograms (billionths of a gram) Toxic Equivalents per cubic meter of emission.

The finer the size of the particulate matter, the greater that amount of volatilized heavy metals, dioxins/furans, and acid gases that can condense from the air and adsorb onto the particulate surfaces (because the surface area of the particulate is so much greater). Also, the finer sizes of particulate matter, laden with toxic and carcinogenic substances, can evade the body's coughing mechanism—the cilia—all the way down to the alveoli (air sacs) where they can reside for the long-term. The longer the fires burned, the greater was the source of volatilized metals, organics, and acids. The fires burned and smoldered for at least 100 days; a decision was made on some level not to attempt to suffocate them (i.e., blocking off all the sources of air from above and below). Because the decision was made not to contain the site, every time we have a heavy wind, the dust that is still all over Lower Manhattan is kicked up and spread around more. The city's meager attempts to wet down the streets certainly resulted in some of the asbestos/fiberglass/toxic and carcinogenic dust to be washed out into the harbor via the storm sewers (doing unknown damage to ecosystems there), but much of the dust remained in place, just to become airborne again once the water had evaporated. The city should have been applying a "wet-vac" technology to collect the dust so that it could be brought to a hazardous waste disposal site.

Fourth, there are a few types of air quality standards—

- (1) Ambient air quality—mostly irritants (SO<sub>2</sub>, NO<sub>x</sub>, CO, O<sub>3</sub>, particulates) from cars,
- (2) Occupational exposures (a wide range of pollutants, 8-hour/day exposure), and
- (3) Emissions from point and non-point sources (as measured in the stack or tail-pipe).
- (4) There are just a few standards for hazardous air pollutants, which cause health effects with far lower doses (ppm, ppb) than the criteria air pollutants for which there are ambient air quality standards. Most toxic and carcinogenic air pollutants are not regulated under "NESHAPS", and there has been decades of delays

in standard-writing for other pollutants. This needs to be rectified soon, before we face something like this again.

The shortcoming of ALL these types of standards is that they were calculated by considering the effect on human health and the environment (i.e., the health of ecosystems) of only one pollutant at a time. If the air contains 2, or 5, or 500 discrete organics, heavy metals, acids, each of which has its own toxic and carcinogenic properties, but every pollutant is below the individual standard levels, then the Government points to that and says that the air is safe. But is it? The Government hasn't written standards for combinations of pollutants, so it considers the air to be safe if all standards, as currently written, are met. It's common sense that elevated levels of five pollutants is worse than one. It's also common sense that when there are widespread complaints of symptoms ranging from headaches and coughing to new onset asthma in marathon runners, and when everyone who entered into areas a half mile away and more from Ground Zero could smell the pollution, the air has not been "safe" for everyone. The additive effects of multiple pollutants need to be considered in assessing evacuation zones, public and health measures. Furthermore, two or more pollutants can interact with one another and produce impacts that are significantly more than the additive effects. Research has shown that inhalation of both asbestos and cigarette smoke produces several times the effect of either one alone. When 1+1+1 does not equal 3, but equals 30, this is called synergy. The Mt. Sinai Environmental Sciences Laboratory, which pioneered research into the health effects of asbestos, has found that those exposed to asbestos and who smoke, have not twice but 80 to 90 times the probability of suffering from asbestos-related diseases such as lung cancer, mesothelioma and asbestosis.

Despite the fact that the air was still so full of contaminants that everyone could smell "it" many blocks from Ground Zero until the end of November, all three environmental agencies stated that nothing was wrong with the air at the City Club's forum on October 26. Their basis is that each individual pollutant is below action or standard levels "most" of the time. But it is clear that a large number of pollutants are significantly elevated above background levels. I received an email from Dr. David Cleverly, dioxin expert at USEPA, that dioxin had been 50 times normal background levels, but not as high as actionable levels most of the time.

But EPA's website says that "most of the air samples taken in areas surrounding the work zone and analyzed for dioxin have been below EPA's screening level, which is set to protect against significantly increased risks of cancer and other health effects. The screening level is based on an assumption of continuous exposure for a year to an average concentration of 0.16 nanograms per cubic meter (ng/m<sup>3</sup>), which is 60 percent higher than incinerator emission standards at the stack exit in several European countries. Twelve days after the attack, ambient concentrations of dioxin were 0.139 ng/m<sup>3</sup> at Church and Dey just east of the site, 0.16 and 0.18 at Barclay and W. Broadway just north of the site, and at Broadway and Liberty, levels were at the 0.1 level. No measurements were taken northeast of the site, which would be downwind most often. The temperatures of the debris have also continued to be sufficient to vaporize many toxic heavy metals, such as lead, cadmium, chromium, arsenic, mercury, to mention just a few of the many that have surely been emitted in large quantities from this uncontrolled incinerator. I, myself, could smell the metals in the air while I was at the Municipal Building for a meeting in early October. My colleague, and medical waste incinerator expert who wrote the city's Medical Waste Management Plan in 1991, Wally Jordan of Waste Tech, remarked that he smelled chlorinated organics when he went to the site around that time. From what I have heard, the temperature of the pile has been within this temperature range for much of the time since September 11th, so the emissions from these fires could easily be similar to a number of uncontrolled incinerators.

Only recently did EPA put any dioxin data at all on its website, and there is no mention of background or action levels for dioxin or any other pollutant. Many heavy metals have not been listed on the websites. Background levels refer to what is loosely considered to be "normal" levels of any given pollutant in the atmosphere. But what does it mean if dioxin plus hundreds of discrete substances including asbestos and several other toxic and/or carcinogenic organic compounds, heavy metals, silica, acids and other gases and particulate matter are elevated, or even many times background levels, and are borderline actionable? Doesn't it seem likely that breathing air in which many toxic or carcinogenic pollutants are borderline actionable is worse for public health than breathing air in which only one pollutant is borderline? Yet standards assume the impact on human health is from only one pollutant. Is it protective of public health to look at each pollutant one at a time, ignoring the additive effects of inhaling each of several pollutants? Can we assume that the impacts on human health is only the additive effect of the concentrations of each pollutant, or might there be synergistic interactions between some of these com-

pounds that increase the impacts further? Since ambient air standards are for individual pollutants, it is imperative that research be done to assess the impacts on public health of combinations of pollutants. Standards need to be rewritten as well to assess the impacts of synergy. The environmental agencies at all levels need to become more expert in evaluating the health and environmental effects of various mixtures of pollutants. Based on this information EPA should rewrite its air quality standards to assess the impacts of various combinations of pollutants so that we will be ready next time to know how to protect the public health.

Fifth, various governmental agencies have applied occupational safety exposure levels for specific pollutants to those exposed to WTC air. But there are several distinct groups of those exposed, and each group has had distinctly different exposures:

- Those working on the pile (Variables: the level of emissions have decreased over time as the fires decreased in extent, degree of protective respirator/masks used, amount of time spent).
- Those who were caught in the initial horrendous dust cloud, covered in dust, running away, breathing intense quantities of dust deeply into the lungs and ingesting dust particles.
- Those living in the area (Variables: level of emissions varies depending on specific location, on weather, and length of time since September 11th; degree of protective respirator/masks used).
- Those who cleaned apartments (level of exposure varying with amount of dust in apartment, method of cleaning, degree of protective respirator/masks used, amount of time spent in cleaning).
- Those working in the area—8 hours a day five days a week; (Variables: degree of protective respirator/masks used).
- Those at risk: children, elderly, compromised immune systems, those with pulmonary problems are more likely to suffer more adverse affects than others for all the above categories.
- Handlers of disposed debris: shipments to India, S. Korea—no protection for workers offloading (no knowledge of contents).

• Most of these groups of exposed cannot be compared with occupational exposure. Studies of occupational exposure assume 5 days a week, 8 hours a day exposure to adults (healthy males?) What about those who live there, those at risk, those caught in the initial cloud? This requires considerable investigation, and many new standards need to be created to address these different categories of exposure.

Sixth, entrainment of pollutant-laden fine dust is also occurring, as we heard, by loading debris into trucks and barges. There are standards for reducing entrainment of incinerator ash. These involve spraying water and containment in leak-proof, covered trucks. Why aren't we enforcing those standards? Is it because this is not an incinerator? Shouldn't common sense dictate that the closest standards that exist be the ones to be followed in such a case? We heard that "guys with guns" enforce covering of trucks—Now. But I had heard from people who lived in the area, that the military had been enforcing the opposite in the first weeks, when pollutant levels were highest, so that they could check the trucks' contents. That the trucks might be covered by leaky tarps now does not negate the exposure to residents and workers of pollutants that were emitted earlier.

Seventh, air quality data has been selectively shared with the public, leaving the public mistrustful. Further, the agencies waited far too long to begin adding monitors to the area. We can only imagine the levels of dioxin, asbestos, heavy metals, acids, other organics, silica, etc. that was in the air while people were running from the area. We shouldn't ignore this impact on their health. On EPA's website, it initially listed only asbestos in air, asbestos in dust and a gross measure of particulate matter in air. After several weeks passed, EPA added PCB and lead. After another few weeks, a few days' individual samples of dioxin were presented. All told, this is maybe 20 pages of information. But in a televised public forum (City Club forum held October 26 and subsequently televised on CUNY TV), EPA said that all of its data was online. EPA repeated this at City Council hearings on November 1 and at State Assembly hearings later in November. Early on, I learned that EPA had 900 pages of data, including a list of heavy metals, dioxins and furans, acid gases, as well as those items listed. But EPA has demanded that the Manhattan Borough President and City Council must file Freedom of Information requests for it or else come to the repository and look at it. I asked for an electronic copy. I was told I was the first one to ask for it, and was told that it would not be possible to email me the data. How could this be, since the data surely exist on someone's computer? The Borough President's office never filed the FOI request (since their policy is not to do so). It is just this kind of secretive behavior that invites journalists or others without scientific training, who do go down to view the full datasets, to quote data selectively. If the data were freely available in a spreadsheet, then academic, envi-

ronmental, and community institutions could have already started studies. Those who want to conduct analyses are still unable to do so. Considering what is available online, the datasets appear to be thin, with many pollutants missing from the database and with only a few dates sampled for some pollutants. The first date that dioxin data are available are 12 days after the event. Most data are not available daily. Datasets for many pollutants are not available at all online.

Where was EPA while thousands of New York City residents were exposed to air pollutants from the WTC collapses? The EPA website shows only summaries of data, when they could have made data from September 11th onwards available for Lower Manhattan. If more or earlier data is available online, it's not easy for the public to find. EPA should make its entire air quality archives easily available on its website as well as those from all other sources.

Not only was EPA's secretiveness reprehensible this time, but procedures should be put in place NOW to ensure that should anything like this ever happen again, the environmental agencies would immediately be meeting to coordinate comprehensive sampling and analysis, AND prompt disclosure to the public via the internet of ALL data along with all current and applicable standards as well as background levels for each pollutant.

We also need to conduct research to understand toxic and carcinogenic impacts of multiple pollutants. One method of doing this is by conducting assays using surrogate organisms, to observe the impacts of different pollutant combinations. Tetramitus flagellate is one such organism that has been shown to indicate toxicity of unknown mixtures. Dr. Robert Jaffe, of the Environmental Toxicology Laboratory, <http://www.envirolab.com/> has been pioneering work in this area.

Eighth, very little has been spoken about building codes, and how the composition, structure, and operation of buildings contributed to the death toll, and how revision of these regulations is needed to prevent future deaths. When I worked on the 83rd floor of WTC 1 for a couple of years around 1980, we didn't have fire drills very often (I can only remember one, maybe two). When we did have drills, we were told to walk down the stairs to the 78th floor at which point we were told to stay put. That was the total extent of the fire drill. Is that protective of public health? The truth is, the WTC buildings were so tall that they were not readily evacuable. The stairways were not designed to evacuate everyone in a reasonable amount of time. To complicate this further, the Port Authority made announcements to go back to their offices. They did not immediately send announcements to everyone in both buildings to evacuate to the ground floor and leave. Some people who had gone to the first floor returned to their offices and lost their lives. A last point: Firefighters were coming up the same stairwells that the thousands of office workers were using to evacuate. This effectively halved the capacity of the stairwells for evacuation purposes. How many people might have gotten out if they didn't have to wait to enter a stairwell that was reduced to half its original capacity (remembering that some of the stairwells became impassable due to the fires themselves)? How many other tall buildings in NYC have insufficient number of narrow stairwells? How many are not totally evacuated during fire drills? What about those in wheelchairs on high floors? All these questions point to the need to limit the number of floors of new buildings to a size that can easily and routinely be evacuated quickly, assuming that firefighters will need space in the stairwells.

Insofar as construction of future buildings is concerned, attention must be paid to the safety factor chosen for retarding the effect of fire on the building's structural members. The WTC was designed to withstand the impact of a 707 aircraft. But why wasn't it also assumed that the 707 would be carrying thousands of gallons of jet fuel, and that this jet fuel would cause a fire of sufficient temperature and duration to melt the steel members? This is not a difficult mental exercise, and structural engineers figured this out within a day or so of having watched the floors compact. There is no room for error. If just one floor gives way, because the steel has partially melted, the weight of floors above comes crashing down, and the entire building will collapse, immediately, as we saw. Note that WTC building No. 7 was not even hit by an aircraft, but it also collapsed due to the duration of fire. The structural engineers interviewed said that it would have been possible to put a thicker layer of protective coating on the structural members of the WTC, but it would have cost a little more. How many people would have been saved if the buildings held together for another half hour? We should learn from this disaster. Building codes should be revisited to address all these issues and correct all deficiencies.

Since the City Council's Environmental Protection committee held two days of hearings (November 1 and 8), and the New York State Assembly held hearings in late November 2001, the Senate Environment Committee would be well served by looking at the transcripts and videos of those presentations—particularly those presented by the public.



I'll close by drawing an analogy with the way the environmental agencies are dealing with the public health hazard downtown. In south Florida, where I grew up, in the 1940's, as tourism was quickly growing, the Government kept information about hurricanes secret for fear that too much information would hurt business, particularly the tourist trade. Predictably, south Florida got walloped a couple of times, and then the Government, wisely, decided to make an about-face and become the world's experts on hurricane tracking, prediction, alerts, mitigation and standards for evacuation of the population to protect the public health. They established a world-class center in Coral Gables to serve as the source of information and research. Later, by the time I was six, I was tracking every hurricane's progress on a chart I got for free at the 7-11 store by listening to the radio for coordinates.

We have exactly the same situation here. There is a lot we don't know. The Government wants to protect business and the tourist trade. The Government has kept a great deal of information off limits to anyone for the first several weeks, and lately it has made it difficult to obtain in any usable form. Even worse than this is that we don't know the long-lasting impacts of the initial huge, dense cloud of finely pulverized asbestos and silica-laden dust on those running and inhaling deeply in its midst. We don't know the additive and synergistic effects of combinations of many toxic and carcinogenic pollutants that continue to be emitted from the fires or entrained from the dust as it blows off the rooftops and ledges. Will this exposure to air pollution compromise immune systems, making people more vulnerable to future illnesses or terrorist attacks? On what basis did the Government choose a perimeter for evacuation? On what basis did they rush to reopen the area? Have we learned anything from this experience? Now is a time for the environmental agencies to pull their heads from the sand, make an about-face, coordinate and release all data and interpretive guidelines on the Web. We need to err on the side of caution rather than seeking to go "back to normal" at the cost of the public health.

The Federal Government should assist the city by committing its funds and encouraging the Governor to seek additional Federal September 11th grants on an accelerated basis to conduct ongoing, comprehensive surveillance of symptoms in affected populations, buy room filters for residents, pay for proper indoor and building cleanup, research the acute and long-term impacts on health of highly concentrated combinations of pollutants acting for a short time, as well as elevated levels of combinations acting for longer periods of time.

The Federal Government should write new standards to reflect short-term exposure to high concentrations, as in the initial cloud, as well as synergistic effects of many toxic, carcinogenic pollutants.

We also need to have contingency planning for different types of environmental disasters as this new war against terrorism progresses. We need to actively examine worst case scenarios and plan for them. We need to understand how far to evacuate and for how long. This is the only way to regain public trust. Recalling the hurricane example, and realizing that we may not be finished with terrorism, becoming the world's experts in environmental health disasters and being truly open with the public is the best course of action in the long term.

#### RECOMMENDATIONS

1. To investigate, quantify, substantiate, and publicize any lies, misstatements, unpreparedness, lack of coordination, ineptitude, lack of attention to redirecting staff, or worse that did occur in the days and months since the World Trade Center attack on September 11, 2001. The Ombudsman should investigate all apparent or actual conflicts of interest that might have motivated agency and elected officials to make statements or make decisions.

2. To investigate and come to conclusions on:
  - (a) the bases for EPA's and other elected and appointed officials' statements as to the safety of the downtown area for reoccupancy, (i.e., what did they know, when did they know it, who did they ask, what agencies did they coordinate with, and on what topics—example: when did EPA first learn about the caustic nature of the dusts from USGS),
  - (b) the instructions and protective equipment tenants and landlords were given for cleaning indoors, by which agencies, and the agency procedures on which this was based, and
  - (c) the lack of attention to indoor air quality by EPA and the agencies for months after the attacks despite precedents of EPA having done so in other similar instances. Knowing this information should help in designing.

- (1) Improved procedures for intra- and inter-agency communications in the event of environmental disasters.

(2) Criteria for evaluating whether an incident, be it a natural or man-made disaster is an Environmental disaster, and procedures for their use.

(3) Procedures for immediate, multi-pronged, and continual communications of all information with the affected public.

(4) The standards that should be used to protect public health. Per Cate Jenkins memo, the NYC DOH chose a standard many orders of magnitude less protective than the one in one million standard that EPA typically chooses.

3. To issue recommendations on EPA emergency actions in the case of suspected environmental accidents, disasters, releases. Which Federal Agency takes the lead in protecting public health in such a circumstance? How do they coordinate, on what topics, and in what time frame? How fast should they communicate and coordinate with the State and local agencies? How is the responsibility and work to be divided?

4. To issue, publicize and widely disseminate a report combining measures and procedures used to measure all specific pollutants from ALL air quality and dust measurements that have been taken by EPA, other agencies, and private companies since September 11th. It would be helpful if this, and other reports you issue, were available for download, and that data be available in database or excel format that can be used in research (PDF format cannot).

5. To characterize and quantify the extent to which the public's health has been adversely affected (those working on the pile, those living/working in the area, children, elderly, immune-depressed, short- and long-term) by the air pollution from the WTC attacks, or at least make detailed recommendations of who should research this.

6. To seek to make the overall results of extensive medical tests (baseline and continuing) being done on the entire group NYC fire-fighters to become public.

7. To make determine and make recommendations on how much money is necessary to examine and conduct long-term follow-up on all those exposed to air pollution and dusts from the September 11th attacks, and from where the source of funding might come, and seek increased Federal funding to cover these costs.

8. To recommend that the National Academy of Sciences conduct a risk assessment of the public health impacts due to the air pollution caused by the September 11th attacks.

9. To ensure that guidance is disseminated to all physicians and hospitals in the area to look for and properly treat those exposed to WTC air. According to Mt. Sinai February 4, 2002 memo to help physicians determine whether pulmonary symptoms are related to WTC, some symptoms from exposure can begin as late as 3 weeks after exposure or cessation of exposure. If physicians have to be given guidance on these issues, many of those exposed are likely not to realize their symptoms are WTC-related. Why didn't the city, State or Federal government issue this memo in September? Efforts are not being made to locate all those who were exposed and to characterize their exposures and register their symptoms over time.

10. To recommend and publicize specific measures that need to be taken immediately to clean up the downtown area of dangerous dusts and to prevent the continuous reentrainment and spread of these dusts from the Ground Zero area into surrounding areas.

11. To investigate existing EPA standards and procedures to see whether standards required to prevent, control, or remediate environmental contamination in environmental disasters, accidents, or releases were not used to prevent, control or remediate pollution in this case (and why). Example: to prevent the spread of incinerator ash when it is transported from its source to a landfill, Federal regulations requires that the generating (and intermediate handling) facility be enclosed and operated with negative air pressure, that the ash is totally wetted, that trucks transporting ash be entirely containerized and sealed to prevent entrainment or leaking onto the ground, and that receiving facilities operate under similar constraints. Despite the fact that the debris from the WTC has the consistency and many properties of incinerator ash, leaky, imperfectly covered trucks are continuously scattering the debris between Ground Zero and the barge at Pier 25. Why aren't existing protective procedures being used? Steps need to be taken (i.e., legislation) to ensure that in all future environmental disasters, the entire array of existing procedures be canvassed and that the most protective procedures appropriate to the situation be utilized.

12. To develop and recommend what measurements need to be taken in the event of an environmental release, accident or disaster, and how the measuring stations should be deployed and operated. It is unconscionable that data taken early on is still dribbling out from the Federal Government—e.g., Two samples that were taken inside a high-rise apartment and in a gymnasium across from the wreckage of the World Trade Center had a pH of 11.8 to 12.1—equivalent to what would be found

in liquid drain cleaner. It is clear that stations were not deployed in concentric rings around Ground Zero were not done, and few of the measuring stations were in the predominant downwind areas. It is clear that many measurements were “grab” samples, only for 5 or 6 minutes. Since the wind direction and speed varies, it is necessary to have continuous, long-term samples looking both for long-term averages and for short-term spikes.

13. To recommend measures that need to be taken immediately to remediate the public health impacts resulting from inhalation and ingestion of polluted air. First we need to identify Everyone who was in the area at the time of the attacks, including the pile and enforcement workers, those who have lived or worked in the area, those who have been hired to clean up apartments and businesses. Then we need to get medical histories to construct a baseline (a Registry). The exposure should be quantified, first by location during each day of the pollution period, and then by the type of activities performed—those breathing heavily due to working on the pile, running for one’s life, etc. involves an increased exposure due to more forceful inhalation (more air and particles brought deeper into the lungs, allowing the possibility for more to be retained long-term in the lung. This study and ongoing medical examinations and treatments, for all diseases that should arise, should be performed, at Federal expense, for a period of 20 or 30 years.

14. To investigate the procedures underway at Fresh Kills landfill—are they protective of workers, what is the airborne dispersion of dangerous materials. Procedures at the barge should also be investigated; are workers wearing protective gear? Are materials being well-contained?

15. To investigate the disposal and marketing of WTC debris and recyclable steel—has testing been done to quantify whether this is a hazardous waste, and should be transported and handled under those rules? If it is hazardous waste, is the facility that has been selected for the debris, consistent with Federal or State rules? To the extent that scrap steel or other materials are exported to other countries (e.g. steel that has already gone to India and S. Korea), has EPA or any other Federal or other agency advised those on the receiving end about the composition of the materials, or protective handling procedures? This isn’t the first time a company or municipality in the United States has exported toxic waste to another country without proper advice or precautions, and it won’t be the last. There should be a law.

16. To encourage research into and adoption of more protective building codes (less toxic materials, evacuable buildings, better fire drill and practice evacuations, better, more well-thought out announcement systems during emergencies. It is arguable that many people died in stairwells too small to evacuate everyone, especially since their capacity was reduced by half due to firefighters climbing them at the same time. It is arguable that some died when they heard Port Authority announcements to go back to their offices. Could the buildings be built with fewer toxics?

17. If the U.S. Attorney General’s statements can be taken at face value, we can expect worse terrorist attacks in the future. It is not unlikely that any future attacks will involve some degree of environmental contamination. Many scenarios for future attacks would involve some of the same issues as are being dealt with here (indoor contamination, removal, not just wetting of outdoor contamination). In addition to terrorist attacks, environmental disasters can and have occurred in other ways: industrial accidents, natural disasters (e.g., major earthquakes in urban areas, tornadoes, fires, hurricanes). Utilizing my knowledge of geology, it is a 100 percent certainty that major west coast cities will suffer even greater destruction (collapses, fires) than they have already due to larger earthquakes in the future. We just can’t reliably predict when. Therefore, many of these recommendations will be useful in protecting public health after future disasters.

18. There are no uniform, justifiable procedures for determining the evacuation of nearby populations after an environmental disaster, therefore, we are woefully unprepared for any environmental disasters in the future. This time, the “frozen zone” was not based on specific scientific principles, and neither was the timing of allowing people to return. We should learn from the experience with establishing hurricane evacuation routes, and the procedures taken to order evacuations for approaching hurricanes. As important, it is necessary to develop justifiable procedures for repopulation after an environmental disaster (i.e., the testing that needs to be done, the verification that safe conditions exist).

19. For these reasons, and similar to the decision to establish a National Hurricane Research Center in Coral Gables (when it was realized that we didn’t know how to track, predict, evacuate or minimize impacts of hurricanes), we need to establish a permanent Environmental Disaster Research center dedicated to conducting all the research that was needed prior to now to determine and address the synergistic and other impacts on human health of various types of environmental

disasters. Examples of research would include investigating the impacts of combinations of pollutants that we have observed in this case. Other areas for research, development, and demonstration would be the measurement technologies for screening for unknown combinations of pollutants, as Dr. Robert Jaffe has developed. This research should then be used to develop new air quality standards to address impacts from combinations of pollutants. Results of the research conducted at this facility would be invaluable to the Congress and those writing air quality, emissions, occupational safety, and NESHAP standards at EPA.

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ATTACHMENT 1

[From CorpWatch, February 6, 2002]

TRADING IN DISASTER

(By Nityanand Jayaraman and Kenny Bruno)

WORLD TRADE CENTER SCRAP LANDS IN INDIA, INDIAN CITIZENS GROUP PROTESTS WTC SCRAP, POTENTIAL CONTAMINANTS IN WORLD TRADE CENTER DEBRIS

CHENNAI and NEW YORK—It might seem like a tangent to the tragedy of the Sept 11th attacks: the fate of the thousands of tons of steel that formed the twin towers. As with so many other unwanted materials from the United States, more than 30,000 tons of steel scrap—possibly contaminated with asbestos.

PCBs, cadmium, mercury and dioxins—has been exported to India and other parts of Asia. Though the risks from the scrap are probably not on the order of the health threats at Ground Zero, the United States nevertheless has the obligation to ensure that toxic contamination from the World Trade Center is not exported to other nations.

MYSTERIOUS SHIPMENTS

At least one shipload, onboard a vessel named Brozna, landed in the South Indian port city of Chennai in early January. The scrap was unloaded, as any routine consignment would be, by port workers with absolutely no protection. Two other ships, Shen Quan Hai and Pindos, also reported to be carrying World Trade Center scrap berthed and offloaded their cargo in Chennai. But preliminary investigations failed to reveal documentation linking the cargo to the Trade Center. Reports are vague about another shipment making its way into Northern India through the Western port city of Kandla.

Similar shipments have reportedly reached China, where Baosteel Group purchased 50,000 tons of the potentially toxic scrap. Malaysia and South Korea are also reported to have received shipments. Eventually, most of the 1.5 millions tons of scrap from the cleanup may end up dirtying Asian ports and threatening Asian workers.

Few details are known about who purchased the scrap, but an unidentified Indian trader reportedly bought an undisclosed amount of the World Trade Center debris, and the 33,000 ton shipment onboard the Brozna was collected by Chennai-based Sabari Exim Pvt. Ltd. and removed to the company's facilities outside the city.

Nor are the names of U.S.-based traders who may have exported the shipments to India known. However, two New Jersey companies were among the bidders that won the contract for removing more than 60,000 tons of Trade Center scrap. New Jersey-based Metal Management Northeast, bought 40,000 tons and Hugo Neu Schnitzer, based outside Jersey City, bought 25,000 tons. Schnitzer was reportedly eyeing the Southeast Asian markets, possibly Malaysia, where prices are higher.

PUBLIC HEALTH CONCERNS FROM TRIBECA TO CHENNAI

In this case, it is hard to accuse the United States of double standards because U.S. safety regulations were trampled in the chaos over Ground Zero. In Lower Manhattan, thousands of rescue workers and residents have been exposed daily to unknown but significant dangers from air contamination. Hundreds of New York firefighters are filing to go on permanent disability, while serious respiratory infections and other chronic health problems afflict area residents, especially children. A few days after the attacks, even President Bush stood on the rubble without protective gear, joining the rest of a city too shocked and too busy to take proper precautions against the toxic cloud over Manhattan.

The steel scrap imported by India and China may not represent the same level of health threat as Ground Zero. But given the amount of material involved, and

the short time frame for any decontamination process, it is indeed possible that the steel is contaminated with toxic materials.

In the months after the bombing reports surfaced about the presence of toxic contamination at Ground Zero, including poisons such as dioxins, polychlorinated biphenyls (PCB), cadmium, mercury, asbestos and lead in the debris. What remains in question is whether toxic chemicals have attached themselves to the steel scrap.

There are no safe levels of exposure to cancer-causing substances like asbestos, PCBs and dioxins, and toxic metals like cadmium, mercury and lead. Asbestos, PCBs and dioxins may cause harm even in miniscule doses. Also, like cadmium and mercury, once ingested or inhaled, they resist degradation or excretion and tend to build up to dangerous levels in the body over the long run.

Insurance companies like American International Group and Liberty Mutual have refused coverage to the demolition contractors charged with the cleanup. The contractors fear that without insurance they will be driven into bankruptcy by an anticipated flood of lawsuits over asbestos, mercury and other toxins released into the air by the collapse of the twin towers and clean-up efforts, according to the New York Times.

#### NOT ENOUGH INFORMATION

Contamination of steel scrap is a common concern in the scrap industry. As far as CorpWatch has been able to determine, U.S. authorities have not studied the levels of contaminants in the Trade Center scrap that was exported. If they have, the information has not reached Indian authorities or port workers.

Trade union groups swiftly moved into action when the exports were reported last month, but were hamstrung by the lack of information. "The Port Authorities tell us that steel scrap is legal. Unless we find evidence of contamination, we can't stop the shipment," said S.R. Kulkarni, secretary of the Mumbai-based All India Port & Dock Workers Union.

Nor has the information been forthcoming in the United States. The New York Environmental Law and Justice Project recently filed a Freedom of Information Act request with the USEPA after U.S. public health activists suspected regulatory officials were downplaying the toxic contamination in and around Ground Zero.

However, Chennai-based lawyer T. Mohan says there's enough doubt raised about the safety of the debris to warrant precautionary steps. "There were talks to declare Ground Zero a Superfund site. That's proof enough for us to be concerned that this consignment may be contaminated," he noted.

#### WHO'S RESPONSIBLE?

Under the Basel Convention on the Transboundary Movement of Hazardous Waste, it falls to the Indian Government to prevent the import of wastes if they are found hazardous. That's because the United States refuses to sign the Basel Convention and is therefore not bound by the treaty. This includes an amendment known as the Basel Ban prohibiting developed countries from exporting hazardous material to industrializing nations like India. But Mohan believes that morally, "the burden of proving [the waste] is not hazardous rests with the U.S. exporters and U.S. Government."

Despite a Indian Supreme Court order prohibiting the imports of hazardous waste into India, U.S. shipments top the list of hazardous waste exports to India. Everything from zinc ash, toxic ships-for-scrap and lead-bearing wastes are routinely sent to unscrupulous importers in India. The Indian regulatory agencies, notably the port and customs authorities and the Indian Ministry of Environment and Forests, have maintained their habitual silence on matters such as this that pertain to human health and environment.

"They seem more intent on passing the buck to each other rather than dealing with the problem and hauling in the U.S. Government for negligence," says Attorney Mohan.

Steel reprocessing is a dirty business, especially when the steel contains plastic, chemical and heavy metal contaminants. In fact, secondary steel almost always contains some toxic materials. Lower wages and laxer environmental regulations in Asian countries mean that Asian traders and reprocessors can offer better prices for the steel scrap than their European or North American counterparts. That is one of the reasons why scrap metal is exported to Asia in the first place.

The export of contaminated scrap and hazardous wastes to industrializing countries fits a long-standing pattern of environmental discrimination by the United States. An infamous example is the shipload of toxic incinerator ash from Philadelphia that traveled the oceans for 2 years before ending up on a beach in Haiti in 1988.

In a February 4 letter to the U.S. Embassy in New Delhi, three major Indian trade unions, Greenpeace and People's Union for Civil Liberties blasted the U.S. Government for its "continued inaction" in stemming the export of wastes and scrap to industrializing countries. They called it "a consistent pattern in keeping with USA's tacit, if not active, support for toxic trade."

"We're totally opposed to the United States and other rich countries using India as a dumping ground for all kinds of wastes and rejects. Such dumping of steel scrap is adversely affecting the major steel plants in our country, apart from causing environment and health problems," says P.K. Ganguly, the New Delhi-based Secretary of Centre of Indian Trade Unions.

The way out of the current bind over the World Trade Center scrap is simple, say environmentalists. United States authorities should provide evidence that the scrap lying in India is free of poisonous contaminants. If it is found to be contaminated, then immediate steps should be taken to return the consignment to the United States.

If, on the other hand, the shipment is found clean, there may be no immediate threat of exposure to toxic chemicals. Even if the scrap turns out not to be dangerous, the question remains: who profits—and who suffers—from shipping valuable steel scrap to be recycled half-way across the globe in India before it returns to the United States in its new incarnation as soup cans or luxury cars?

Nityanand Jayaraman is an independent, investigative reporter based in India.

Kenny Bruno coordinates CorpWatch's Corporate-Free UN Campaign.

#### STATEMENT OF DAVID J. MILLER, BURLINGTON, VT

##### MILITARY JET FUEL (JP-4) AND ITS POSSIBLE IMPLICATION ON PUBLIC HEALTH

At this time I know of no other paper that has drawn a broad review regarding benzene, toluene, xylene, hexane and their metabolites with regard to petroleum products like (military) JP-4 jet fuel and the implication to public health now and in the future.

If one reviews the literature on benzene it goes back to the beginning of the 20th century and continues today, however for those parties benzene affected the most, they have little or no idea of its danger or its causation. Their life and quality of health being affected the most.

Some may view this presentation with a meta analysis argument, however my fundamental motive is edification, bringing about dialogue even debate, illuminating issues, establishing proper measures appropriate for a remedy.

##### INTRODUCTION

Physicians acknowledge benzene's effect on bone marrow immune system and the CNS, however by taking an analytical approach one could ignore the synergism of the exposure due to a lack of proficiency in occupational and environmental medicine.

To assist in achieving that goal I choose military (JP-4) jet fuel due to its composition and wide use during the 1950's, 1960's, 1970's and part of the 1980's.

##### BACKGROUND

"During the distillation of crude oil to make JP-3 and JP-4 a wide cut is taken of the distillate so as to include both the naphtha (gasoline) and kerosene fraction, JP-4 is typically composed of about 50–60 percent gasoline and the remainder is kerosene<sup>1</sup>. Now with almost 50 years since JP-4 being standardized under MIL-F-5624A<sup>1</sup>." It's clear (with the body of information presented in (ATSDR) Agency for Toxic Substances and Disease Registry Publication Toxicological Profile for JP-4 and JP-7 June 1995, henceforth to be referred to as the profile) a serious balance review must be initiated due to JP-4's composition of hydro-carbons to include (additives) itemized with generic identification, Page 70. Note aromatic hydro-carbons are concentrations in weight percent, Pages 72, 73, 74.

##### CONCERNS: (THE PROFILE)<sup>2</sup>

Page 3 1.3 (How might one be exposed to jet fuel JP-4 and JP-7?) "Workers involved in making or transporting or in refueling military aircraft that use JP-4 might breathe air containing it."

Page 38 2.4 Relevance to public health "thus apart from those individuals involved in the manufacturing process, persons living or working near or on a military base would constitute the greatest population at risk for JP-4 and JP-7 exposure."

To digress, if those concerns apply to JP-4 and JP-7 then similar situations would warrant the same attention due to possible evaporation from petroleum storage tank farms and emissions due to transfer of product JP-4 etc. from point of transport truck, rail or barge without vapor recovery systems.

Although vapor recovery systems are being installed, the question of (past exposure) and those most likely at risk identified in the profile need to be addressed more fully to expand those factors for occupational and residential exposure. Example Machle<sup>3</sup> writes in (Chronic Intoxication), "This term is applied to poisoning which results from exposure to low concentrations of gasoline vapor for long periods of time; severe acute symptoms do not appear, but minor symptoms of a general nature are manifested a few weeks or months after the exposure has started and become progressively worse, the patient may become disabled in a month or in several years." The implications are profound if the exposure is compounded, Goldstein<sup>4</sup>. As Toranosuke Ishimaru<sup>5</sup> articulates here, "the six occupations noted at a higher frequency among the index cases than in the controls in Table 4 were selected for an examination in more detail of the relation of occupational exposure and A-BOMB exposure (Table 7) note relationship between occupational exposure to benzene or medical x-ray occupations and atomic bomb exposure status; frequency of history of 6 selected occupations. Continuing—in general, the risk was approximately 5 times higher among those with a history of any of these six occupations in comparison with those without. The relative risks in the proximal group and in the distal and non-exposed group were 6.0 and 4.5, respectively."

Continuing with the profiles concern of risk to handlers we then can review Lindquist, R.<sup>6</sup> "Our results indicate a three-fold increase risk of developing leukemia for professional drivers who are exposed to petroleum products, i.e., gasoline or diesel and their motor exhausts, our findings support previous work suggesting an increased risk of acute non-lymphocytic leukemia after occupational exposure to petroleum products (3)". From a public health perspective we can no longer ignore past exposure only because of *present* and *future implication* and that impact on society.

To reinforce those concerns of previous risk, Pier Alberto Bertazzi<sup>7</sup> reports, "the most distinctive pattern of increased cancer mortality seemed to be the one observed in association with moving operations. Significant excess mortality from all cancers, lung cancer and brain tumors was noted." (Continuing further) "The greatest opportunity for exposure to volatile hydrocarbons occurred during the loading operation, which required the manual connection of all filler pipes to the trucks and train tanks and manual measurements of product levels in tanks."

"In addition, workers were exposed while staying at the filling platform especially during the hot season, to volatiles coming from open tanks of standing trucks, and trains."

Now there's an obligation to ask at what levels do these hydrocarbons have a genotoxic effect on those exposed? Ralph I. Nilsson<sup>8</sup> established these thoughts. "The results at different exposure levels indicate that even a low level exposure to benzene possibly in combination with other compounds in gasoline, may cause a genotoxic effect (Table 111, V.) as both tests measure damage to DNA. Our findings indicate a genotoxic effect at benzene exposure levels of around 0.1 ppm."

The before mentioned citations demonstrate the danger to individual workers; however we must readdress (the profile's) community concerns with more clarity. This can be accomplished by reviewing E.G. Knox<sup>9</sup>. "The apparent hazards included oil refineries oil storage and distribution depots, railway lines, and other industrial sites. Effective ranges extended as far as 5km from the sources. This suggested a hazard related to large scale uses of fossil fuels, especially petroleum, operating through leakage or evaporation or combustion, perhaps all three."

Benzene, toluene, hexane, xylene and lead have been identified in (the Profile)<sup>2</sup> on Page 3, Paragraph 2. "When they enter the environment as part of jet fuel they may behave the same way as when they are released alone." That being the case, one is compelled to at least review some of those complications associated with those chemicals and their metabolites.

#### REVIEW

In the formulation of this review, I've adhered to scientific discipline, balanced with objectivity. That mosaic, if you will, began to focus on a perspective that was more widespread than I had anticipated regarding occupation, exposure and illness. This all crescendoed while doing a literature search that directed this author to a paper which Lesley Rushton<sup>11</sup> had written and made reference to "a proportional mortality study of all deaths over a 10-year period in New Hampshire found high proportional mortality ratios (PMR's) for service station workers for leukemia, suicide, emphysema and mental conditions."

Once again this odyssey has been punctuated with an intriguing citation. This was of great interest only because I had to travel to Britain by paper to learn what had transpired in my own back yard. The excitement was soon tempered by the sheer dynamics of the report! Eugene Schwartz<sup>10</sup>, M.D. MPH states in the report, "Further the finding of an excess proportion of deaths from suicide in both groups is consistent with the known neurotoxic potential of solvent exposure. Acute exposure to solvents may produce transient and reversible central nervous system symptoms including headache, dizziness, and incoordination. At higher concentrations convulsions, loss of consciousness, and death may result. Long-term exposure to solvents can result in memory impairment and behavioral changes, including irritability, depressive symptoms, and emotional stability. Gasoline is a complex mixture of hydrocarbons blended with a combination of additives including antiknock agents, inhibitors, and dyes, of the more than 40 components, most are paraffins, naphthenes, aromatics, and olefins. The benzene content of gasoline is between 1 percent and 3 percent by volume and is higher in unleaded than in leaded fuels (McDermott and Voss, 1979)". Further on, "recent data indicate that gasoline vapor may be carcinogenic apart from its benzene component." (Note: JP-4 is 50 to 60 percent gasoline).

Individuals subjected to benzene and other compounds should be instructed of the quantitative risk associated with the nature of their exposure in order that appropriate medical protocol may be established for present and future assessment and care. Once those parties are instructed of the dangers of exposure, they can immediately take steps needed to lessen the burden on the already stressed (MFO) mixed functioned oxidases process.

"Benzene is converted to toxic metabolites mostly mixed function oxidases MFO in the liver and bone marrow. MFO-inducing drugs (e.g., phenobarbital, alcohol) and certain chemicals (e.g., chlordane, parathion) may increase the rate at which toxic metabolites of benzene are formed. Theoretically persons with rapid synthesizing marrows, the fetus, infants and children, persons with hemolytic anemia or with agranulocytosis are at increased risk<sup>12</sup>. The Environmental Protection Agency (EPA) classifies benzene as a Group A carcinogen and has estimated that a lifetime exposure to 0.004 PPM benzene in air will result in, at most, 1 additional case of leukemia in 10,000 people exposed. (EPA risk estimates assume there is no threshold for benzene's carcinogenic effects.)"

An interesting characteristic of petroleum hydrocarbons, (in relationship to the MFO process) is a seemingly kindling effect to addiction. Yasuhiro Takeuchi<sup>13</sup> writes, "Lasarew (1929) reported that the narcotic effect of petroleum hydrocarbons became stronger as the number of carbon atoms became larger, and that aromatic hydrocarbons had stronger narcotic effects than paraffins."

Harrington<sup>14</sup> says, "The well-recognized acute narcotic effect of organic solvents has recently led various researchers to suggest that a chronic neuroasthenic syndrome can follow repeated low doses. Some workers, mainly in Scandinavia, postulated that organic psychoses can ensue from such exposure." (Axelson et al, 1980).

To expand on these two points of view, its clear a demonstration would be needed to indicate tissue reaction. That evidence was articulated by J.M. de Gandarias.<sup>15</sup> "A dense accumulation of enkephalin immunoreactive fibers was seen in the basal portion of the lateral septal nucleus and the densest accumulation of enkephalin-containing processes was observed in the globus pallidus, ansa lenticularis and amygdaloid complex, forming a continuous field extending over these areas. This enkephalinergetic distribution is coincident with previous reports (Akil et al, 1984; Zamir et al, 1985). (Continuing further) "The limbic systems is usually affected by organic solvents exposure and it has been demonstrated that aromatic hydrocarbons can cause behavioral changes in mood and even (addiction). This is the case for the largely studied "glue sniffers" (Schikler et al, 1982; Lazar et al, 1983).

The hypothesis I bring forth now is, could benzene be the underlying catalyst that stimulates addiction on most levels, drug and alcohol, and if so an uncorrected condition would create a cycle difficult to break. Could elevated ambient air levels of benzene be a new facet of concern, ever stressing the MFO process in relationship to addiction?

REFERENCE: BENZENE, TOLUENE, HEXANE, XYLENE AND LEAD

I have (emphasis, real concern) with past exposure to JP-4 and those particular chemicals incorporated into the formula only because of existing documentation and possible public health consequences.

*Example: Benzene: and Breast Tumor Tissue*

Gregory G. Oakley<sup>16</sup> writes , "In addition, studies have demonstrated the copper-dependent oxidation of chemically similar structures, e.g., hydroquinone and 3-



hydroxyestradiol, metabolites of benzene and 17 $\beta$ -Estradiol, respectively, to reactive intermediates that induce oxidative DNA damage (19, 20). This pattern of genotoxicity is similar to that reported in the DNA of human breast tumor tissue (21)."

It would seem the point of concern here could be either primary (occupational) or secondary exposure expressed as ambient air concentrations from automobiles, trucks, buses, trains, and domestic exposure, for example, gasoline powered lawn or recreational equipment, combined with alcohol or another substance that would place extra burden on the MFO process.

#### *N-Hexane, Xylene and Toluene and Occupational Exposure*

Katsuyuki Murata<sup>17</sup> examines workers exposed to n-hexane, xylene and toluene and writes, "The C-CV rsa reflects the activity in the parasympathetic nervous system (Pagani et al, 1986, Hayano et al, 1990a, 1991, Ewing, 1992). Organic solvents, therefore, may affect the CV rr through depression of parasympathetic activity."

#### OLFACTORY AND CAUSATION

At this juncture it would be appropriate to explore a (reactive route) of toxic exposure, the olfactory pathway and its implication on health. Robert Ader<sup>18</sup> states, "Even before sympathetic innervation of lymphoid tissues was recognized, it was known that lesions of the brain, especially the hypothalamus and limbic systems, had immunological consequences"<sup>18</sup>, (further on), "Medical or posterior hypothalamic lesions are associated with reduced numbers T and B cells and enhanced allograft rejection."

Claudia Miller<sup>19</sup>, M.D., M.S. has presented these thoughts, "The olfactory nerves provide the most direct link between the outside chemical environment and the brain. There is no blood-brain barrier where these nerves enter the brain as there is for other portions of the brain. The olfactory nerves communicate directly with the limbic portion of the brain, the so-called "primitive smell brain." This brain area is essential for laying down new memories (hippocampus) and regulates mood (amygdala). In addition, it supplies much of the input to the hypothalamus, which in turn regulates autonomic nervous system and endocrine function. Temperature regulation, smooth muscle tone and appetitive behaviors are influenced by hypothalamic output. For many chemically sensitive patients and Gulf Veterans, mood and memory difficulties are their most disabling symptoms. The possibility exists that such symptoms could be triggered by extraordinarily low level chemical exposures and that sensitivity could spread to chemically unrelated substances as a consequence of limbic sensitization or partial kindling."

#### EXAMPLES OF ASSOCIATED TOXIC EXPOSURE

As the profile<sup>2</sup> previously indicated, handlers and persons living in proximity of operational activity are of concern; page 3 addresses those chemical elements and their behavior. "We have some information on several chemicals found in jet fuel (for example, benzene, toluene, hexane, xylene and lead). We know more about what happens to them when they enter the environment as individual chemicals. When they enter the environment as part of jet fuel, they may behave the same way as when they are released alone."

These chemicals, being heavier than air, are capable of having an intrusive effect on workers or populations via ambient inhalation. Remembering Knox<sup>9</sup>, "Effective ranges are extended as far as 5KM from the sources. This suggested a hazard related to large scale uses of fossil fuels, especially petroleum, operating through leakage or evaporation or combustion, perhaps all three." James W. Tetrud, M.D.<sup>20</sup> narrates a case study of an individual and petroleum ingestion. He states, "There is little doubt that the relatively small quantity of ingested petroleum waste caused this individual's Parkinsonism. The temporal relationship between ingestion of the substance and subsequent emergence of parkinsonism is clear-cut." (Further on), "In another report, Pezzoli et al described a case of Parkinsonism in a leather worker chronically exposed to n-hexane." Pezzoli's<sup>21</sup> report states, "Since n-hexane is the substance to which the patient had been mostly exposed, a possible toxic action of this volatile hydrocarbon, alone or associated with the other glue compounds and capable of inducing signs of Parkinsonism has to be considered."

#### CONCLUSION

There seems to be sufficient documentation that suggest petroleum produces causation, however that's little solace to anyone at risk and develops symptoms.

Without doubt the many sequels following petroleum exposure can have an exhausting effect on both patient, (family), and physician, due to the many symptoms

and changing protocols. A team strategy with expanded expertise would benefit not only the patient directly, but also reassure family members that appropriate clinical direction had been taken.

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STATEMENT OF MAUREEN SILVERMAN, TENANT OF INDEPENDENCE PLAZA, CO-FOUNDER OF THE WTC ENVIRONMENTAL COALITION, MEMBER OF WTC SPOT LIGHT ON THE POOR, AND CO-CHAIR OF THE OUTREACH AND EDUCATION COMMITTEE OF NEW YORK CITY COALITION TO END LEAD POISONING

My name is Maureen Silverman and I am a tenant of Independence Plaza and Co-Founder of The WTC Environmental Coalition and Co-Chair of the Outreach and Education Committee of New York City Coalition to End Lead Poisoning. I will first begin by conveying the environmental problems at Independence Plaza. Independence Plaza is a Mitchell Lama development located five blocks from the WTC which has over 1,300 apartments with approximately 4,000–5,000 tenants. We are one of

the few racially and economically diverse complexes in Lower Manhattan. During the week of September 11th, one of the three buildings in our complex was evacuated for two weeks. Many tenants in the other buildings voluntarily evacuated because of the danger we were faced with. I live on Harrison Street, which is down the street from the barge WTC clean-up operation at Pier 25. Since September 11th, my neighbors in all three of our buildings have been kept up all night by the thunderous noise of the barge and have been subjected to the environmental contaminants released from it. From our windows we can view the dust and debris released from the site and still witness inconsistent watering down and covering of the debris. Numerous tenants have developed chronic respiratory problems, nose bleeds, sore throats and skin rashes. The recurring noise from the barge has exacerbated the trauma many tenants experienced from the WTC attack. Although the Commissioner of DEP claimed at the Clinton hearing on February 11th that DEP ensured that all indoor buildings were tested and thoroughly cleaned before people moved back, my landlord did not test and clean 310 Greenwich Street before the evacuated tenants returned. Our landlord only did random testing for asbestos in our complex over 2 months after September 11th. They used a non-aggressive testing method, which industrial hygienists informed us is not effective. There has not been testing for any contaminants other than asbestos, in our entire 3 building complex, despite the host of toxins released from the WTC and our close proximity to the barge. The ducts in our complex have also not been tested. Although many of our terraces have been permeated with dust from the WTC, the landlord claims he has is not responsible to clean or test these areas. The roof tops are still covered with debris and have not been cleaned.

Many tenants report that outside dust continuously enters and covers their apartments and they are afraid of the contaminants they are being exposed to. Maintenance staff are not consistently vacuuming with HEPA vacuum cleaners and have not been trained in safe cleaning methods in the aftermath of September 11th. Our landlord informed us that they applied to FEMA for assistance with further testing and cleaning, but were denied because the EPA told them the air is safe.

I was appalled by DEP Commissioner Miele's contention at the Clinton hearing about the great job DEP has done in ensuring that all indoor spaces were tested and cleaned to the utmost safety in the aftermath of September 11th. A few days after The Clinton hearing I took him up on his recommendation to call the DEP Help line if testing and cleaning has not been done. When I called the help line I was told that they only address water and sewer problems. I subsequently reported this to the Commissioner's office and was referred to the Bureau of Environmental Compliance. After being referred to several different people at this office, I was told someone would call back and take the complaint. All of these people said they were not sure what DEP would inspect for or test for etc. After I asked for and reached a supervisor and told him I was in touch with the Commissioner's Office and attended the Clinton hearing, he told me DEP would send an inspector to my apartment the next day. He said they generally only inspect and test for asbestos. However, he said in light of the circumstances, they would start by inspecting and testing for asbestos and may be able to test for other contaminants later on. He also said they would inspect and test the inside of my apartment, my terrace and the roof. When the inspector came to my apartment, he said he knew I was the one who called the Commissioner's Office and was at the Clinton hearing. He quickly looked around the apartment and terrace and told me DEP is not responsible for anything inside of apartments and the only thing he would do is tell the landlord to clean the terrace. He also said they did not address roof tops. Since last Saturday, my terrace has not been cleaned and no one from DEP called about the situation. I subsequently called a supervisor at the DEP Bureau of Compliance to report the inept response from the inspector and was told someone would get back to me. As of today, no one from DEP has called back. It was obvious that DEP quickly sent someone to my apartment to appease me because of the political circumstances, and did nothing to protect my home. Unfortunately, many tenants of Independence Plaza have moved out in the last 5 months because of the environmental hazards we are facing and the total neglect of government agencies to hear our concerns or protect us. IPN Tenants Association and individual tenants have written numerous letters and have called government agencies about the unsafe and noisy barge operation to no avail.

The tenants association invited FEMA, DOH, DEP, DEC, the CDC to our complex to hear tenants concerns and answer questions. These agencies promised to address our concerns several months ago and have yet to do so. We were told several months ago that the city would start using low sulfur fuels and truck retrofits to trap diesel emissions by February 1 and this has not happened. We have been promised that

the city would ensure that the barge is operated safely and noise would be reduced. This has yet to transpire.

At the end of September, I co-founded the WTC Emergency Environmental Group (now the WTC Environmental Coalition) with a couple of neighbors from Independence Plaza and another neighbor from Warren Street. We were very concerned, confused and frightened. The EPA was telling us the air was safe, although we were feeling sick and articles by independent scientists reported that there were dangerously elevated levels of a variety of toxins in the air which the EPA was not divulging to the public. No one was taking responsibility for indoor testing and clean up and we heard many reports of the unsafe conditions for workers. Unfortunately these circumstances have changed little since the end of September when we first started to meet.

To my knowledge, we were the first group of activists who began to organize to address the WTC environmental concerns down town. Our coalition now consists of residents, workers and school parents. We organized the first public forum regarding WTC environmental concerns and held a rally and press conference at City Hall in December. We have written letters to government officials and testified at public hearings and press conferences regarding the lack of community participation and communication regarding environmental safety issues facing residents, workers and school parents. We have complained about the fragmented, uncoordinated and neglectful manner in which government agencies have dealt with the catastrophic and unprecedented environmental dangers we are facing. However, we have been ignored at all levels of government and by all governmental agencies. We defined 11 immediate needs in after math of September 11th and also developed a longer list of demands.

The 11 immediate needs are:

(1) Implement a centralized coordination of the cleanup effort that is responsive to community needs and includes public participation. The cleanup must address all affected communities, including the immediate surrounding areas and those in contiguous areas. Affected communities must include Tribeca, South Street Sea Port, Battery Park City, The Financial District, China Town, The Lower East Side, Hudson Square, Soho, Greenwich Village, and the East Village. The Federal definition of the disaster must be expanded to include these areas.

(2) Move the barge on Pier 25 away from schools and residences. All other barge and truck clean-up operations must be located away from schools and residences.

(3) Establish strict guidelines and protocol for the entire testing and clean-up operation including affected areas beyond Ground Zero. Protocol should include proper measures to be taken by schools and other institutions in the area with regard to air filtration and operations of HVAC systems.

(4) Control and contain debris to prevent dispersal in trucking and barge operations and minimize diesel emissions and noise.

(5) HEPA vacuum and wet clean streets, side walks, roof tops and parks to continuously assure dust suppression.

(6) Provide safe working conditions and enforcement of safety and environmental laws for Ground Zero workers and other area workers.

(7) Assess and test for environmental contaminants in indoor and outdoor spaces.

(8) Share public and private sampling data, including health data, in a timely and complete manner.

(9) Notify workers, residents and schools prior to potentially hazardous work operations such as removal of the freon tanks and major demolitions.

(10) Engage in public health educational outreach to all area workers, residents and students.

(11) Create a health registry of individuals whose health has been impacted by WTC exposures, including medical surveillance of high risk populations.

DESPITE OUR VIGOROUS ORGANIZING EFFORTS, THESE NEEDS HAVE STILL NOT BEEN MET

Most recently, our group wrote letters in January asking for meetings with Mayor Bloomberg and Governor Pataki. The Mayor's Office never called us about our request for a meeting and has ignored our phone calls to his office asking for a meeting. Governor Pataki's Office called a couple of weeks ago telling me they would like to arrange a meeting with our coalition and the Commissioner of State DEC and the Director, State of DOH in March in Albany.

When I told the Governor's Office that we could not go to Albany since we are working people and we think the nature and magnitude of this catastrophe warrants a meeting in New York City by the State, their office told me, the next time they could arrange a meeting in New York City would be in April. After calling back

several times and asking for a meeting at an earlier date, the Governor's Office arranged the meeting for March 22 in New York City. However, the Governor himself does not feel he needs to be at the meeting since the State DEC and DOH are in charge of addressing these issues for his office. Considering the urgent and unprecedented environmental health problems we are experiencing down town, I find the late date for the meeting and the disinterest on the part of the Governor reprehensible.

As a long-term activist with New York City Coalition to End Lead Poisoning, I have been concerned about lead hazards in the aftermath of September 11th. Unfortunately, Dr. Evelyn Mauss, a leading expert on lead poisoning who I have worked with for the past 10 years could not be here since she is out of the country. I asked Dr. Mauss, an expert on lead poisoning and Senior Research Consultant to the Natural Resource Defense Council, to analyze the lead hazards, testing and provide some recommendations. Since the October, Dr. Mauss has reported that she was concerned with some very high lead spikes in the air and in the schools that exceeded the lead safety levels. Moreover, she repeatedly reported at public hearings, press conferences and meetings that EPA testing for lead has been grossly inadequate. She has recommend that the EPA conduct more comprehensive and adequate testing and clean up in air dust and soil and in all post-1970 buildings to reflect the impact of the WTC attack. She also recommended that lead testing and clean up be done in all parks in areas immediately near Ground Zero and in peripheral area in Lower East Side, China Town Greenwich Village Etc. Another recommendation she made was for The Department of Health to test and screen children for lead in down town. The WTC Environmental Coalition has supported these recommendations. Governmental agencies have refused to implement these recommendations.

Dr. Mauss has testified about the potential lead hazards from numerous sources after September 11th. The World Trade Center was built before lead paint was banned for commercial purposes in 1978 and a decade and a half before lead paint was banned in plumbing. Computers contain four pounds of lead and the steel beams of the World Trade Center also contained lead. Many of the surrounding buildings that were damaged by the WTC attack were also constructed after lead paint was banned. The recent findings of lead paint in the elementary schools and Stuyvesant High School which are all near the barge at Pier 25, create serious concerns for parents, students as well as residents living near the barge. If lead hazards have been found in the schools a couple of blocks from Independence Plaza and near several other apartment complexes, including River Terrace, there is a significant risk that our apartments contain lead hazards. However, no Government Agency has provided indoor testing of our apartments for lead or a host of other contaminants. I am appalled at this indifference on the part of our government considering lead causes irreversible brain damage, kidney problems, speech and hearing impairments, and a many other developmental delays and health problems in children. In adults, lead causes osteoporosis and mental confusion. Children are most at risk for lead poisoning. However, adult workers, residents and others are also at risk of lead poisoning and the consequential health affects.

We urge the Senate to mandate thorough and safe testing and clean up of all of Lower Manhattan expeditiously. We ask him to help us meet all of our 11 immediate needs, including moving of the barge immediately. We have waited long enough and can no longer compromise the health and safety of the residents, workers, and school children in Lower Manhattan.

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#### ENVIRONMENTAL DEMANDS OF THE WTC ENVIRONMENTAL COALITION

The WTC Environmental Coalition is comprised of downtown residents, workers, school parents and and supporting activist organizations who are concerned about the environmental impact of the World Trade Center disaster. We demand the following from government agencies:

##### IMMEDIATE SITE SAFETY AT GROUND ZERO

- Public input on site management and with the help of that input, require improvements in site management at Ground Zero to reduce pollution associated with the site and recovery and removal efforts. These improvements should include safe clean-up methods for debris removal from the WTC site. A primary concern is clean up at Pier 25. We demand that the barge and truck clean up operation be moved to an area that is less populated by residents and where there are not schools. We also demand safe, adequate and consistent covering and watering down of the debris. Diesel trucks and equipment must be replaced with cleaner fuels such as oxo, bio or low sulfur diesel. The City Anti-Idling Law must be enforced. Truck retrofits

such as catalytic converters must be used to trap diesel emissions. Noise must be reduced to avoid disturbances to residents from the clean-up operation.

- Implementation of OSHA work safety standards.
- An on site industrial hygienist for all workers in WTC clean up with authority to implement precautionary health measures.

#### PUBLIC HEALTH AND SAFETY OUTDOOR AIR

- Ongoing disclosure of updated and accurate test results of all contaminants to residents, workers, Parent Teacher Associations and other public members. EPA, DEC, DEP and DOH must ensure that the public has access to all outdoor test results, methods of testing and safety standards for each contaminant.
- Massive, consistent and ongoing clean up of streets, roof tops, awnings and other outdoor areas with Hepa vacuums and subsequent watering down of these areas.
- Government agencies should invite public comment on the air monitoring program. They should then develop a revised air testing program based on public comment.
- Government agencies should regularly report outdoor test results to the public through TV and radio announcements, literature distributions, facts sheets etc. in various languages, especially Spanish and Chinese.
- Risk Communications to the public should be done by an Environmental Health Advisory Committee comprised of environmental health doctors, environmental advocacy groups, community members and representatives of the Department of Health.
- Preventive and Precautionary Health Measures Must be Implemented—Government agencies must make specific recommendations to the public regularly regarding ways to reduce their exposure to outdoor air emissions through public service announcements, facts sheets in multiple languages and ongoing community meetings. Specific education geared to vulnerable groups such as children the elderly, those with pre-existing respiratory, heart problems, compromised, immune systems, etc.
- Consistent and ongoing testing and professional cleaning of all parks, playgrounds and community gardens in core and periphery areas for lead, asbestos and all other contaminants. These include outdoor areas in Tribeca, The Financial District, The Sea Port, South Bridge, China Town, The Lower East Side, Greenwich Village and parts of Brooklyn effected by the disaster.
- Since lead levels have exceeded safety standards for ambient air, there must be massive and ongoing testing for lead in air, dust and soil. Independent scientists have reported that tests have shown lead to be in the highest concentration of all heavy metals in air dust samples surrounding the WTC site.

#### PUBLIC HEALTH AND SAFETY INDOOR AIR

- Implementation of a well coordinated and comprehensive hazard assessment for a variety of contaminants of all downtown buildings, including residential buildings, offices and schools by a team of industrial hygienists (i.e. Asbestos, lead, silica, fiberglass, PCB's, Dioxin, etc.). Government must ensure professional clean up and abatement by certified and trained workers when tests show levels of toxins above safety standards.
- Indoor testing of lead should be done in buildings constructed after 1970, when the prohibition of indoor lead paint was enforced in order to reflect the impact of the WTC disaster.
- Clean up must include thorough and professional clean up of all ventilation systems, air ducts, air conditioning systems and heating systems, along with clean up of general areas.
- Post clearance testing by independent parties must be implemented.
- All indoor test results and post clearances must be provided to the public.
- Preventive Public Health Advice must be provided to all residents, workers and school parents regarding indoor hazards. (Through public service announcements, fact sheets, community meetings, etc. in multiple languages).

#### IMMEDIATE ASSISTANCE TO AFFECTED GROUPS

- Public education regarding health symptoms requiring medical intervention and referrals to appropriate health professionals for early detection and treatment.
- Better coordination and consistency of information to the public about assistance available from the Red Cross, FEMA and other agencies for air purifiers, HEPA vacuums, relocation money, professional clean up etc. To assist in these efforts, funding and support for creation of community based advocacy groups to help

people apply for funds and services and navigate the bureaucracies. These services must be provided in multiple languages.

- Up-front funding for home interventions such as air purifiers, HEPA vacuums, etc.

#### ENVIRONMENTAL OVERSIGHT AND PLANNING

- Environmental concerns must be treated as part of the WTC disaster, instead of an extraneous aspect of it.

- Community participation in environmental decisions must take place. We recommend regular bi-monthly meetings between government agencies and the public where public input is part of plans taking place.

- A Dedicated disaster fund specifically earmarked to address WTC environmental concerns.

- Implementation of new testing and safety standards for indoor and outdoor air that accurately reflect The WTC situation. This should include development of methods to test the synergistic effect of all the contaminants.

- An Independent Scientific Advisory Board to represent the public in review and approval of all research on environmental issues. Communities should be collaborators in the research and the public should get results promptly along with recommendations to improve hazardous conditions etc.

- An independent Ombudsmen representative of the public must be established with assistance of the Scientific Advisory Board to oversee research and clean-up efforts.

- Establishment of a central registry to monitor health problems related the WTC.

- Vigilant and ongoing testing and monitoring of children's lead levels in areas near the WTC. This should include reporting of children's lead levels to the Department of Health and to parents.

- Implementation of environmental justice principles, including funding and support for low-income communities of color affected by the WTC disaster, including China Town, The Lower East Side and parts of Brooklyn.

- Funding for a Grass Roots Community Group to address environmental concerns from a bottom up community-based planning perspective.

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#### STATEMENT OF JENNA ORKIN, BROOKLYN, NY

Senators Clinton and Lieberman, I am a co-founder of the World Trade Center Coalition for Clean Air, an organization of parents and residents of Lower Manhattan. I am also a parent at Stuyvesant High School. Stuyvesant High School is in a unique position. Not only do we have the World Trade Center site to the south. We also have the World Trade Center site to the north. All the debris is brought to Stuyvesant's north doorstep where it is dumped onto the barge before making its way to its final resting place in Staten Island. The barge operation blocks our most important exit for evacuation. In the event of another disaster downtown our school will not be able to go north, away from the disaster but will have to go south, toward it. However, this is the least of our problems. The barge operation also involves diesel cranes and trucks going full throttle day and night. Diesel contains forty toxic air contaminants (American Lung Association of Pennsylvania) from acet-aldehyde to xylene isomers. These include lead, cadmium, mercury, benzene and dioxins. It also contains sixteen carcinogens. The EPA says diesel is "highly likely" to be carcinogenic. ([Http://www.epa.gov/ncea/diesel.htm](http://www.epa.gov/ncea/diesel.htm)). Because of the diesel and the debris, Stuyvesant has had readings of PM<sub>2.5</sub> that have been many times higher than the readings at Ground Zero. PM<sub>2.5</sub> is particulate matter that is small enough to penetrate deep into the lungs and alveoli. Unlike PM<sub>10</sub>, it doesn't come out again. Being so small, it also has a relatively large surface area to volume ratio so that other noxious chemicals attach to it. Lead levels have been 15 times higher than regulation limits in the cafeteria, where the lead could be eaten. Asbestos has also been high. A recent article by Andrew Schneider in the St. Louis Post Dispatch says that asbestos may, in fact, be nine times higher than current instruments would indicate. Cancer rates from the asbestos alone may be 1 person in 10. Other chemicals such as isocyanate, are not routinely tested for. But on the few occasions they were tested for, they were found to be high.

The synergistic effect of all these chemicals, as you will read in Marjorie Clarke's testimony, is explosive. For instance, if you're an asbestos worker and a smoker, it's not 2 or 3 times as bad as being one or the other; it's 80 or 90 times as bad.

How is Stuyvesant protected against this onslaught of toxins? To date, hepa filters have not been installed and the ducts have not been cleaned according to protocol.

The mouths of the ducts were cleaned, air was blown through forcefully, then tested and found to be satisfactory. But the company that did the testing, ATC, is the company that told us asbestos levels were satisfactory on a day when the EPA or the Parent Association's company, Howard Bader, (accounts differ) made a special call to the Parents' Association to say asbestos was well above regulation limits. The air at Stuyvesant is so bad that recently the Principal decided to let students go out for lunch on the theory it didn't make that much difference where they went.

Students, like the residents in the neighboring buildings, have contracted chemical bronchitis and new-onset asthma, conditions which could last their entire lives. When we have complained to the Chancellor's office, their response has usually been some version of, "So take your child to the doctor," and, "You're welcome to transfer him to his zoned school."

In the immediate aftermath of September 11th the city's attitude was, "This is an emergency; everyone has to roll up his/her sleeves." But after the abandonment of any hope of rescue, what kind of emergency is this, exactly? A real estate emergency? An economic emergency? Whatever it is, it is creating far more emergencies down the line with the reckless manner in which it's being conducted. The burden of this clean up is falling largely on the shoulders of the young. When Giuliani and other officials spoke of making sacrifices, what this has come down to in the case of our children is decades off their lives. Under the guise of heroics, the city has been engaged in chemical warfare against its own children. This is murder. The fact that we don't know who will die, precisely, or when, makes it no less criminal. Many will die. As always, the excuse will be the times we were living in. Morals are mores, goes the argument, ethics are in the ether. In fact, morals and ethics have standards that stand outside what everyone else is doing. This "emergency" clean up is not an emergency. It is immoral, unethical and a crime against humanity.

We urgently request the immediate installation of hepa filters. We also request that drastic action be taken with respect to the barge. If there is any space anywhere else, for instance at Pier A, move the barge away from Stuyvesant. If not, contain the debris so dust clouds don't fly when it's dumped onto the barge. Retrofit the trucks to catch particulates. Please take care of our children.



# of pages including cover sheet 18Date: 2 / 25 / 2002

<b>TO:</b>	<b>FROM:</b>
Name: <u>Senator Hillary Rodham Clinton</u>	Name: <u>Marc James Ameruso</u>
Organization: <u>U.S. Senate</u>	Organization: <u>Community Board No. 1 - NYC</u>
Address: <u>Russell Building, Suite 476</u>	Address: <u>480 Greenwich Street</u>
<u>Washington, DC 20510</u>	<u>New York, NY 10023</u>
Phone: <u>(202) 224-8365 / -3565</u>	Phone: <u>(212) 334-1370</u>
Fax: <u>(202) 228-0282</u>	Fax: <u>(212) 334-9811</u>
Cell: <u>(N/A) CC: James M. Jeffords</u>	Cell: <u>(917) 783-4 744</u>
Email: <u>Gabrielle-Tenzer@Clinton.Senate.Gov</u>	Email: <u>mja@bigmagic.com</u>
<u>Megan-Thompson@Clinton.Senate.Gov</u>	

**Comments:**

To: Senator Hillary Rodman Clinton

Re: Air Quality Over Site Hearings

Please add the following two Community Board No. 1 Manhattan resolutions which I co-sponsored to official record to count as my testimony before the February 11, 2002 air quality oversight hearing.

- 1) Senate WTC Air Quality Oversight Hearing Requests
- 2) Home Land Security

In addition to that;

As my "personal testimony" I would like to submit my written testimony from New York City Council Environmental Committee from November 11, 2001 and the New York State Assembly Committee On Environmental Conservation, Health, and Labor from November 26, 2001. Included exhibits are a bulk sample analysis report from a building near WTC, and three photos of me working at ground zero from 9/11 thru 9/13. (For a total of **18** pages including cover fax sheet.)

I would also add that after the hearing I spoke with Senator Clinton about testifying in person on a panel in any follow up hearings so I may relay me personal observations from Ground Zero as a first responder.

If I can help in any way please give me a call.

Thank you for your time and consideration.

Marc J. Ameruso

(please include cover fax sheet as part of my testimony)

(I will also mail this your office and it post marked 2/25/02)

COMMUNITY BOARD NO. 1,  
New York, NY, February 1, 2002.

Mr. TOM RIDGE, *Director,*  
*Office of Homeland Security,*  
*The White House,*  
*Washington, DC.*

DEAR MR. RIDGE: At our January 15 monthly meeting Community Board No. 1 adopted the attached resolution offering our recommendations for improving homeland security here in Lower Manhattan. Our Community Board is empowered by the city of NY to represent the interests of the residents and workers of this area which includes the site of the former World Trade Center. Regrettably, our districts has twice been targeted by terrorists (1993, 2001) and with such landmarks as the NY Stock Exchange and the Statue of Liberty here, we will continue to be a potential target. We urge you to consider these four recommendations as you put together our Nation's homeland security plan:

- (1) A No Fly Zone for any aviation be established in and around Lower Manhattan
- (2) Sophisticated, state-of-the-art monitoring devices be installed in the district which would indicate the presence of biological, chemical and nuclear agents.
- (3) Any trials of suspected terrorists should *not* be conducted in our highly populated district nor should suspected terrorists be imprisoned in Lower Manhattan.
- (4) The Office of Homeland Security should appoint a liaison to interact between their office, Community Board No. 1, and other local government offices.

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COMMUNITY BOARD NO. 1 MANHATTAN  
RESOLUTION

FEBRUARY 19, 2002

COMMITTEE OF ORIGIN: EXECUTIVE

Committee Vote: 12 IN FAVOR, 0 OPPOSED, 0 ABSTAINED, 0 RECUSED  
Board Vote: IN FAVOR, OPPOSED, ABSTAINED, RECUSED

Re: Senate WTC Air Quality Oversight Hearing Requests

WHEREAS, Senator Hillary Rodham Clinton (NY) is conducting oversight hearings concerning the air quality and health effects at Ground Zero and Lower Manhattan due to the WTC attacks, and

WHEREAS, Since the September 11th attacks on WTC and the subsequent collapse of the towers and surrounding buildings, the quality of the air has been of great concern and confusion to lower Manhattan residents and workers due to conflicting reports. Independent and other government agencies test results seem to contradict the Environmental Protection Agency and other official government bodies despite official assurances that the air is "safe", and

WHEREAS, With the fires burning different types of materials inside the WTC, there was significant exposures from both airborne outdoor and indoor dust, smoke, particulate matter, gases, individual toxins and combination of toxins interacting with each other (aka: synergistic effect). As a result residents and workers downtown have been experiencing varied health problems, and

WHEREAS, Some of these symptoms include skin rash, eye, nose, and throat irritation, nausea, headaches, asthma, chronic bronchitis, severe coughing (aka WTC cough), and upper respiratory reactive airway disease, and

WHEREAS, All of the above exposures have short-term and long-term health risks depending on what was inhaled, how much of it, in what combination, and for how long, and

WHEREAS, The EPA test results showed the levels for individual contaminate without taking into account how they interact like a toxic soup in an increasingly exponential way, and

WHEREAS, There was also significant distributions of dust on top of roofs, water towers, and sucked into air conditioning units and building ventilation systems: Now therefore, be it

*resolved that:*

CB No. 1 strongly urges that the following recommendations be implemented immediately:

- (1) Designate a lead agency to handle environmental issues affected by the WTC disaster.

- (2) Enforce existing laws, especially environmental regulations and public health standards and policies.
- (3) Create a central medical data base registry to keep track of all exposed people who are having health problems, for tracking of short- and long-term health risks, and to inform people of the medical treatments that are available.
- (4) Improve and continue indoor and outdoor air testing, and surface testing using state-of-the-art equipment and up to date methods.
- (5) Conduct research to assess the short- and long-term health impact of combinations of dust and gases, the synergistic effects and combinations of toxins, and provide funding for the research.
- (6) Establish new air quality standards for individual and synergistic combinations of pollutants.
- (7) Develop clean-up and post-clean-up protocols for indoor and outdoor spaces.
- (8) Containerize the debris removal operation.
- (9) Require stringent mitigation of diesel exhaust pollutants from vehicles, cranes and generators through the use of low-sulfur fuel, particulate traps and other technologies.
- (10) Establish an air quality hotline with an appropriate Government Agency or qualified group or organization.
- (11) Establish standard operating procedures for future emergency responses.

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COMMUNITY BOARD NO. 1 MANHATTAN RESOLUTION

JANUARY 15, 2002

COMMITTEE OF ORIGIN: EXECUTIVE

Committee Vote: 7 IN FAVOR, 1 OPPOSED, 0 ABSTAINED, 0 RECUSED  
Board Vote: 34 IN FAVOR, 5 OPPOSED, 2 ABSTAINED, 0 RECUSED

Re: Home Land Security

WHEREAS, The Federal Government is requesting recommendations to improve homeland security, and

WHEREAS, Lower Manhattan has twice (1993, 2001) been the target of terrorist attacks upon the World Trade Center, and

WHEREAS, Lower Manhattan, as the financial capital of the world and the home to many internationally known or otherwise sensitive buildings and residences and structures, continues to be a potential target for terrorists, now therefore, be it *resolved that:*

CB No. 1 recommends that the Federal Office of Home Land Security provide adequate funding to implement the following recommendations to improve security in Lower Manhattan:

- (1) A No Fly Zone for any aviation be established in and around Lower Manhattan.
- (2) Sophisticated, state-of-the-art monitoring devices be installed in the district which would indicate the presence of biological, chemical and nuclear agents.
- (3) Any trials of suspected terrorists should not be conducted in our highly populated district nor should suspected terrorists be imprisoned in Lower Manhattan.
- (4) The Office of Home Land Security should appoint a liaison to interact between their office, Community Board No. 1, and other local government offices.

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STATEMENT OF MARC J. AMERUSO, NEW YORK CITY COUNCIL ENVIRONMENTAL  
COMMITTEE

My name is Marc Ameruso, I have been a resident of Tribeca for 10 years. A member of Community Board No. 1 for 4 years, and very much involved with community activism in the neighborhood.

Since September 11th I have like many others, have been very concerned with air quality caused by the collapse of the World Trade Center (WTC). Also, since the first week I have been learning as much as possible to educate myself on the subject of air quality.

Four weeks ago, I never heard of furans or chrysotiles, or how harmful they can be to humans. Today I speak to you as an American, a New Yorker, and a Tribeca resident. Not to diminish what people are feeling around the world, the country, or even in the rest of New York.

This area where the WTC stood is my neighborhood, and my HOME.

Please let's not forget that, because even after the attacks, I still find myself having to convince the some powers that be and the people who will be charged with the rebuilding the WTC site, that this is area is a neighborhood with many long time residents who want to stay and continue to raise their children in this wonderful community, that myself and many others have been working so hard to make a better place. We will rebuild and come out of this better than before.

One day the fires will go out, the smoke will clear and that smell will disappear. But right now, the air quality can throw a monkey wrench into all our efforts.

People just want to know what, how to protect themselves and safely clean up. I am not an alarmist, I just want the truth and so do they.

With the resulting distribution of dust and particulate matter blowing around the city, including into Brooklyn, Queen's, Staten Island, and New Jersey as well as, the fires continue to burn who knows what. Under the rubble, spouting out a laundry list of harmful toxins into the air are making residents and rescue workers sick. They visit their doctors, only to be told that their symptoms are psychosomatic.

Please allow me to briefly relay part of my experience to the committee which will bring the air quality issue into perspective.

On September 11th, I was home just waking up, preparing for primary day. Of course, that did not happen. When the towers collapsed I went to the trunk of my car and retrieved my construction gear that I kept there from my old construction job many years ago, then proceeded downtown to see what I could do to help.

By the way, my equipment did not include a respirator.

I stayed at the site for the next 3½ days helping in anyway I could, from search and rescue to off loading ships to bringing supplies and equipment to various locations.

I slept in Stuyvesant High School for two nights. Everybody down there helped in the same way with no real direction from a supervisor.

#### PICTURES<sup>1</sup>

I have a few photos that I would like to share with the committee. (September 11, surgical mask); (September 12, smiling, just got respirator); (September 13, just evacuated from Ground Zero, 1 Liberty imitate collapse).

By the way, there were many other people down there like me, who were for lack of a better term were "Ground Zero civilian rescue volunteers" working side by side on top and around the rubble pile with the incredible firefighters, police, and other rescue workers.

So please remember not leave this courageous group of people out of in any future citations or accolades.

I knew there were all types dangers but help was needed and I had not a second thought about it. The 3½ days I spent at the site I observed very few rescue workers wearing respirator masks, and I did not hear anyone giving instructions to do so.

Although I did see handwritten signs posted around saying, "Asbestos levels are high, wear your masks."

Interestingly, members of the military and rescue workers from out of town who had their own respirators almost always keep there mask on while working. The treatment I had at the triage center set up inside Stuyvesant High School included oxygen respiratory treatment twice, eye washes at least nine times, and antibiotic eye drops for a scratched cornea.

I still have a nagging cough as do many other people. I have resigned myself to the fact that I may get sick in 10 or 20 years because of this. But I accept it because helping was the right thing to do.

I relay this part of my experience to you not brag, that is not way I am. I told you my story because going down to help was my choice. The main problem here is that the EPA is not giving the residents of New York and the rescue workers a choice by telling them the air quality is OK. This is where your committee can help. The correct specific questions need to be asked to the EPA under oath.

The City Council has the power with these oversight hearings, to subpoena the EPA to testify as to the truth. Just don't subpoena the bosses, the administrators, the talking heads. Subpoena the toxicologists and epidemiologist, some of whom I have spoken to one on one. They can't even look me in the eye when they say the air quality is OK. I can see the torment in their faces, they know the truth with air and I feel they wish they could tell us. Get them down here to testify.

<sup>1</sup>Retained in the committee's file.

Your committee must ask very specific questions or they will double talk and bog you down with scientific and technical banter and all the while never answering the question.

There are people here that can show the committee exactly how to frame these questions today and for the followup hearing next week. The EPA has been very selective with the information they have been releasing to public and on there website.

Picking and choosing what you want someone to see is the same thing as lying in my book. There is proof of this in the EPA's own air quality test results and reports and confirmed by other independent testing. One independent test that I obtained at a location on Rector Place had a test result of 4.3 percent for Asbestos on an area described in the report as, "Roof/Play area". We now know that OSHA uses a 1 percent level for Asbestos as a safe standard.

Let's now talk about the EPA test results. It is my understanding that the EPA air quality reports were only able to be obtained through a freedom of information request by the New York Environmental Law & Justice Project.

That first week or so after the attacks, I thought I was the only person who believed that we were not getting the whole truth from that EPA. I felt like I was in a bad "B" movie claiming that a meteor is going to hit the earth and I was the only one hit.

Also as of today a Freedom of information request sent to NYC Department of Health for their test results and air quality reports as not been honored. Please ask them why there are holding back? So the questions remains. What is in the air that is making people sick? Each time some rubble is removed, oxygen gets down under there and fuels the fires burning the countless type of materials that were in the WTC. Is the EPA using adequate equipment?

At a recent air quality forum, a scientist said that there are chemicals known as super tiny particles. The current EPA equipment can not detect these tiny particles. So how do they know it is safe?

Furthermore, the broad spectrum testing the EPA is conducting does not take one important factor into account. Just because a particular test result does not reach or go over some threshold set by the EPA or OSAH, does not mean these particles can't make people sick. In other words, just because some reading does not make it up to some number that they have in a book doesn't mean people can't still can get sick. These "low levels" are making people sick and that is exactly what is happening.

I am going to briefly read to you some of the EPA's own test results and air quality reports that was obtained through the Freedom of Information Request I told you about earlier. There will be more specific and detailed information from other people who have testified or who will be testify.

September 20, 97 samples taken, 26 could not be analyzed because the filters became clogged.

October 14, Dioxin, 10 samples were collected on October 2 and analyzed for dioxin/furans. Four of the samples showed results above the guideline level at which EPA would take some type of action to reduce people's exposure.

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This is just a small sample of what I read in the EPA's own reports. There is enough in there to question what is really going on with the air. We should be jumping up and down for the truth! I do not buy the EPA party line that breathing the bad air is OK short term. It has been 6 weeks with no end in site. It was smelling on the way to City Hall. If it makes you sick something is wrong. Lets be honest; is the real estate values of downtown and the stock exchanges worth people lives. Downtown Manhattan is not going anywhere.

Thank you. I will happy to take any questions.

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STATEMENT OF MARC J. AMERUSO, NEW YORK STATE ASSEMBLY COMMITTEE ON ENVIRONMENTAL CONSERVATION, HEALTH, AND LABOR

My name is Marc Ameruso, I have been a resident of Tribeca for 10 years. A member of Community Board No. 1 for 4 years, and very much involved with community activism in my neighborhood.

Today I speak to you as an American, a New Yorker, and a Tribeca resident. Since September 11th, I have like many others, have been very concerned with air quality caused by the collapse of the World Trade Center (WTC) because of the continuing cloud of gases and dust that spew from under the rubble for the last 2½ months. Also, since the first week I have been learning as much as possible to educate myself on the subject of air quality. I have lost count on how many forums and town hall meetings I have attended, including two City Council Environmental Oversight hearings. I would like to commend Stanley Michaels for having those hearings and also thank Speaker Silver and the rest of the committee for having these oversight hearings today.

I would like to submit part of the transcript from the City Council November 8 hearing for your records. I have highlighted much of the relevant testimony. Six weeks ago, I never heard of furans, chrysotiles, or the term synergistic effects also know as “toxic soup” and how harmful they can be to humans.

I always hear the same party line statement from the EPA and others at these hearings and forums. The air is “safe” and there are “no long-term health effects”, which is always qualified with [according to current studies or to best of our knowledge]. This is a cover-your-ass statement for 10, 15, 20 years down the road. The statement also gives the impression that the air is safe and is misleading to the public at large. There are too many unknowns on the effects of this amount of combination of gases. In the limited amount of research, it has been shown that combinations just doesn’t double your health risk but can increase it exponentially. They should just say definitely that they do not know what the long-term and short-term risks are and then we can take it from there.

I want to say the following because I think it is important not to diminish what people are feeling around the world, the country, or even in the rest of New York. This area where the WTC stood is my neighborhood, and my HOME. Please let’s not forget that, because even after the attacks, I still find myself having to convince the some of the air quality powers that be and the people who will be charged with the rebuilding the WTC site, that this area is a neighborhood with many long-time residents who want to stay and continue to raise their children in this wonderful community, that myself and many others have been working so hard to make a better place. We will rebuild and come out of this better than before.

One day the fires will go out, the smoke will clear and that smell will disappear. But right now, the air quality can throw a monkey wrench into all our efforts. People just want to know what, how to protect themselves, what type of treatment they can receive if they are sick, and how to safely clean up their buildings and apartments? Not to be told when they visit their doctors, that their symptoms are psychosomatic. Please, enough of that already. I am not an alarmist, I just want the truth and so do they.

With the resulting distribution of dust and particulate matter blowing around the city including into Brooklyn, Queen’s, Staten Island, and New Jersey, as well as the fires that continue to burn, the numerous amount of materials under the rubble spouting out a laundry list of harmful toxins into the air that are making rescue workers sick as well as residents and office workers outside of Ground Zero. Children, pregnant women, and the elderly are at the most risk. Mount Sini has been seeing some of these people at there clinic, so something is wrong.

Please allow me to briefly relay part of my experience and observations to the committee which will bring the air quality issue into perspective. On September 11th, I was home just waking up, preparing for primary day. Of course, that did not happen. When the towers collapsed, I went to the trunk of my car and retrieved my construction gear that I kept there from my old construction job of many years ago, then proceeded downtown to see what I could do to help. By the way, my equipment did not include a respirator.

I stayed at the site for the next 3½ days helping in anyway I could, from search and rescue to off loading ships to bringing supplies and equipment to various locations. I slept in Stuyvesant High School for two nights. Everybody down there helped in the same way with no real direction from a supervisor.

#### PICTURES<sup>2</sup>

I have a few photos that I would like to share with the committee. (September 11th, (surgical mask); September 9–12, (smiling, just got respirator); September 9–13, (just evacuated from Ground Zero, 1 Liberty, imitate collapse).

If you look closely at the picture you can see in the background that the other rescue workers around me do not have the proper protective equipment. By the way

<sup>2</sup>Retained in the committee’s file.

there were many other people down there like me, who were for lack of a better term were "Ground Zero civilian rescue volunteers" working side by side on top and around the rubble pile with the incredible firefighters, police, and other rescue workers.

So please remember not leave this courageous group of people out of any future citations or accolades and they may also have health problems. How do we track them or everybody else for that matter. I knew there were all types dangers but help was needed and I had not a second thought about it. The 3½ days I spent at the site, I observed very few rescue workers wearing respirator masks, and I did not hear anyone giving instructions to do so. I did see some handwritten signs posted around saying, "Asbestos levels are high, wear your masks."

Interestingly members of the military and rescue workers from out of town who had their own respirators and almost always keep their mask on while working. The treatment I had at the triage center set up inside Stuyvesant High School included oxygen respiratory treatment twice, eye washes at least 9 times, and antibiotic eye drops for a scratched cornea.

I still have a nagging deep chest cough as do many other people I have spoken with who were not rescue workers. I have resigned myself to the fact that I may get sick in 10 or 20 years because of this. But I accept it because helping was the right thing to do. I relay this part of my experience to you not brag, that is not the way I am. I told you my story because going down to help was my choice.

The main problem here is that the EPA is not giving the residents of New York and the rescue workers a choice by telling them the air quality is OK and there will be no long-term health effects. This is where your committee can help. The correct specific questions need to be asked to the EPA under oath. If the Assembly has the power with these oversight hearings, to subpoena the EPA to testify as to the truth. Just don't subpoena the bosses, the administrators, the talking heads. Subpoena the toxicologists and epidemiologist, some of whom I have spoken to one on one off the record. They can't even look me in the eye when they say the air quality is OK. I can see the torment in their faces, they know the truth with air and I feel they wish they could tell us.

Get them down here to testify. Your committee must ask very specific questions or they will double talk and bog you down with scientific and technical banter and all the while never answering the question. There are people here that can show the committee exactly how to frame these questions today and hopefully there will be a followup hearing on this subject. The EPA has been very selective with the information they have been releasing to public and on their website.

Picking and choosing what you want someone to see is the same thing as lying in my book. There is proof of this in the EPA's own air quality test results and reports and confirmed by other independent testing which I am sure you will hear about. One independent test that I obtained at a location on Rector Place had a test result of 4.3 percent for Asbestos on an area described in the report as, "Roof/Play area". We now know that OSHA uses a 1-percent level for Asbestos as a safe standard. But I think we need to be very careful about being happy that a certain toxin is below a particular level. What has happened here is unprecedented. Some of the standards that exist today were set many years ago and were not set for the type of exposure that we are experiencing.

They also may have set at a certain level in a negotiation between a chemical company and the Government. Many of the toxicologists and epidemiologist I have spoken with tell me that these standards change often, most of the time to lower threshold. The standards are also subject to debate in the scientific community.

Let's now talk about the EPA test results. It is my understanding that the EPA air quality reports were only able to be obtained through a freedom of information requests.

Also as of today, a Freedom of Information Request sent to NYC Department of Health for their test results and air quality reports as not been honored. Please ask them why they are holding back? So the questions remains, what is in the air that is making people sick? Each time some rubble is removed, oxygen gets down under there and fuels the fires burning the countless type of materials that were in the WTC. Is the EPA using adequate equipment? At a recent air quality forum, a scientist said that there are chemicals known as super tiny particles. Can the current EPA equipment detect these tiny particles? So how do they know it is safe?

Furthermore, the broad spectrum testing the EPA is conducting does not take one important factor into account. Just because a particular test result does not reach or go over some threshold set by the EPA or OSAH, does not mean it is safe. Also, what about the background levels? It does not mean these particles can't make people sick. Just because some reading does not make it up to some number that the EPA has in a book doesn't mean people can't still get sick. It is irreverent that

individual toxins are at “low levels” most of the time when they are making people sick, and that is exactly what is happening.

I am going to briefly read to you some of the EPA’s own test results and air quality reports that was obtained through the Freedom of Information Request I told you about earlier. There will be more specific and detailed information from other people who have testified or who will be testifying.

September 20, “97 samples taken, 26 could not be analyzed because the filters became clogged.”

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This is just a small sample of what I read in the EPA’s own reports. There is enough in there to question what is really going on with the air. We should be jumping up and down for the truth! I do not buy the EPA party line that breathing the bad air is OK short term.

It has been 6 weeks with no end in site. When does short term end. What is the short term for Dixon or the short term for PCB’s? I was smelling it on the way to this hearing. If it makes you sick something is wrong. To sum up, I think four things need to be done; (1) The City needs funding to coordinate and organize the cleanup, with a Ground Zero air quality czar for lack of a better term. (2) Begin research and study the what happens when so many contaminants and toxins interact with each other in various combination, the synergistic effects. (3) Track people’s long- and short-term health effects from the “toxic soup” that we have been breathing in since September 11th and have all these people in one data base. I guess we have now become lab rats. (4) Have better protocols for debris removal, at the November 1st City Council hearing, the EPA said there were using some Super Fund Site protocols but were unwilling to declare the WTC site an overall Super Fund Site.

Why? Like anything else, always consider the source of the information. Who has an agenda? Lets be honest; is the real estate values of downtown and the stock exchanges being open worth people lives. Downtown Manhattan is not going anywhere. Thank you. I will happy to take any questions.

#### Niche Analysis, Inc.—Bulk Sample Analysis Report

Sample No.	Type of Material Condition/Appearance	Sample Location	Asbestos Content and Percent	Non-ACM Content and Percent
1	Dust/Gray	Apt 2J/Living room/Window wash	2.3 Chrysotile	25 FB, 2 CL
2	Dust/Gray	Apt 2J/Living room/Trapped on AC filter	ND	95 FB, 2 CL
3	Dust/Gray	Apt 2J/Bedroom/Trapped on AC filter	ND	90 FB, 5 CL
4	Dust/Gray	Apt 2J/Living room/Window sills	1.8 Chrysotile	30 FB, 30 CL
5	Dust/Gray	Apt 2J/Debris from exterior window frame.	ND	6 FB,< 1 CL
6	Dust/Gray	Apt 2J/Living room/Dirt sample from floor.	2.1 Chrysotile	45 FB, 10 CL
7	Debris/Gray	Roof/North edge of room	Trace Chrysotile	45 FB, 10 CL
8	Debris/Gray	Roof/Play area (on end of rubber squares).	4.3 Chrysotile	40 FB, 30 CL
9	Dust-Debris/Gray	Roof/South side of roof	3.2 Chrysotile	40 FB, 15 CL
10	Debris/Gray	Roof/Perimeter north side	0.6 Chrysotile	50 FB, 10 CL
11	Debris/Gray	Roof/Middle section	2.2 Chrysotile	40 FB, 15 CL

Note: The balance of each sample is non-fibrous particulates. Please contact us promptly if you have any questions about the results. Analysis was performed by using “Point Count Technique” as required and recommended by the New York State Department of Health and USEPA Interim Method for “Identification of Asbestos in Bulk Samples”. This report must not be used by the client to claim product endorsement by NVLAP or any of the U.S. Government. This report relates only to the items listed. Detection limit is 1 percent for asbestos. NICHE’s liability not to exceed the invoice amount. Sample location was provided by the client. Polarized light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if the material can be considered or treated as non-asbestos-containing. ND=None Detected CL=Cellulose FB=Fiberglass



STATEMENT OF MARCY BENSTOCK, EXECUTIVE DIRECTOR OF CLEAN AIR  
CAMPAIGN INC.

Clean Air Campaign Inc. is grateful to Subcommittee Chairman Joseph I. Lieberman and Senator Hillary Rodham Clinton for holding a February 11, 2002 hearing on the impacts of the September 11th attack on the World Trade Center on air quality in the area of the WTC, and how to address them. We appreciate the opportunity to submit these comments for the hearing record.

Clean Air Campaign (CAC) worked closely with City and Federal agencies, and organized citizen watchdogs to go door-to-door, to get soot from every polluting building in a 200-block area of Manhattan cleaned up at the source in the 1970's. This effort succeeded in reducing particulate pollution by one third in the target area, CAC also has an office in a commercial office building near the WTC, which was downwind when the towers collapsed. We have been trying for more than 5 months to get the information necessary to get our office and its contents decontaminated the right way.

## RECOMMENDATIONS

1. *Cleanup first.*—The Lower Manhattan, Development Corporation, (LMDC) placed a fullpage ad in today's New York Times (February 25, 2002, p. B5) proposing to use a U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant to provide financial assistance and/or incentives to eligible individuals to remain in homes or apartments in Lower Manhattan, or to move into the area. This is premature.

Asbestos and other dangerous contaminants which do not go away on their own should be removed from the air and dust inside all the offices, apartments, schools, stores and buildings in Lower Manhattan which have not yet been effectively decontaminated. This should happen before residents and workers in the Lower Manhattan are given incentives to go back to their homes and offices, or to relocate to an area—Lower Manhattan—which may endanger their health.

2. *More than a "professional" cleaning should be performed.*—Many "professional" cleaning companies working in Lower Manhattan are not performing asbestos remediations, and may not have skilled and trained staff qualified and licensed to do the work, or the required certifications. Even certified firms may have outstanding violations. Even top companies known to do good asbestos remediation work have not been informing potential commercial tenants that there is a difference between an asbestos remediation and other kinds of cleaning, or what specific tasks should be included in a cleaning contract for a given office.

A widespread cleaning/decontamination should be performed in as many buildings and offices and apartments in Lower Manhattan as necessary by the U.S. Environmental Protection Agency (EPA), the Agency that cleaned the Senate Hart Office Building. At minimum, the appropriate EPA office should issue the contracts for this widespread clearing and decontamination, in an open, public contracting process which fully complies with all appropriate Federal mandates, Qualified asbestos remediation firms from across the country should be encouraged to submit their qualifications and bids.

3. *Truly independent and credible testing of air and dust samples* should be performed at appropriate locations throughout Lower Manhattan, under protocols developed and reviewed by the best Certified Industrial Hygienists (CIHs) in the country, the best qualified U.S. Environmental Protection Agency (EPA) staff in Washington, DC and Research Triangle Park, and other qualified professionals.

It is essential that this effort begin again without built-in conflicts of interest. The testing must be performed in the absence of political or financial incentives to do the testing the wrong way, to void certain data, and/or to prevent the data from being reviewed by competent professionals across the country—quickly.

The NY *Daily News* reported February 22, 2002, that the Lower Manhattan Development Corporation (LMDC) was considering the funding of air quality "testing and remediation," and was considering "hiring a consultant to 'harmonize' standards for indoor air quality." LMDC should not be involved in either air testing or remediation in any way.

4. *In considering any appropriate role for LMDC, U.S. EPA and Members of the Senate Environment and Public Works Committee and its staff should review the documents through which the LMDC was created, and the New York State laws which govern the powers and mandate of LMDC.*

The Lower Manhattan Development Corporation (LMDC, formerly called the Lower Manhattan Redevelopment Corporation) is a wholly-owned subsidiary of the New York State Urban Development Corporation (UDC), doing business as the Empire State Development Corporation ("ESD"). LMDC has no office of its own; the ad-

dress in its Certificate of Incorporation is “c/o NYS Urban Development Corp.” at UDC/ESD’s 633 Third Avenue address.

Pursuant to a 2-page November 5, 2001 memorandum, to the UDC/ESDC Directors from Charles Gargano, “Subject: Lower Manhattan Redevelopment,” a 1-page “Authorization to Create the Lower Manhattan Redevelopment Corporation . . .” authorized UDC/ESD’s president and chief executive officer to establish a Lower Manhattan Redevelopment Corporation (sic) as a subsidiary of UDC/ESD. The New York State Department of State Division of Corporations and State Records issued a “filing receipt” for the Lower Manhattan Development Corporation (LMDC) on December 17, 2001. LMDC is to have “perpetual” duration.

According to this Certificate of Incorporation (5 pages) and LMDC’s initial By-Laws (Exhibit, A, 11 pages), LMDC was to be incorporated under Section 402 of the State’s Business Corporation Law, as authorized by Section 12 of New York’s Urban Development Corporation Act (“the UDC Act”). Its purposes are to exercise the “all purposes, powers and functions” of UDC, “in furtherance of the implementation and management of the redevelopment of the area of Manhattan south of Houston Street [with no southern, eastern or western boundary] in the city and State of New York (said area referred to as ‘Lower Manhattan’).”

These vast, unaccountable powers include condemnation, the power to spend unlimited Federal, State and local funds, the power to issue tax exemptions and create still more subsidiaries, and broad powers to tissue contracts, deeds and other instruments. In certain respects UDC/ESD is very much like Enron—except that its powers are broader than Enron’s, since, as Robert Caro explained in *The Power Broker*, such quasi-public authorities partake of both all the powers of government and all the powers of a private corporation.

At least six of LMDC’s directors were appointed by UDC/ESD on the advice of Governor Pataki, and at least three by UDC/ESD on the advice of Mayor Giuliani. They all serve at the pleasure of UDC/ESD, a state authority controlled by the Governor of New York State, unless they hold an official position in New York City or State. In that case alone, the Governor or Mayor can remove an LMDC board member by removing him or her from his/her official State or city position. This arrangement shields the Governor and Mayor of New York from accountability.

An organization called “Reconstruction Watch” lists the following 11 people as members of the LMDC board (in alphabetical order): Roland Betts (by Gov.), Paul Crotty (by Mayor), Lewis Eisenberg (by Gov.), Charles Gargano (the head of UDC/ESD), Richard Grasso (by Mayor), Robert Harding (by Mayor), Ed Malloy (president of the Building and Construction Trades Council of Greater New York and the New York State Building and Construction Trades Council) (by Gov.), John C. Whitehead (LMDC’s Chair) (by Gov.), Madelyn Wils (by Gov.), Howard Wilson (by Mayor), Deborah Wright (by Gov.), and Frank Zarb (by Gov.). Louis Tomson (LMDC’s executive director) was appointed by the board. Ira M. Millstein is counsel to the board. None of the LMDC board members has a record of public service employment in environmental protection or public health agencies.

LMDC has at least five Advisory Councils, but the power resides with the Governor of New York, the man the Governor appoints to head UDC/ESD (currently Charles Gargano), and the campaign contributors, political fundraisers, and other powerful and or wealthy but unelected “players” who are appointed to the LMDC board.

Meetings of the LMDC board may be held without notice even to the Board, “at any place.” “No such notice of any meeting need be given to any director who attends the meeting without protesting, prior thereto or at its commencement, the lack of notice to him or her. . . .” The meeting may occur by conference call “or similar communications equipment. . . .”

This development authority has \$2 billion from the Federal Government already, according to the *Daily News*. It was created without any environmental review under the State Environmental Quality Review Act (the state equivalent of the National Environmental Policy Act, NEPA).

At least five pages of LMDC’s Certificate of Incorporation and initial By-Laws shield the directors of this UDC/ESD subsidiary from various kinds of liability.

5. *The Federal Government (including a bi-partisan Special Committee of the U.S. Senate)* should play an important implementation and oversight role over disaster recovery efforts for Lower Manhattan.

This country’s greatest environmental and public health protection laws were written in Washington in the 1970’s and 1980’s. They were written in Washington because State and local governments have shown over and over that they cannot withstand pressure from major campaign contributors to avoid the enforcement of State and local laws when wealthy and/or powerful campaign contributors want those laws ignored.

The disaster that resulted from a terrorist attack on the World Trade Center, may be worse than any other that has ever occurred in this country. The toxic pollutants released when the towers were pulverized—and as fires continue to burn—present wholly new air quality monitoring and remediation problems, and the pollutants in the area now (both regulated and unregulated) are likely to have synergistic affects. The health of a great number of the citizens of at least three states (New York, Connecticut and New Jersey) is at risk.

The exposures of people who work in Lower Manhattan to these pollutants is generally more than 8 hours a day. In addition, many people who live in Lower Manhattan also work or go to school in Lower Manhattan, so they may be exposed to this whole new order of pollutants 24 hours a day. Children are already suffering from increased asthma attacks; adults are getting adult-onset asthma, which they will have for the rest of their lives; and people can die from asthma attacks. This increased incidence of asthma problems may not be as bad as the lung cancers likely to show up 10, 20 or 30 years down the road—but it ought to serve as the canary in the coal mine, and prompt effective preventive actions.

Neither the State of New York, nor the City, nor, their agencies or authorities is up to the job of protecting the health of the hundreds of thousands of U.S. citizens who live, work, or go to school in Lower Manhattan. The U.S. Senate and EPA will just have to take a leading role.

6. *Commercial tenants as well as resident of Lower Manhattan must be given far better information on cleanup options and techniques.*—Commercial tenants are not being told that there is a difference between asbestos remediation (i.e., a gold standard office cleanup) and some other kind of cleanup. Vague “bid proposals” are being offered which do not list the cleanup tasks which will be performed. No Government Agency that CAC is aware of has mentioned that office carpeting should be removed if possible, and should only be replaced after post-cleaning clearance and/or re-entry testing shows that the air and any dust in the office is safe to breathe.

Decontamination chambers are generally used in asbestos-remediation-style cleanups, to keep toxic contaminants from being resuspended. Cleaned desks, file cabinets, and papers should be moved out of the office if possible, and not put back until the office tests clean.

Clean Air Campaign still has not been able to find out how many decontamination chambers one needs if the office contents cannot be moved out, and how big they need to be—i.e., whether or not two would fit into a small office.

Both the Internal Revenue Service and the State Tax Department have sent mailings to employers with payrolls in the WTC area, informing us of extended tax filing deadlines. Information on truly effective cleanups could be included in future mailings.

7. *Better information on the internet.*— Any citizen anywhere in this country who wants to help devise better testing or cleanup protocols, or who wants to see what real experts (with names and affiliations) have to say, should be able to get the information—and provide it—using the internet. The Senate Environment and Public Works Committee should sponsor appropriate websites until other agencies show they are willing and able to do the job.

#### CONCLUSION

It is in everyone's interest to restore air quality to safe levels in Lower Manhattan by cleaning up all possible contaminants at the source, and removing them from Manhattan. The alternative approaches aren't working (providing misleading reassurances, mispending the public funds available to solve the real problems in Lower Manhattan, and seeking to shift the costs and liability for a public health disaster, onto other parties, especially the individuals who live, work, or go to school in Lower Manhattan). Parents of schoolchildren, residents and workers who want to return (or send their children back) to Lower Manhattan have been getting sick and facing agonizing choices over the last 5 months. Before we all go to stress counselors (which we haven't had time to do), we need to have the sources of the stress removed. Those include the unprecedented burden of contaminants in Lower Manhattan.

Clean Air Campaign would be happy to provide additional information on request. We also hope there will be more U.S. Senate, House of Representatives, and EPA hearings. Finally, we would appreciate receiving a copy of the written record of this hearing, unless all the statements which have been submitted for the record are put on EPW's website.

STATEMENT OF DAVID KOON, CHAIR, NEW YORK STATE LEGISLATIVE COMMISSION ON  
HAZARDOUS WASTES AND TOXIC SUBSTANCES

Thank you for inviting my testimony as chair of the Legislative Commission on Hazardous Wastes and Toxic Substances to be entered into the record of today's proceedings.

The devastating attacks at the World Trade Center on September 11th have left emotional scars on the victims, their families, and the country. Just as important, these events have left the potential for serious long-term health impacts on the thousands of individuals who risked their lives to save others, have responded to assist with cleanup efforts, and who live and work in Lower Manhattan. I would like to commend your efforts here today to further bring to light many of the environmental health issues resulting from the events of September 11th.

As the chair of the Assembly's Hazardous Waste and Toxic Substances Commission, my office has been closely monitoring the developments of reported health effects of contaminate exposure to workers and residents of Lower Manhattan.

As the rescue, recovery and cleanup efforts have progressed, issues regarding worker safety as well as residential exposure have come to the forefront. Environmental monitoring data has not been consistently provided to the public, and government agencies have been criticized for not releasing environmental data sooner. After the initial delay in posting environmental data, a clear picture of the extent of the contamination and its implications for public health and the environment remains elusive.

There are a number of factors that have contributed to the general unease and anxiety over environmental monitoring information. The delay in making test results publicly available and the failure to reveal all information that EPA used to make public health determinations, further exacerbated the situation. In addition, the test results of independent consultants, some whom had been previously hired to perform environmental monitoring analysis after the 1993 World Trade Center bombings, were dismissed, citing that their "testing methods weren't recognized."

The confusion and skepticism expressed by many people regarding environmental monitoring and testing at the World Trade Center site has resulted, in part, because there is no clear legal or regulatory framework in place to deal with the type and magnitude of the disastrous building collapse. The environmental and public health impacts caused by the sudden, complete and unplanned destruction of the office buildings in Lower Manhattan are not directly addressed at either the Federal or State legal levels. In attempting to determine what levels of environmental exposure to chemicals are "permissible" or "acceptable" has left government officials looking to statutes and regulations that would have applied in a normal building construction and demolition scenario, and the amounts of chemicals that could be legally permitted to enter the air under those statutes. The laws and regulations that are being referenced address many substances including asbestos exposure to workers, asbestos clean-up requirements, hazardous waste content of debris, and fine particulates in the air.

More than 20 thousand people live within ½ mile of Ground Zero, close to three thousand of them are children. As I am sure you will repeatedly hear during today's proceedings, many workers and residents within the Lower Manhattan area are reporting similar health symptoms: nosebleeds, sore throats, bronchial infections and an "endless racking cough" more commonly referred to as the "WTC Cough." Several students who attend nearby Stuyvesant High School have reported cases of skin rashes, nosebleeds, headaches, respiratory infections, and eye infections. Three Stuyvesant High School teachers have left due to respiratory illnesses. Approximately one-fourth of the city's firefighters involved in rescue and cleanup activities complain of severe coughing. FDNY has reported that approximately 750 firefighters, 8 percent of its work force, are on medical leave. Several hundred of these individuals may be forced to retire from the Department. More than one thousand have filed claims against the City. In early January, four Port Authority officers were reassigned after blood monitoring tests revealed high mercury levels.

While government test analysis show asbestos and other contaminate levels generally fall below the standards set for safe human exposure, health officials remain concerned about long- and short-term health impacts of these exposures. Officials have publicly stated that their knowledge on related-health impacts is based on long-term exposure. There is no precedent for a disaster of this magnitude and many health implications remain unknown.

Acting on public concern, the Assembly Speaker, whose District encompasses the World Trade Center site, convened a public hearing in November to examine the public health and environmental impacts of the terrorist attacks. Witnesses included panels of elected officials, community groups, government agencies and rep-

representatives from environmental, health and labor organizations. The recurring themes of the hearing were the same: inadequate testing methods, particularly outside the perimeter of Ground Zero; better coordination of communication between the agencies conducting the testing and releasing information; extensive health concerns for workers onsite at Ground Zero; and inadequate action taken to protect the public from the hazards of pollutants released by the 11-week-long fire.

The Assembly hearing testimony confirmed that despite the well-intentioned efforts, communication between the various governmental agencies and the public was inadequate. While the enormity of the incident was unprecedented and the need to initially concentrate all resources on emergency and recovery efforts is certainly understandable, subsequent governmental actions failed to reassure the public about their health and safety. The discrepancy in testing methods and results has created much anxiety for the residents and workers in Lower Manhattan. The failure of government to conduct residential indoor air testing and subsequently allow residents to reoccupy their homes may result in real long-term health concerns, particularly in children and the elderly.

Further, very little information has been provided regarding water quality in the World Trade Center area. Upon a recent visit to EPA headquarters, Assembly staff witnessed cleanup workers spray washing the dust and debris from the sides of the buildings. While the workers wore protective face gear, the runoff simply emptied into the street, dropping on scaffolds on the sidewalks as pedestrians walked underneath and around them, simply changing the pathway of exposure.

It serves no public interest to point fingers and blame as we move forward from this great national tragedy. Moreover, as the City moves ahead with cleanup and redevelopment efforts, let us work together to regain the public's trust by establishing better communication between governmental entities regarding who is testing what area and for which contaminants. Develop consistent reporting methods to inform the public of all potential health impacts that exist. Testing methods themselves need to be the most stringent and protective of the public health and environment available. Improvements in all these areas will help to allay fears of the public, thereby allowing them to make informed decisions.

Thank you very much. We would be happy to provide you with information collected by the Commission staff as well as a copy of the Assembly's hearing transcript and testimony given at those proceedings.

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STATEMENT OF PATRICIA R. DILLON, NEW YORK, NY

My sincere thanks to the committee, and to Senators Clinton and Lieberman, for today's hearings regarding health and environmental problems in Lower Manhattan related to the September 11th World Trade Center disaster.

I am a resident of the Tribeca neighborhood and I also work in Lower Manhattan—at 80 Centre Street. My mild respiratory difficulties—seasonal sneezing and itchy eyes, and an occasional cough caused by New York City's normal poor air quality—have been greatly exacerbated by the current, ongoing problems with recovery and "cleanup" (I hesitate to use that word, since what precious little cleanup is occurring is being done in the most sloppy and dangerous manner).

When I leave the city for a few days, my coughing stops and my breathing eases, so I know that these difficulties are due to my virtually constant exposure to the air near Ground Zero. I am assured by the Department of Health and other public agencies that I will certainly suffer no long-term ill effects. But, how can I trust any of these Government agencies when it is clear that they have obfuscated, covered up and outright lied about what they do know, and given us the worst possible advice about how to deal with the situation. Wet-mop indeed! What about the air-intake vents on the roofs of apartment buildings, which are sucking in toxins from the never-been-cleaned roofs and distributing them throughout all the air ducts in the buildings?

Why is New York City not mandating building owners to do environmentally safe cleaning of their buildings, and why is the Federal Government not reimbursing the owners for doing it? FEMA, as well as NY State agencies and the Red Cross, is throwing money at individual victims for rent, mortgage payments, food, etc., but we are told there is no money available for environmental cleanup. That is insane!

There are hardly any protocols being followed for the environmental cleaning of building interiors or exteriors, or for roads and streets. Washing of the roadways around Ground Zero and along the routes to the barges is happening much less frequently in the past month, even though there is just as much airborne toxic dust and debris in our neighborhood as ever. Recycled water could be used if drought is the excuse; salt/sea water could be used if freezing temperatures are the problem.

Some of the trucks carrying the debris to the barges at Pier 25 are still operating uncovered and minimally wetted down; the barges, once loaded, have never been covered. Why on earth not?

The initial siting of the barges next to a high school, across the street from a college, and four blocks from three other schools, speaks volumes about the lack of concern for the health of our children. They—and the thousands of residents nearby—are clearly in danger! I understand that it is probably too late in the process of debris removal to move the barges to a less dangerous location, but I do not see why the cleanup contractors cannot be obligated to follow the strictest environmental safety procedures.

Can the committee take action to ensure that the barge operation at Pier 25 will be dismantled when the cleanup is completed, and that any new barge operation in the post-cleanup/construction phase will be located in a less heavily residential area, such as Canal Street or Pier A near Battery Park?

Who is responsible for the cleaning of the sidewalks—especially those around our schools—which are always dusty and littered with debris?

Can the committee help residents with testing of apartments and building interiors and, if contaminants are found, enforce environmentally safe cleaning?

Can you find a way to enforce the cleanup of roofs and building exteriors, to prevent constant re-contamination of the downtown area? Or get it done by a Federal Agency?

Will you initiate and fund studies on the effects of multiple contaminants, and on the best cleanup methods, and then enforce the best possible guidelines?

Will the committee press for a health study immediately, to look at immediate effects, and for followup studies on a regular schedule (every 6 months or yearly)?

Will the committee introduce legislation providing for free medical care for WTC disaster-related illnesses, now and in the future, for those being exposed to poisons in our environment that are being swept under the rug by our Government?

Will you investigate and report on:

- EPA's double standards in re the thorough cleanup of their own Lower Manhattan offices vs. the complete disregard of all other office space?
- The decision to reopen downtown residences?
- Air quality data gathered during the first 2 weeks after the disaster that seems to have been withheld from the public?

Finally, what is the plan for decontaminating the Fresh Kills landfill after current activity ends?

Thank you for any help you can give us.

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STATEMENT OF SONDR A LEVIN, FORMER CHAIRMAN, NYC GROUP OF THE  
SIERRA CLUB

The New York City Sierra Club is dismayed that misinformation and lack of enough information has been provided by the city Health Department and the Federal Environmental Protection Agency about the significant amount of air pollutants from the World Trade Center disaster.

The city health department under the Giuliani administration also gave misinformation about massive pesticide spraying over the city during the past 3 years. Former Mayor Giuliani falsely claimed the spraying was safe when pesticides used and the way they were used were unsafe. As a result of the spraying, many people became sick and the city's environment was contaminated. The exact extent of the damage is still unknown, but it was significant.

The city Sierra Club is dismayed that heroic rescuers of the World Trade Center disaster including firefighters and police were exposed to air pollution without proper protection.

The city Sierra Club advocates that the World Trade Center site and surrounding buildings affected by air pollutants be cleaned up at public expense according to the highest safety standards.

We highly commend Senator Hillary Clinton for spearheading an investigation to find out how much of a problem exists, since that is still unclear. Complete information and action is needed to avoid compounding the tragedy of the World Trade Center disaster.

## LETTER FROM EDWARD FLUSS, NEW YORK, NY

HON. JAMES M. JEFFORDS, *Chairman,*  
*Committee on Environment and Public Works,*  
*Washington, DC.*

Senator:

I want to be clear and I want this message for the record to be simply understood. Have any of you any clue what is going on in downtown Manhattan? I say you do not have a clue. Perhaps you have not visited, perhaps you don't look up at the buildings still standing. Perhaps you are afraid like I am that you will get sick.

Have any of you visited any building in downtown Manhattan? I repeat any building?

Look out ANY window and look to any building and you will see dust still on the window sills and glass of all buildings downtown! This dust is contaminated with all sorts of toxins—yes asbestos included! Need proof? Call me—212—231—5139 and I will show you pictures and provide you with samples.

More insane, yes I use the word insane is the fact that the buildings surrounding Ground Zero such as the Deutsche Bank building to the south of Ground Zero stands open with broken windows filled with dust and debris from September 11th! That dust is still, yes still today, February 19, 2002, blowing out of the building onto men, women and children living, working and attending school in the area!

I'll repeat: Yes, the dust packed office space is open and dust is blowing out of the building onto citizens such as myself, into apartments such as my apartment in 600 Gateway and polluting the downtown area each day, every day 24 hours a day!

How can this contaminated building be standing and absolutely open to the environment and to people living and working in its vicinity! I ask again how can this be? This is a private building but why isn't it wrapped in a plastic bubble or something?

There must be action taken by someone or some institution. The EPA is failing, The NYC DOH is failing. Government is failing us all here!

KATHLEEN EWALD,  
*Brooklyn, NY., February 22, 2002.*

*Committee on Environment and Public Works,*  
*U.S. Senate,*  
*Washington, DC.*

SENATORS: I live in a part of northwest Brooklyn called Carroll Gardens, which is right on the East River, approximately 2 miles southeast of WTC. The wind on September 11th blew the dust and debris straight over this part of Brooklyn.

That morning, I had accidentally left my air conditioner turned on. In my panic over finding family and friends (phones were barely working)—let alone my fear that the entire city was being destroyed—I failed to realize that the air conditioner was running. It wasn't until that night, that I realized I was smelling the dust and debris that was falling on my neighborhood in my house, that I turned off the air conditioner. I coughed through the night and into the next morning. Then I watched Christie Whitman at the site on TV saying the dust/air was only dangerous if you were at the site. I had fine brown dust around my bedroom, not the inches of dust they were showing in apartments near the site. I followed the advice to clean up dust with wet rags. At the same time, I was incredulous that people were supposed to clean up their own apartments.

Outside, in my neighborhood, there was an inch of brown soot on everything. Homeowners brushed it off their stoops and into the streets.

Then I went on with my life. I followed instructions: "Don't panic. Be strong. We can't let the terrorists win." I spent my Fridays volunteering at a Brooklyn charity that gave financial aid to September 11th victims.

In returning to work in NoHo on September 13, I was hit by air that smelled like pure chemicals. I felt like my lungs were closing up.

Still, officials continued to say the air was safe. I particularly remember newspaper articles quoting officials who said that any respiratory irritation was temporary and would pass. Around this time Whitman also announced that our air "is safe to breathe."

I ignored my symptoms for weeks, then realized that they were not going away. In an ER in late October, I was diagnosed with reactive airways disease. A pulmonologist did pulmonary function tests and confirmed it further, calling it asthma.

I don't smoke, and I never had asthma before September 11th.

My symptoms don't end there. I have frequent headaches and stomach burning, a symptom of GERD, which MSNBC recently reported is a common symptom of WTC Syndrome sufferers.

Late last year, I started reading the articles on Joel Kupferman's website. Andrew Schneider's recent articles on (a) how the EPA used 20-year-old methods to measure asbestos and (b) the withholding of information as to the causticity of the dust finally scared me into the realization: This stuff is still in my house and I've been sleeping in it and breathing it in since September! This is why I'm still sick!

I hired an environmental testing company. They did not find asbestos in the samples they took, but they did find pulverized fiberglass—and lots of brown dust. Attempting to clean it up myself was apparently NOT the thing to do. I am currently having it re-tested for other chemicals.

I had the apartment HEPA vacuumed. I suppose my apartment is clean now. But it's 5 months later, and I don't know what toxins are coursing through my veins or turning into cancer in my lungs. I was a completely healthy young woman a year ago. Now I don't know what's going to happen to me, and I'm terrified.

Had we been told: The dust is caustic! Fiberglass is a carcinogen! The dust isn't just dangerous at WTC, it's dangerous in every neighborhood where the wind took it on September 11th! If you have a bit of dust in your house, leave immediately, don't clean it yourself with wet rags! . . . Had we been told that, I'm sure I would have responded differently. But I believed what we were told, and now I'm paying the price.

Sincerely yours,

KATHLEEN EWALD.

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STATE UNIVERSITY OF NEW YORK, UNIVERSITY AT ALBANY,  
*Rensselaer, NY, February 8, 2002.*

TO THE PARENTS OF CHILDREN IN PS 89: It was my pleasure to address the parents and teachers at PS 89 last Tuesday night where I could explain why, in my opinion, it is not safe to re-occupy the building at this time. This letter is to put in writing these reasons, and also to tell you more about who I am.

In 1980 I came to Albany as the Director of the Wadsworth Laboratories of the New York State Department of Health. The major event which brought me to Albany was related to Love Canal, which was the first time in our history when people became aware of the hazards of chemical wastes in our communities, and event with many commonalities to the WTC attack. I became the Dean of the School of Public Health at the University at Albany in 1985. When I resigned as Dean in 1998, I became the Director of the Institute for Health and the Environment, a research and teaching Institute directed at protecting health. I have considerable expertise on issues related to children's environmental health, as evidenced by the fact that I have been the organizer of two meetings on this subject in Asia, sponsored by the U.S. National Institutes of Health and the World Health Organization.

Children are much more vulnerable than adults to the effects of environmental contaminants, but most of the standards that have been set by EPA and other Federal and State agencies are based on effects (often occupational) on adult white males. Therefore, in order to protect children it is essential that one add safety factors over what is proposed for adults. Furthermore, it is not appropriate to be concerned only with immediate, acute health effects, but also to protect children from cancer and other chronic diseases which may appear many years after the exposure to toxins. In my judgment no one has demonstrated that PS 89 is safe for reoccupancy at present, and indeed the evidence presented is clear that it is not safe. The reasons for this conclusion are as follows:

Air-borne particulates are dangerous to everyone. They can trigger asthma attacks in vulnerable individuals, and may even cause asthma and other respiratory diseases. While the EPA standard of an 8-hour work day for adults is 65 ng/m<sup>3</sup>, EPA has set a level of particulates in air of 40 ng/m<sup>3</sup> for adults with respiratory or cardiac disease. This value is also applied to children. The level of particulates measured in PS 89 was greater than 40 ng/m<sup>3</sup> on 5 of 11 days tested, and on 3 days even the average sample was greater than this value, while on a fourth day the average was 39.9 ng/m<sup>3</sup>. On days when the outsider particulate levels were high, the insider levels were high. Therefore, the present filtering system is not preventing particulates from getting into the building. There is, at present, no convincing evidence that the technique used for these measurements is invalid. On the basis of these readings, alone, the school should not be re-opened. There is certainly adequate evidence for asthma, coughs and other kinds of breathing disorders in per-



sons exposed at other sites near the WTC, and children should not be in the school building until the particulate levels are definitively documented to be below 40 ng/m<sup>3</sup> at all times.

Most usual particulates are simple products of combustion, and contain only small quantities of toxic chemicals. This may not be true near to the WTC, since there is clear evidence that dioxins, furans, PCBs, asbestos and several metals were released during the collapse and fires. Thus, even if the particulate levels are below the magic number of 40 ng/m<sup>3</sup>, it is essential to demonstrate that the particulates do not contain toxic substances at high concentration. This is done by collecting either the particulates from an air filter or the dust from surfaces, weighting the sample, and then determining the relative percentage of the weight that is toxic. This has not been done. There have been some measurements of toxins in air and on surfaces, but not on the basis of weight. Furthermore, some of the measurements done have been totally flawed. For example, the sensitivity of the measurement of PCBs in air was so low that the smallest value that could be detected was 4.2 times greater than the occupational standard for adult white males, and even that value would not be protective of children.

Other health experts recommend no outdoor play at times when the particulate levels are high. This is a wise recommendation, but the same recommendation applies to the inside environment.

In my judgment parents have the right, and indeed the responsibility, to demand that the indoor environment of PS 89 be *proven* to be safe from both acute and long-term health hazards before the building is reoccupied. There is presently no such evidence, and too much doubt to justify re-occupancy at the present time. We must not repeat a Love Canal by making decisions in haste that may adversely affect the health of our children.

Sincerely,

DAVID O. CARPENTER, M.D.,  
PROFESSOR.

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RESPONSE BY ANTONIA GODSEY TO COMMENTS FROM WALTER E. MUGDAN, REGIONAL COUNSEL, U.S. EPA

NYSBA ENVIRONMENTAL LAW SECTION ANNUAL MEETING, JANUARY 25, 2002

Re: Response to Remarks

Thank you for your presentation at the New York State Bar Association Environmental Law Section Meeting on January 25, 2002 addressing the air quality in downtown Manhattan. My response to your comments will address the concerns I have about the health risks associated with exposures to contaminated dust found near the WTC site and the extreme need for EPA to take a more active role in monitoring and conducting a responsive clean up of the interior of apartment buildings and office spaces in downtown Manhattan as well as the interior of homes where rescue workers and construction workers live and may have tracked contaminated dust into homes.<sup>1</sup>

STRINGENT CONTROL MEASURES SHOULD BE ENFORCED TO ADDRESS TOXINS IN THE AIR NEAR THE WTC SITE

The Mugdan comments note the importance of emphasizing the NESHAPS regulations along with the significance of the Clean Air Act, yet, in the same breath the comments go on to state that, "the regulations do not apply to the cleaning of WTC dust from apartments or offices."<sup>2</sup> In particular you state that "the Clean Air Act (CAA) authorizes EPA to regulate the protection of outside air and not indoor air."<sup>3</sup> The neighboring vicinity of the WTC site has become a great concern among a number of people who live and work within the community. Just this past week, FOX News and USA Today reported that EPA continues to downplay the potential air quality problems at the WTC site. There are a number of professionals who have commented on the potential for dangers associated with the known and hazardous

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<sup>1</sup>It was mentioned at the NYSBA in comments made by EPA representative, Ms. Callahan, that "EPA conducted a professional abatement of its office building; by professional contractors and under strict asbestos guidelines, because FBI personnel who were entering the building had come directly from the site and thus may have tracked contaminated materials into the building". (My notes taken at meeting January 25, 2002).

<sup>2</sup>Mugdan comments NYSBA meeting, January 25, 2002 ELS at page 11, para 5 at FN 12.

<sup>3</sup>Mugdan comments NYSBA meeting, January 25, 2002 ELS at page 10, para 2.

pollutants identified in downtown Manhattan,<sup>4</sup> yet EPA continues to assert interpretations of the law that skirt the issue.

The Mugdan comments cite the Clean Air Act (CAA), the National Emission Standards for Hazardous Air Pollutants (NESHAPS), the Toxic Substances Control Act (TSCA) and Asbestos Hazardous Emergency Response Act (AHERA)<sup>5</sup> as authority for the EPA reasoning to refuse to enforce regulations for the quality of indoor air. In the interpretation of these regulations, the Mugdan comments provide the definition of the words “renovation” and “demolition” and their meaning under NESHAPS. These comments go on to state that: the definition for “renovation” cannot plausibly be stretched to include the cleaning of WTC dust that reached apartments and offices<sup>6</sup> (in downtown Manhattan). When considering the meaning of a statutory phrase, one must consider not only the ordinary meaning of the words but also the meaning of the words in light of the purpose, context and structure of the entire statute of which the phrase is apart.<sup>7</sup>

SAMPLING RESULTS ARE FINDING LEVELS ABOVE THE MAXIMUM THRESHOLD THAT CAN BE DANGEROUS TO HUMAN HEALTH

Hazardous substances are presently documented near the neighboring vicinity of the site and in some cases were found to be above the maximum standards allowable for the protection of human health. A sample of 2.2 percent chrysotile<sup>8</sup> (asbestos, ACM) was found inside of an apartment building on Pine Street in downtown New York, a few blocks away from the site.<sup>9</sup> In light of this information there is a strong presumption that ACM is present in other apartments and office buildings in the same vicinity. This creates a serious concern and has caused a number of people to give attention to the issue of whether the WTC site and vicinity should be classified under CERCLA as an emergency measure to respond to the threat of further hazardous substance releases. Under CERCLA it is noted that,

Upon receipt of information that there is a hazardous waste at any site which may present an imminent and substantial endangerment to human health, the administrator shall provide an immediate notice to the appropriate local government agencies. In addition, the administrator shall require notice of such endangerment to be promptly posted at the site where the waste is located.<sup>10</sup>

Consider the relationship between CERCLA and TSCA: e.g. the Toxic Substances Control Act (TSCA) authorizes the EPA to control existing chemical substances determined to cause an unreasonable risk of injury to public health or the environment and to take action with respect to chemical substances which are imminent hazards.<sup>11</sup> Under TSCA, Title I and Title II, (AHERA amended in 1990 ASHARA) EPA should be obliged to monitor and sample the air inside of buildings in down-

<sup>4</sup> See Statement of Marjorie Clarke, Ph.D., State Assembly Committee on Environmental Conservation public hearing on health matters resulting from the September 11th WTC attacks submitted November 27, 2001 and statement of Cate Jenkins, Ph.D., USEPA Preliminary Assessment Hazardous Waste Identification Division January 11, 2002 and UC Davis News and Information, Trade Center Air Held Unprecedented amounts of Fine Particles . . . Metals Say Scientists, UC Davis Delta Group, February 11, 2002. [www.news.ucdavis.edu](http://www.news.ucdavis.edu)

<sup>5</sup> Section 112 CAA 42 USC Sec 7412 and NESHAP codified at 40 CFR Part 61, subpart M; AHERA amendment to TSCA 15 USC Sec 2641 and 40 CFR Part 763, subpart E. Sec 7630.80 et seq.

<sup>6</sup> Mugdan comments NYSBA meeting, January 25, 2002 ELS at page 12, para 4.

<sup>7</sup> *American Mining Congress vs. USEPA*; 263 US APP. D.C. 197, 824 F 2d 1177, 1184–85 (D.C. Cir. 1987).

<sup>8</sup> Chrysotile currently accounts for more than 99 percent of world asbestos consumption; e.g. asbestos cement construction products, asbestos cement pipe, roofing tiles, sheeting and fibers combined with resin to produce temperature resistant linings. Researchers now believe that the carcinogenicity of the fibrous substance is related to several physical and chemical characteristics. [www.asbestos-institute.ca/erg/ergcontent.html](http://www.asbestos-institute.ca/erg/ergcontent.html) Article entitled, Chrysotile Reference Guide, Asbestos Family of Fibers, Asbestos Related Disease, data from world consumption production 1984–1994.

<sup>9</sup> Test results from ATC Assoc. Inc. NY Bulk Asbestos Analysis Sheet PLM results Field No 315, 2.2 percent chrysotile October 10, 2001, Batch No. 3068, published at [nyenvirolaw.org](http://nyenvirolaw.org).

<sup>10</sup> Title 42 Chp 82 Subchapter VII Sec 6973 (c) Immediate Notice.

<sup>11</sup> TSCA Title I—Control of Toxic Substances—includes provisions for regulating hazardous chemicals substances and mixtures with provisions for managing imminent hazards Title II—Asbestos Hazard Emergency Response Act (AHERA, Pub. L. 99–519), which was amended in 1990 by the Asbestos School Hazard Abatement Reauthorization Act (ASHARA, Pub. L. 101–637) to require the accreditation of persons who inspect for asbestos containing material in schools and public and commercial buildings. It also authorizes requirements for the accreditation of persons who design or conduct response actions with respect to friable asbestos containing material (ACM) in such buildings. See *infra*.

town Manhattan where a serious threat to human health potentially exists.<sup>12</sup> Likewise, under CERCLA an action may be brought, consistent with the National Contingency Plan, if necessary to respond to the release of a hazardous substance imminently dangerous to public health.<sup>13</sup> CERCLA provides several complimentary mechanisms to effectuate hazardous substance removal. It was designed by Congress to protect and preserve public health and the environment. Under the statute, the Federal Government may conduct its own removal of hazardous substances which includes such action as may be necessary to monitor, access and evaluate the further release of a hazardous substance; the disposal of removed materials and the taking of any such other action as may be necessary to prevent, minimize or mitigate damage to the public health or welfare.<sup>14</sup>

EPA HAS NOT REBUT THE PRESUMPTION THAT ACM IS PRESENT IN DUST SAMPLES ABOVE THE THRESHOLD REQUIREMENTS

In an OSHA Administrative decision that came before the DC Circuit last year in December 2001, petitioners sought review of a decision and Court Order imposed by the OSHA Review Commission.<sup>15</sup> There, the court found that a company performing abatement activities committed 10 violations of the Asbestos Construction Standards promulgated at 29 CFR. Sec 1926.1101. It was noted that the company failed to use the required sampling methodology for asbestos abatement. Under the regulations, a building owner must identify all installed-thermal: system insulation and surfacing materials found in any building built before 1980; as it is presumed that ACM material is present.<sup>16</sup> The regulation provides a means to rebut the presumption by following specified testing requirements. The OSHA Commission ruled that “an owner who fails to use specified testing methods to identify the presence of ACM fails to rebut the presumption that ACM is present in a building.”<sup>17</sup> The U.S. Court of Appeal for D.C. agreed that “when specified methodology does not follow regulatory requirements a company will be found to have not exercised reasonable diligence in its asbestos abatement analysis.”<sup>18</sup> Similarly, EPA Government officials have failed to come forward with adequate notice to the public and has failed to use due diligence in investigating this matter. In New York City, at and near the WTC site there is a strong presumption that ACM, along with other potentially innocuous dust, is present inside of buildings.<sup>19</sup> EPA has not necessarily provided any proof to rebut the presumption that ACM and a dangerous mix of other potential toxins may be present in dusts found in occupied buildings and office spaces downtown.

PIECEMEAL CONTROL OF THE RISKS ASSOCIATED WITH ACM IS NOT SATISFACTORY

Comments and proposals published in the Federal Register January 29, 1986 relating to 40 CFR Part 763 (the proposal of a rule under Section 6 of TSCA)<sup>20</sup> provides supplementary information that takes into consideration EPA's former objective, back in 1986, with regards to consumer products containing asbestos material. Under the proposed rule it is noted that:

<sup>12</sup>*Guidance for Controlling Asbestos Containing Materials In Buildings* [EPA 560/5/85-024]: Introduction to the problem of asbestos in buildings and guidance for coping with the problem, 6/85; USEPA Office of Pollution and Prevention of Toxics.

<sup>13</sup>42 USC Sec 9605 CERCLA/SARA Sec 105 (4)(d) National Contingency Plan—Any person who may be affected by a release or a threatened release of a hazardous substance or pollutant or contaminant, may petition the President to conduct a preliminary assessment of the hazards to public health and the environment which are associated with such release.

<sup>14</sup>Id The term “removal” means the cleanup of a hazardous substance in the environment and any such other actions that may be necessary in the event there is a threat of release of a hazardous substance; CERCLA 42 USC Sec 9601 (23) removal defined at (Sec 101) and (106)(a).

<sup>15</sup>*Odessey Capital Group III, L.P. d/b/a Cascade Apartments v. OSHA Review Commission and Secretary of Labor* No. 01-1030, 2001 U.S. App., Lexis 27797.

<sup>16</sup>Id see *Odessey Capital Group, III, L.P.*

<sup>17</sup>Id see *Odessey Capital Group III, L.P.*

<sup>18</sup>Id see *Odessey Capital Group III, L.P.*

<sup>19</sup>There may be certain synergistic interactions between some of the compounds that may be present in the dust that is unknown since ambient air standards are for individual pollutants. See Statement of Marjorie Clarke, Ph.D. State Assembly Committee on Environmental Conservation Public Health Matters November 26, 2001; Also see UC Davis News & Information article entitled Trade Center Air Held Unprecedented Amount of Very Fine Particles . . . February 11, 2002. [www.news.ucdavis.edu](http://www.news.ucdavis.edu) and [www.nyenvirolaw.org](http://www.nyenvirolaw.org)

<sup>20</sup>In 1986, EPA proposed a rule under Section 6 of Toxic Substance Control Act (TSCA) to prohibit the manufacture, import and processing of asbestos in certain products and to phaseout the use of asbestos in all other products.

Asbestos, since the advent of its widespread use, has resulted in thousands of painful premature deaths from lung cancer and other diseases.<sup>21</sup> Because of the widespread use of asbestos and its particular nature, piecemeal control of the risks it presents is not satisfactory; only elimination of asbestos to the extent feasible will produce acceptable reduction of risks.<sup>22</sup>

This discussion presented by EPA in 1986, goes on to address the serious and well-documented studies linked to asbestos as a carcinogen, a cause of lung disease and an alarming threat to human health. In particular, the threat is insidious due to the unique quality of its fiber which has aerodynamic features that allow the fibers to become easily suspended and re-suspended in the air, transported on clothes, and able to travel long distances.<sup>23</sup> Once released asbestos fibers are difficult to detect and contain and they continue to readily enter the ambient air. Persons may be exposed not only at the time and place of release but long after the release has occurred. There is a constant renewal of risks as asbestos fibers re-enter the atmosphere repeatedly over time.<sup>24</sup> According to sampling results taken by EPA the suspension of numerous toxins including asbestos has been identified in exceeding limits in various sampling results that have been published on the New York Law and Justice Project NYLJP website and EPA website.<sup>25</sup> With this in mind, it may be appropriate to take exceedingly stringent precautions when sampling and monitoring for contaminant dust in downtown Manhattan, including the bulk sampling of interior of buildings.

THE DANGERS ASSOCIATED WITH THE RELEASE AND RE-RELEASE OF TOXIC DUST MAY  
BE HARMFUL TO HEALTH

The National Research Council Committee on Non-Occupational Health Risks of Asbestiform Fibers has adopted a linear no threshold model to estimate the risks to non-occupational populations from exposures to asbestos in the environment.<sup>26</sup> Despite the known risks of asbestos, continuous release of asbestos fibers will occur if downtown Manhattan buildings with occupied apartments and office spaces are not cleaned properly.<sup>27</sup> Leaving the abatement process up to resident owners is not in compliance with The Asbestos Hazard Emergency Response Act (AHERA, Pub. L. 99-519), which was amended in 1990 by the Asbestos School Hazard Abatement Reauthorization Act (ASHARA, Pub. L. 101-637) to require the accreditation of persons who inspect for asbestos containing material in schools and public and commercial buildings. It also authorizes requirements for the accreditation of persons who design or conduct response actions with respect to friable asbestos-containing material in such buildings.<sup>28</sup> At a minimum, EPA should be overseeing the cleanup of downtown buildings to assure that adequate abatement is being carried out by accredited persons, not only in schools but also in public and commercial buildings. Under the regulations, public and commercial building is defined as:

the interior space of any building which is not a school building. . . . The term includes, but is not limited to: industrial and office buildings, residential apartment buildings and condominiums of 10 or more dwelling units, government-owned buildings, colleges, museums, airports, hospitals, churches, preschools, stores, warehouses and factories. Interior space includes exterior hallways connecting buildings, porticos and mechanical systems used to condition interior space.<sup>29</sup>

Furthermore, under the Federal regulations, EPA is supposed to provide extensive technical assistance programs which provide guidance to public and private building

<sup>21</sup> Mesothelioma occurs in the plura (the membrane that surrounds the lung cavity) and the peritoneum (which surrounds the abdominal organs); Asbestosis involves fibrosis of the lungs and plural tissues; USEPA FR. Vol 51 No. 19 p. 3741.

<sup>22</sup> *Asbestos Proposed Mining and Import Restrictions and Proposed Manufacturing, Importation and Processing Prohibitions*: USEPA; Federal Register Vol 51, No. 19; Wednesday, January 29, 1986; Proposed. Rules; (comments made by EPA Administrator William Rieley).

<sup>23</sup> *Id* FR Vol 51, no 19 p. 3738.

<sup>24</sup> *Id* FR Vol 51, no 19 pp. 3738-39.

<sup>25</sup> [www.nyenvirolaw.org](http://www.nyenvirolaw.org) Laboratory Analysis Report, conducted by ATC Associates, accredited by NVLAP (Lab code 1187-00 and NY State DOH ELAP (Lab ID 10879), states that samples that are layered and analyzed by the gravimetric method as composite (NESHAPS, AHERA) should be considered positive if results are between trace and 1 percent, unless every layer is analyzed separately.

<sup>26</sup> *Id* at 3742-43 The derivation and validation of the models is discussed in detail in "EPA's Regulatory Impact Analysis of Controls on Asbestos Products".

<sup>27</sup> *Id* at 3742-43 and also see UC Davis News and Information article entitled: Trade Center Air.

<sup>28</sup> AHERA 40 CFR 763, Appendix C to subpart E—Asbestos Model Accreditation Plan.

<sup>29</sup> *Id* at Appendix C to subpart E—I. Asbestos Model Accreditation Plan (A)(6).

owners for the safe removal of asbestos dust during abatement projects.<sup>30</sup> Substantial health risks are potentially present among building occupants, office workers and the general population where asbestos contaminated dusts still lie dangerously embedded within carpets, around window sills in ventilation systems and in corners of dwelling spaces inside of buildings where dust has settled both near and several blocks away from the WTC site.<sup>31</sup>

As you know, the health effects of exposure to asbestos dust can be devastating. Repeated reports that attempt to downplay the danger suggest that short-term exposures may not be serious. This may not necessarily be true. Many years of studies have been undertaken to identify the potential risks associated with occupational exposures and studies have been conducted on populations exposed to airborne concentrations of asbestos for relatively long periods of time.<sup>32</sup> However, please note, that there is direct evidence of adverse health effects from non-occupational asbestos exposures among persons living in households of asbestos workers who have developed mesothelioma and asbestos related radiographic changes in a persons lungs.<sup>33</sup> A number of mesotheliomas have also been documented among populations whose only identified exposure was from living near asbestos mining areas, asbestos product factories and shipyards where asbestos use has been very heavy.<sup>34</sup> People may encounter higher than average environmental asbestos concentrations in air if they live near an asbestos containing waste site or asbestos related industry of if they live or work in a building that has undergone a poorly performed asbestos removal operation.<sup>35</sup>

Inclusive in the sampling and abatement of the interior of buildings in downtown Manhattan should be an accounting, sampling and abatement of the homes-of rescue workers and contractors who worked at the site prior to the use of proper protocol during the emergency. Many workers were working under conditions that were not adequately monitored under adequate quality-control methods. In the early days during the aftermath of the tragedy, workers did not have quality controlled change rooms for decontamination after human exposure at the site; nor did workers utilize proper worker techniques for minimizing risks of exposures.<sup>36</sup>

#### OVERVIEW OF ABATEMENT FOR CONSTRUCTION PROJECTS AND WORKER PROTECTION

The need for proper working techniques for minimizing fiber release and future potential contamination episodes was acknowledged early on when the National Institute of Environmental Health Sciences issued a report in October 2001 stating that "there was no evidence or even suggestion that any safety health program was operative at the WTC site and workers continued to work for days lacking in any compliance with worker protection regulations."<sup>37</sup>

Training of workers at the site is incorporated in the following overview, of regulations: NESHAPS 40 CFR Part 61 subpart A&M; EPA Worker Protection Rule, (40 CFR Part 763 subpart G); OSHA Asbestos Construction Standard (29 CFR 1926.58); OSHA Respirator Requirements (29 CFR 1910.134); Asbestos; Model Accreditation Plan for States (40 CFR 763 Subpart E Appendix C (1) and any other applicable Stateand local or Federal regulations that may apply. Under the OSHA Asbestos Construction Standard (2 CFR 1926.58) there are requirements for notification of other contractors on a multi-employer site with the need for proper training and safe working conditions for a number of potential hazards including the minimiza-

<sup>30</sup>Id.

<sup>31</sup>An apartment building located on Pine Street levels of asbestos which are above threshold safety standards. See FN 8.

<sup>32</sup>See Federal Register Environmental Protection Agency Asbestos Proposed Mining and Import Restrictions . . . Vol 51 No 19 January 29, 1986 Proposed Rules pgs. 3742-3743.

<sup>33</sup>Consumer Product Safety Commission Report; A study based on findings of the National Institute of Environmental Health, 8th Report on Carcinogens: Asbestos; As a result of these and other findings, EPA amended the Asbestos Worker Protection Rule (40 CFR 763). Under the Supplementary information Sec II (A)(5) The economic consequence of this rule states: "EPA has found that this rule is likely to result in other benefits such as asbestosis cases being avoided among workers, with reduced exposures to worker families from asbestos fibers being brought home on clothing. . . ."

<sup>34</sup>Id; and the International Agency for Research on Cancer (IARC) Vol 14, Sec 7, 1986 and FR Vol 51, No 19 p 3741; January 29, 1986.

<sup>35</sup>Id.

<sup>36</sup>See Testimony Before the Environment Committee of the New York City Council on the Public Health Concerns Resulting from Exposures in the Wake of the Collapse for the WTC Towers Submitted by Barbara J. Olshansky and Nicole Pollier (3rd Year CUNY Law Legal Intern) Center for Constitutional Rights New York, NY p. 6 of 10 ([www.nyenvirolaw.org](http://www.nyenvirolaw.org)). "Preventive measures must be taken to achieve compliance," dated November 1, 2001.

<sup>37</sup>Id at p4 of 10; This report is cited in the testimony before the Environmental Committee of the New York City Council; by the Center for Constitutional Rights; November 1, 2001.

tion of the potential for contaminated *major or minor fiber release episodes*.<sup>38</sup> EPA must seriously consider classifying the WTC under Superfund.<sup>39</sup> Design and construction techniques have been flawed and innocent workers have been needlessly exposed to exceeding levels of contaminant dust at the site.<sup>40</sup> The use of non-air supply respirators and the lack of protective suits may have also placed workers at a high risk. The presence of asbestos and other known chemicals found at this site are highly regulated under industry standards and cutting corners in lieu of a fast demolition project displays a serious weakness on the part of EPA along with State and local authorities. Proper working techniques for minimizing risks to workers include adequate sampling and design stages, proper maintenance of containment barriers, decontamination enclosure systems, electrical ventilation systems, entry and exit procedures, positioning of warning signs; use of negative pressure exhaust systems, ventilation equipment, proper clean up and disposal methods, work practices that may apply to encapsulation; proper selection, inspection, donning use, maintenance and storage procedures for respirators.<sup>41</sup>

Once it is concluded that a proper remedial action will take place in the WTC downtown area, (including the proper clean up of inside of buildings) defensive actions should begin as soon as possible to prevent and mitigate any future damage to human health or the environment. Section—300.65 (b) of the National Contingency Plan expressly provides that an agency be given wide latitude in selecting the appropriate response to a perceived threat to human health.

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QUELLER, FISHER DIENST, SERRINS, WASHOR & KOOL, LLP,  
February 4, 2002.

Leecia Eve, Esq.  
Senator Hillary Rodham Clinton,  
Washington, DC.

Dear Ms. EVE: Further to our conversation of yesterday morning, enclosed is a letter which was sent to the Captains, Lieutenants and Detectives of the New York City Police Department regarding exposure to toxic substances as a result of their work either at Ground Zero or the Staten Island Landfill.

For your information, thousands of police officers including Captains, Lieutenants and Detectives have been assigned to Ground Zero and the Staten Island landfill on a round-the-clock basis since September 11, 2001.

The landfill received the wreckage from the World Trade Center. Detectives were specifically assigned to the landfill and tasked to pick through the debris in the hopes of locating evidence which could prove helpful to the overall investigation. Unfortunately, many officers were not provided with the necessary protective equipment on a consistent basis.

We do not know the long-term health effects which may result due to their exposure to the various toxic substances both at Ground Zero and the landfill. We would like to appear at the hearing scheduled for February 11, 2002 and propose that a legislative mechanism be implemented to preserve the rights of New York City police officers who may become ill many years hence with an illness-related to their work at the sites.

The letter I have enclosed is self-explanatory on this issue, specifically beginning on the last paragraph of page 2.

I do not anticipate that our presentation would last more than 10 minutes.

Thank you in advance for your consideration.

By: Phillip E. Karasyk.

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<sup>38</sup> *Major fiber release episode* means any uncontrolled or unintentional disturbance of ACBM, resulting in a visible emission which involves the falling or dislodging of more than 3 square or linear feet of friable ACBM.

*Minor fiber release episode* means any uncontrolled or unintentional disturbance of ACBM, resulting in a visible emission which involves the falling or dislodging of 3 square or linear feet or less of friable ACBM.

<sup>39</sup> Comprehensive Environmental Response Compensation and Liability Act (CERCLA).

<sup>40</sup> See Center for Constitutional Rights Report Testimony before NYC Environment Committee, November 1, 2001 at page 4–5 of 10.

<sup>41</sup> OSHA Requirements for Abatement Construction Projects 29 CFR 1926.58; also see NESHAPS, TSCA, AHERA and CERCLA, *supra*.

QUELLER, FISHER, DIENST, SERRINS, WASHOR & KOOL, LLP,  
*January 4, 2002.*

As part of legislation intended to “bail out” the airline industry after the September 11, 2001 tragedy, Congress passed a statute known as the “September 11th Victim Compensation Fund of 2001. While it is difficult to summarize the new law in any brief fashion, it essentially provides that those injured, or the families of those killed, can avoid bringing lawsuits to obtain traditional jury-awarded damages for their losses.

It provides that the Attorney General shall appoint a Special Master to administer a compensation program. Special forms have been drafted to allow claimants to set forth the nature of their injuries or that their loved one was killed and to further provide detailed information regarding economic and non-economic losses. Non-economic losses mean such things as physical and emotional pain, loss of enjoyment of life, mental anguish and other types of loss.

The statute provides that once a claim is submitted, the Special Master will have 120 days to render a decision on the amount of damage, if any, to be awarded. Within 20 days thereafter, he will authorize payment of the claim. The decision of the Special Master is final and cannot be appealed.

The main benefits of this Special Master system include the fact that there is no need to bring a lawsuit. The system provides for a prompt resolution of the claims; whereas lawsuits take many years. The Association of Trial Lawyers of America has pledged to represent any claimant without charge. There will be no legal fees. Our firm will certainly be available to any member or their family on a *pro bono* basis to assist in the claim process should you choose to participate.

The system, however, is not without problems.

The main concern is the language in the statute that provides that all “collateral sources” received by the claimant shall reduce the amount of any award from the Special Master. Collateral sources include life insurance, pension funds, death benefit programs and all payments by Federal, State or local governments. It is not clear whether this reduction will apply to the claim in its entirety or to specific portions of the claim. It is not clear whether collateral sources would include any moneys received from charity. It is also unclear in the case of a death of a police officer who leaves children, whether their potential awards for loss of parental care and guidance would be reduced by the collateral source.

If one participates in the claim process, a lawsuit cannot be brought against anyone.

I strongly suggest that members and their families hold off making a final decision on whether to bring a lawsuit or file a claim under the Government’s system until certain issues, particularly those concerning collateral sources, are resolved by regulation or by decision of the Special Master. Additionally, you should consult with an attorney from our firm before making any decisions.

The statute provides that claimants have two (2) years from the date that the Special Master promulgates regulations regarding the details of the procedures to bring a claim. Thus, the statutory time period has just begun.

Lawsuits for wrongful death against the airlines are governed by a two (2) year statute of limitations from the date of the death. If any claim is to be brought against the Port Authority, the time limit is one (1) year with a requirement that a Notice of Claim be filed at least 60 days before the institution of a lawsuit.

With regard to those members exposed to toxins at the World Trade Center site or the Fresh Kills Land Fill site or any other exposure related to the attack, many of you have heard via the rumor mill that Notices of Claim with the city of New York must be filed by January 7, 2002 to protect their right to sue New York City for injuries received while working at the site.

The Civil Procedure Law and Rules which govern the timeframe in which Notices of Claim against the City must be filed makes a significant exception to the 90-day filing requirement for a Notice of Claim against New York City for:

personal injury or injury to property caused by the latent effects of exposure to any substance or combination of substances, in any form, upon or in the body or upon property shall be deemed to have accrued on the date of discovery of the injury by the plaintiff or on the date when through the exercise of reasonable diligence the injury should have been discovered, whichever is earlier.  
 CPLR § 214(c)(3).

This exception recognizes the fact that illnesses of the type which may be caused by exposure to harmful substances may not become apparent for many months or years after the exposure.

Thus, the 90-day claim period begins from the time the member is aware of any potential injury sustained as a result of exposure to toxins. It is believed that many

law enforcement officers were exposed to elevated levels of asbestos, dioxins, dangerous metals, polynuclear aromatic hydrocarbons, respirable silica and many other types of hazardous materials. If you believe that you were exposed to any such toxin, or if in fact you were at the site following the September 11th attack, we believe the best cause of action to follow in order to protect your right to sue New York City is to report a Line of Duty illness and document your condition by visiting your doctor. Once your medical doctor has made a diagnosis, contact us immediately. We will evaluate your particular situation and advise you regarding the procedure to follow in filing a Notice of Claim.

Please bear in mind that in our opinion only medical conditions capable of causing significant impairment of your health and/or ability to function in your daily life will stand any chance for significant recovery in a cause of action against New York City. You should also be aware that although you are obligated to file a Notice of Claim within 90 days of learning or discovering an injury, should that be done and should your case be resolved prior to manifestation of any serious illness, a settlement with the City based upon a filed lawsuit may have the effect of precluding you from recovering damages commensurate with the illness discovered after the settlement of your lawsuit. Therefore, it is essential that you discuss these issues with our attorneys.

To those members who have already been diagnosed with any exposure-related illness such as asthma, bronchitis, reduced lung capacity, etc., the time in which to file is 90 days from the date of discovery of the injury including a statutory toll for the 30 days following September 11th. Therefore, time remains to file your claim and our law firm will be happy to prepare these claims on your behalf. When you contact us please be able to provide the date of exposure, the date first seen by a medical provider and the diagnosis of that condition.

Please be aware that actions filed as outlined in this letter will not preclude you from filing for an accidental disability pension.

I realize that this memorandum may raise numerous questions in your mind, therefore, feel free to contact me at my office and we can go over these issues in greater detail.

Very truly yours,

PHILIP B. KARASYK,  
*Queller, Fisher, Dienst, Serrins, Washor & Kool, LLP.*

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STATEMENT OF SUSAN S. ABBOT, M.P.H., NEW YORK, NY

Dear committee members: I was unable to attend the committee meeting at the U.S. Customs House in Lower Manhattan and am now submitting my testimony for your review.

My husband and I are long-term residents of Battery Park City (10 years). Since September 11, 2001, we have waited patiently for a Federal, State, or NYC government authority to issue standards for abatement and clean up of residential buildings in Battery Park City, to no avail. Since the EPA deferred its responsibility for assuring the safety of residential buildings (i.e. free from contaminants and carcinogens, not structural) to the NYC Department of Health (NYCDOH), and since the NYCDOH has done nothing to this end, we are hopeful this committee will be able to quickly remedy this problem, and within a short timeframe reassure residents of Lower Manhattan that it is truly safe to live there.

We were shocked shortly after September 11, 2001, that Christine Whitman issued a statement indicating that the air quality in Lower Manhattan was safe and presented no danger to long-term health and that it was safe for residents to return to their homes after clean up of the dust. There are two important issues here (1) the outdoor air quality is not the issue and (2) at least in my building, clean up of the dust (contaminated with at least asbestos) was not done using proper asbestos abatement procedures.

My family (husband and two small children) and I live in Gateway Plaza: a complex of six buildings on the corner of South End Avenue and Liberty streets (the closest complex in Battery Park City to the WTC site). Before deciding whether or not to renew our lease we decided to have the apartment and the building tested by a certified environmental company. Although, as you know, there are a variety of contaminants we could have tested for, we limited our testing to asbestos.

Briefly, I would like to give you the data I, and a neighbor of mine (Sharon McGarvey 365 South End Ave., Apt. 2F) have gathered documenting the contamination of our particular buildings. The testing was done by an accredited firm, Donohoe Environmental, and the samples were analyzed by the TEM method for asbestos by EMSL Labs (also accredited). I have enclosed the results of the tests I had



done on my apartment, the buildings ventilation system (ducts in the hallways and in the apartments), the exterior of the building, and the building hallway carpeting. These wipe samples were all taken after the building was supposedly cleaned. Most samples, particularly in the ventilation system, the hallway carpets, and on the exterior of the building were positive for moderate to high levels of asbestos. Even though the air levels of asbestos were low, asbestos is easily disturbed and becomes airborne, having it in the vents and the carpet, and on the exterior of the building means it will eventually end up in the air or on your feet and therefore in your apartment.

In Summary: As defined by EMSL lab:

- 1,000 structures/cubic centimeter = low level of asbestos
- 10,000 structures/cubic centimeter = moderate level of asbestos
- 100,000 structures/cubic centimeter = high level of asbestos

Result summary:

- Hallway vent (385 South End, 7th floor): 51,114 structures/cubic centimeter.
- New air conditioner/heating unit—4,259 str/cc.
- Child's bedroom window (outside)—30,666 str/cc.
- Hallway vent—32,031 str/cc.
- Hallway carpet—1,635 str/cc.
- Other hallway carpet 6,815 str/cc.

Results from other neighbors had even higher levels on their apartment vents and the hallway carpets.

The only solution we can see is for one agency (be it Federal, State, or local) to define contaminant and abatement standards for residential buildings in Lower Manhattan and mandate repeated on-going clean up of the ventilation systems of residential buildings, repeated washing of the exterior and roofs of the buildings, and removal of the common area carpets until a sufficient time after the demolition of the WTC site is complete that we can be assured no recontamination will occur. This mandatory cleaning should be monitored with repeated wipe testing for asbestos and other contaminants done by one agency and made readily available to all residents.

While doing my research into what methods were appropriate for testing for contaminants, I consulted a number of publications by Cate Jenkins, Ph.D. (from the EPA) (jenkins.cate@epa.gov). She recommended wipe or microvacuum samples as the only practical way to see if a building is contaminated in this situation (not air samples). Also, a number of sources stated that even if air level are less than 1 percent asbestos could pose a risk because asbestos fibers can become airborne. There is no threshold safe level for exposure to asbestos particularly for children.

We look forward to your timely response and action in this matter.

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[New York Environmental Law & Justice Project, February 2002]

#### DOWNWIND FROM DISASTER

The dust from the WTC is unlike any other. It is a powder created by the implosion and burning of over 200 floors of a skyscraper and everything and everyone in them. There are thousands of chemicals present in that dust, not just asbestos, lead, dioxin, and the pitiful handful of chemicals being tested. Yet based on this paltry data, the New York City Department of Health declares "the general public's risk for any short- or long-term adverse health [effects] is extremely low."

*Short Term Effects.*—We already know that short-term health effects are seen among the heavily exposed firefighters. Twenty-five percent of them have been diagnosed with occupational asthma and related diseases.

But people exposed only for a few hours also are sick. A Guide to Clinicians from the Department of Community Medicine of Mt. Sinai School of Medicine states that "Conditions that have been seen in adults who have been at or near the site for as little as 24 to 36 hours, include reactive airways disease, new onset or exacerbation of preexisting asthma, RADS [reactive airway disease], sinusitis, irritant rhinitis, persistent cough, and diffuse irritation of nasal mucosal surfaces."

The Mt. Sinai Clinician's Guide also includes "Residents of the surrounding communities" as an exposed population. Mt. Sinai doctors such as Stephen Levin, have treated residents living 6 and 7 blocks from the site.

The WTC mobile medical unit has screened hundreds of day laborers for respiratory ailments with between ¼ and ⅓ exhibiting "Significant respiratory affect" such as cough, shortness of breath, sore throat, dizziness and headaches after weeks

of cleaning contaminated twin towers dust from Lower Manhattan home and office buildings, and has hundreds on waiting lists.

*Long-Term Effects.*—Some effect which occur in the short-term also become long-term effects. For example, people who have developed asthma from the dust are likely to find this become a life time problem. Some of the components of the dust can cause the ultimate long-term effect: cancer.

*Cancer.*—The dust contains many carcinogens: asbestos, the many dioxins and PCB compounds, and some of the metals such as chrome and nickel. The fiberglass commonly found in the dust is also listed by the National Toxicology Program as “reasonably anticipated to be a human carcinogen.”

*Asbestos.*—On carcinogen, asbestos, has especially worried scientist Cate Jenkins, a 22-year employee of EPA. She has written several memorandums about errors that have lead the NYC DOH to underestimate the risk to workers and residence for asbestos related cancers. In the latest release, Cate Jenkins uses the word “coverup” in describing the behavior of the health department.

*Other Data.*—Andrew Schneider at the St. Louis Post Dispatch has reported that the U.S. Geological Survey tested the dust immediately after the disaster and e-mailed data all government contacts by September 27. But New Yorkers were never told that the USGS found some of the dust was as caustic as liquid drain cleaner. The USGS also found that the dust contained heavy metals, especially chromium and aluminum. These data were ignored as well.

*Toxic Smoke.*—For months, smoke billowed from the 16-acre caldron that was the Trade Center complex. Deep in the earth, a month after the fires were declared out, there are still materials burning according to the EPA. (Callahan, January 25, 2002).

No one knows the effects of the components of this smoke. No one knows the combined effect of all the chemicals and particulates in the dust. The EPA admitted that it did not account for synergy. We are promised further studies. Unfortunately, it is the firefighters, police, construction workers, and downtown residents that are the lab rats.

The Federal Government has cleaned up many of its own buildings with full abatement while failing to protect the safety and well being of people who work and live in downtown New York.

The New York Environmental Law & Justice Project calls upon the EPA to take over the clean up under the National Contingency Plan, and calls upon all agencies to be forthcoming with data and information. See our website for further information [www.nyenvirolaw.org](http://www.nyenvirolaw.org).

NYELJF CONCURS WITH NYCOSH’S STATEMENT IN RESPONSE TO HEALTH  
DEPARTMENT FINDINGS

Statement by Joel Shufro, executive director of the New York Committee for Occupational Safety and Health in response to “NYC Department of Health Presents Findings from indoor Air Sampling in Lower Manhattan,” released at 4 p.m. on Friday, February 8. [The Department of Health document is at <http://www.ci.nyc.ny.us/html/doh/html/public/press02/pr08-208.html>]

We find it extremely disturbing that the Department of Health has published such an uninformative and confusing report that raises more questions than it answers. The people of New York City have an urgent need for useful and accurate information, not obfuscating and baseless reassurances.

The report literally raises more questions than it answers:

- Were the indoor air and dust samples taken in areas that had already been cleaned up?
- Were the indoor air samples taken under aggressive sampling conditions?
- What method was used to obtain the samples?
- What method was used to analyze the samples?
- What, specifically, were the results of the tests?
- What is an “elevated level of asbestos”?
- Were samples taken in any heavily contaminated buildings?
- Why, more than a month after the last samples were taken, are the results of the air samples for fiberglass not available?
- How many dust samples were taken, and how many contained asbestos, and how much asbestos did each of them contain?
- What does “low levels of asbestos in some samples” mean, specifically? What levels, in how many samples?
- Is the Department of Health aware of any safe level of exposure to asbestos? If so, what is it?

- Why are residents being advised to clean up dust when “some” of the dust contains low levels of asbestos?
- Why does the report contain no information about or advice concerning respiratory protection?

In fact, the Department of Health release makes it clear that some of the tested dust contains asbestos, which confirms the EPA recommendation that workers and residents in Lower Manhattan should assume that untested dust contains asbestos.

According to the EPA tests, more than three-quarters of the dust samples contain some asbestos. Thirty-four percent of the EPA samples contain between 1.1 and 4.49 percent asbestos.

Under city law and State law, it is illegal for anyone who does not have an asbestos handler’s license to clean up any significant quantity of dust that is more than 1 percent asbestos. The Department of Health is inviting New Yorkers to put themselves at potentially grave risk, when it advises workers and residents how to clean up untested dust themselves.

No one who is not properly trained, equipped and licensed should clean up untested dust that could be contaminated with asbestos. But if an untrained, unlicensed person does clean up untested dust that could contain asbestos, they should wear appropriate (HEPA) respiratory protection to minimize their exposure.

The Department of Health report states that “the likelihood of developing disease from limited, short-term, low-level exposure [to asbestos] is low.” It is true that the likelihood of developing disease is lower from low-level exposure than it is from high-level exposure, but without any accurate data about exposure levels, it is impossible to characterize the level of risk.

More than 25 years ago the U.S. Congress wrote this finding of fact into the Asbestos School Hazard Detection and Control Act, and nothing has been learned since to contradict it “Medical science has not established any minimum level of exposure to asbestos fibers which is considered to be safe to individuals exposed to the fibers.”

We urge anyone who is considering cleaning up a residence or a workplace, and anyone who is in a residence or a workplace that has not been cleaned up by a licensed asbestos abatement contractor, to follow the instructions and advice in our factsheet, “Cleaning Up Indoor Dust and Debris In the World Trade Center Area,” posted on the NYCOSH website at <http://www.nycosh.org/wtc-dust-factsheet.html>.

For more information, contact NYCOSH at 212-627-3900. Fax 212-627-9812. E-mail [wtc@nycosh.org](mailto:wtc@nycosh.org)

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MEMORANDUM FROM CATE JENKINS, PH.D., U.S. ENVIRONMENTAL  
PROTECTION AGENCY

Date: February 10, 2002

Subject: NYC Department of Health Misrepresentations, February 8, 2002 Press Release: “NYC Department of Health Presents Findings from Indoor Air Sampling in Lower Manhattan”

From: Cate Jenkins, Ph.D.<sup>1</sup>

To: Affected Parties and Responsible Officials

A February 8, 2002 press release from the New York City Department of Health (NYC DOH) (attached) contains an interpretation of preliminary data from a study not yet released by the Agency for Toxic Substances and Disease Registry (ATSDR) of the Centers for Disease Control (CDC). This study conducted tests in apartments and buildings in Lower Manhattan which were impacted by fallout from the collapse of the World Trade Center (WTC).

The ATSDR does not plan releasing the study or preliminary results to the public until spring, so it is difficult to determine whether or not the NYC DOH correctly represented the data. However, there is at least one major clear misrepresentation of the data by the NYC. There is evidence of other misrepresentations as well.

AIRBORNE ASBESTOS

The NYC DOH made the following claim in its press release:

The air samples from inside the buildings showed no elevated levels of asbestos. (NYC DOH)

The DOH does not mention in its press release exactly what the level of asbestos would be considered “elevated.” However, the press release refers readers to the

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<sup>1</sup>The conclusions and opinions in this memorandum are those of the author and do not necessarily reflect those of the U.S. Environmental Protection Agency.

NYC Department of Environmental Protection (NYC DEP) for more information. The cited NYC DEP web page (attached) states that the “safe” level, or standard, is 0.01 fibers per cubic centimeter (f/cc) (which is the same as fibers/milliliter):

The U.S. and NYC standard for asbestos in community and residential buildings is 0.01 fibers/cubic centimeter (f/cc) [same as f/mL] in Indoor air. . . . As testing continues, there may be the possibility of occasional short-term increases in levels of asbestos in the air above the residential standard of 0.01 f/cc of air. [NYC DEP]

This is a misrepresentation. Due to the many public discussions over the safe level of asbestos in air, there can be no misunderstanding on the part of either the NYC DOH or DEP that the residential or ambient air standard of the U.S. Environmental Protection Agency (EPA) is 0.01 f/mL. By law, any State or city standards for asbestos must be at least as stringent as the Federal EPA standard.<sup>2</sup>

#### *EPA standard for asbestos*

The EPA standard for asbestos in indoor and outdoor air is found in its Integrated Risk Management Information System (IRIS), attached, and other public documents. It is the policy and goal of EPA to protect at the 1 in a million cancer risk level ( $10^{-6}$  risk level), the point of departure. In all cases, action by EPA is triggered by any risk greater than 1 in 10,000. The EPA air standards for asbestos in inside and outside air at the different risk levels are given in the table below:

Cancer Risk Level		Air Concentration of Asbestos fibers per milliliter (f/mL), “PLM” fraction of fibers over 5 micrometers long
number of cancers	risk level	
1 in 1,000,000 .....	$10^{-6}$ (=E - 6) .....	0.000004 f/mL (=4E - 6 f/mL)
1 in 100,000 .....	$10^{-5}$ (=E - 5) .....	0.00004 f/mL (=4E - 5 f/mL)
1 in 10,000 .....	$10^{-4}$ (=E - 4) .....	0.0004 f/mL (=4E - 4 f/mL)

The safe level and goal of EPA, the actual air standard, is 0.000004 f/mL, and the action level for EPA to trigger a cleanup is 0.0004 f/mL. *The EPA standard is thus 2500 times lower* than the 0.01 f/mL level claimed to be the standard by the NYC DOH and DEP.

It is particularly important to test asbestos at the  $10^{-6}$  risk level, because other carcinogens and possible carcinogens are potentially present in WTC fallout, including fiberglass, dioxins, PCB’s, and heavy metals. If several are present, the carcinogenic risk could be additive and result in a higher aggregate cancer risk.

#### *Origin of NYC claim that their standard and the U.S. standard is 0.01 f/mL*

The NYC DOH and DEP are apparently basing their claim that the standard is 0.01 f/mL on a particular test that must be conducted while using a one-horsepower leaf blower to stir up all the asbestos in a room after certified professional abatement. This is the AHERA TEM clearance test (Asbestos Hazard Emergency Response Act transmission electron microscopy).

The EPA regulations for conducting the AHERA TEM clearance test are contained in Title 40 of the Code of Federal Regulations, Part 763, Appendix A. Regulations are implementations of statutes, and thus are the law and legally binding. States and cities must adopt these regulations or have more stringent regulation. The AHERA TEM clearance test is a TEST, not an air STANDARD. Nowhere in any of the EPA regulations is the 0.01 f/mL level called a “standard” for air. The procedures for this test are given in part below:

#### 40 CFR—Chapter I—Part 763

Appendix A to Subpart E—Interim Transmission Electron Microscopy Analytical Methods—Mandatory and Nonmandatory—and Mandatory Section to Determine Completion of Response Actions . . .

#### II. Mandatory Transmission Electron Microscopy Method

##### A. Definitions of Terms

1. *Analytical sensitivity*—Airborne asbestos concentration represented by each fiber counted under the electron microscope. It is determined by the air volume collected and the proportion of the filter examined. This method requires that the analytical sensitivity be no greater than 0.005 structures/cm<sup>3</sup> . . .

<sup>2</sup>The EPA itself has erroneously referred to the AHERA TEM test level of 70 structures per square millimeter a “standard” on its website at <http://www.epa.gov/epahome/wtc/activities.htm>.

14. The final plastic barrier around the abatement area remains in place for the sampling period.
15. After the area has passed a thorough visual inspection, use aggressive sampling conditions to dislodge any remaining dust. (See suggested protocol in Unit III.B.7.d.) . . .
17. A minimum of 13 samples are to be collected for each testing site consisting of the following:
  - a. A minimum of five samples per abatement area.
  - b. A minimum of five samples per ambient area positioned at locations representative of the air entering the abatement site. . . .

[Unit III.B.] 7. Abatement area sampling.

- a. Conduct final clearance sampling only after the primary containment barriers have been removed; the abatement area has been thoroughly dried; and, it has passed visual inspection tests by qualified personnel. (See Reference 1 of Unit III.L.)
- b. Containment barriers over windows, doors, and air passageways must remain in place until the TEM clearance sampling and analysis is completed and results meet clearance test criteria. The final plastic barrier remains in place for the sampling period.
- c. Select sampling sites in the abatement area on a random basis to provide unbiased and representative samples.
- d. After the area has passed a thorough visual inspection, use aggressive sampling conditions to dislodge any remaining dust.
  - I. Equipment used in aggressive sampling such as a leaf blower and/or fan should be properly cleaned and decontaminated before use.
  - II. Air filtration unit shall remain on during the air monitoring period.
  - III. Prior to air monitoring, floors, ceiling and walls shall be swept with the exhaust of a minimum one (1) horsepower leaf blower.
  - IV. Stationary fans are placed in locations which will not interfere with air monitoring equipment. Fan air is directed toward the ceiling. One fan shall be used for each 10,000 ft<sup>3</sup> of worksite.

[40 CFR 763, App. A]

The reason that the EPA designed the AHERA TEM clearance test, requiring first certified asbestos abatement procedures followed by a leaf blower, and then a fan, followed by air testing to the 0.01 f/mL (PCM) level (equivalent to 0.02 s/mL or 70 structures per square millimeter) was to save costs and time. EPA found that using a leaf blower increased asbestos concentrations in air by thousands of times. One study showed that using a leaf blower increased airborne asbestos concentrations over 100 times that caused by even vigorous broom cleaning.<sup>3</sup> Vigorous broom cleaning has been demonstrated to increase asbestos levels hundreds or thousands of times over that of passive conditions which do not disturb dusts. Testing at the low levels that are actually those of health concern, 0.000004 f/mL, can often take 24 or more hours, which was found to be impractical for asbestos abatement contractors.

Even if testing is done at the low levels associated with asbestos health effects (0.000004 f/mL), there must be human activities or simulated human activities in the same room at the same time of the testing. When testing airborne asbestos levels inside homes in Libby, Montana, the Superfund site, EPA had both stationary air monitors and monitors worn by residents going about their normal daily activities. See the attached risk assessment for the Libby site for a description. Another study showed that asbestos concentrations in air can be undetectable or below 0.005 f/mL when there are no activities in the room to stir up dusts, but as high as 0.09 to 54 f/mL when activities such as vacuuming, broom sweeping, gym activities, etc. are going on in the room to disturb the dusts.<sup>4</sup>

The following table gives the legal/legitimate and illegal/illegitimate ways to determine whether asbestos levels in air in homes, offices, or schools meets EPA standards:

<sup>3</sup>Millette, J., *et. al.* Applications of the ASTM Asbestos in Dust Method D5755. In: *Advances in Environmental Measurement Methods for Asbestos*, ASTM Special Technical Publication 1342.

<sup>4</sup>Millette, J.R., and Hays, S.M. (1994), Chapter 8, Resuspension of Settled Dust, in: *Settled Dust Sampling and Analysis*, page 63, Table 2, Lewis Publishers, ISBN 0-87371-948-4.

Legal/Legitimate Airborne Asbestos Testing Methods		Illegal/Illegitimate Airborne Asbestos Testing Methods	
0.000004 f/mL (PCM) laboratory sensitivity (detection limit), the EPA safe level.	0.01 f/m (PCM) = 0.02 s/mL (all fibers) = 70 structures per square millimeter.	0.000004 f/mL (PCM) laboratory sensitivity (detection limit), the EPA safe level.	0.01 f/m (PCM) = 0.02 s/mL (all fibers) = 70 structures per square millimeter
Conditions of actual or simulated human activities, such as a child jumping on a contaminated couch or rolling around on contaminated carpet.	Testing for this level ONLY AFTER the following conditions, as required by law in 40 CFR 763: (1) Completion of professional certified asbestos abatement; (2) Suspension of dusts by using one-horsepower leaf blower followed by fans during actual testing.	Passive conditions, i.e., no activities to disturb dusts to cause them to be airborne..	This level under either passive testing conditions (no human activity) or even normal human activities

*Probable testing methods of the CDC's ATSDR*

Although we do not know what methods the ATSDR used to test air inside buildings, it is doubtful that they utilized techniques that can detect asbestos at the 0.000004 f/mL level. If the ATSDR did test at this low level, it is unknown whether there were simulated or actual human activities taking place at the same time to disturb the dusts.

It is also doubtful that if they tested the air using less sensitive methods, that they used the aggressive leaf-blower condition required for the AHERA TEM test. It would be impossible to use the aggressive leaf-blower test conditions in currently occupied spaces, as it could contaminate surfaces that had previously been cleaned. However, this is no excuse, since there are plenty of unoccupied apartments and business spaces which could be sealed off and tested, and contaminated carpeting and upholstered furniture from the same building could be placed in the space to be tested. (It would be a minor cost to purchase the carpeting or furniture from other tenants in the building.)

INDOOR DUST TESTING

The NYC DOH described the results of the indoor dust testing as follows:

Testing was also conducted in four buildings above 59th Street to provide information on the background level of various substances present indoors in New York City.

The analysis of 98 dust samples for asbestos taken from the inside and outside of residential buildings in Lower Manhattan indicated that while a 20 percent were above background levels, only two samples which were taken from outdoors required abatement. Professional abatement work was completed in this area.

Samples taken from inside and outside of residential buildings in Lower Manhattan were analyzed for fibrous glass. Fibrous glass was detected in 43 of the 98 samples taken. The results of air sampling for fibrous glass, and for air and surface testing of other materials, are not yet available.

It is alarming that 20 percent of samples from indoors (or this could be both indoors and outdoors) were over background levels. Although it was not stated, there could also be more than 20 percent of the indoor dusts that had detectable levels of asbestos, but which were not over background. At the Libby, Montana Superfund site (see attachment), only 11 to 23 percent of the indoor dust samples had detectable asbestos from the random homes selected in Phase 1 of the Libby investigation.

It is also inappropriate for the NYC DOH to establish background by going to other areas of Manhattan. The buildings above 59th Street could have been contaminated with WTC fallout, or could be contaminated from other sources of asbestos. These "background" buildings might also have unsafe levels of asbestos and require professional abatement. It is an unfair comparison to imply that only 20 percent of the inside building dusts in Lower Manhattan had elevated levels that required abatement, based on a comparison to levels in buildings above 59th Street, which might themselves be unsafe.

The finding of fibrous glass (fiberglass) in 44 percent of the samples is also alarming. It is also unfortunate that the ATSDR did not test for other hazardous substances, such as dioxins, PCB's, and heavy metals such as mercury.

#### OUTDOOR DUST TESTING

The NYC DOH made the following statement regarding outdoor dusts:

The analysis of 98 dust samples for asbestos taken from the inside and outside of residential buildings in Lower Manhattan indicated that while 20 percent were above background levels, only two samples which were taken from outdoors required abatement. Professional abatement work was completed in this area.

Although the NYC DOH does not state what level they consider to be a "safe" level in the outdoor dusts that triggered professional abatement, it can be deduced. The NYC DEP issued a letter on October 25 to residents of Lower Manhattan, stating that professional abatement was only necessary if indoor dusts contained 1 percent asbestos or higher. See attached.

The 1 percent asbestos level is not considered to be a "safe" level by the EPA. It is not a risk-based number. It was developed to apply to the asbestos products themselves that were used in homes and other buildings, because it was found that these products always contained 1 percent or more asbestos. The dusts in a building that used these asbestos materials would always have lower levels of asbestos than the asbestos materials themselves. The EPA regulations require the removal or management in-place of the asbestos materials (at 1 percent asbestos or higher) and then the thorough abatement of all contaminated surfaces, whether containing 1 percent asbestos or not.

EPA has determined that levels of asbestos lower than 1 percent could present hazards.<sup>5</sup>

Levels of 1 percent or less could present a risk where there is enough activity to stir up soil and cause asbestos fibers to become airborne.

In one independent study, it was found that soils containing only 0.001 percent asbestos were still capable of producing measurable airborne asbestos concentrations greater than 0.01 fibers per milliliter (equivalent to structures per milliliter), which is an air concentration thousands of times higher than the EPA safe level of 0.000004 f/mL.<sup>6</sup>

#### CONCLUSIONS

The CDC's ATSDR should immediately provide the public with all the information and data that it has supplied to the NYC DOH, so that an honest evaluation can be made. Through its misrepresentations, NYC DOH is giving the public a false sense of security and the erroneous belief that exposures to asbestos and fiberglass are not hazardous, and also that there are no other hazardous substances present because the ATSDR did not test for them. Since the full study will not be released until spring, there are many months that may go by with additional needless exposures, particular during unsafe cleanups by citizens themselves.

It is a violation of the Administrative Procedures Act and the Sunshine Act for a Federal entity such as the ATSDR to provide preferential treatment to the NYC DOH by the early release of preliminary data without simultaneously releasing the same data to the public. The fact that the NYC DOH requested the study does not entitle it to receive any results prior to the public.

Oftentimes industry, public interest groups, or even individual citizens request studies by Federal agencies. When any data resulting from these studies is released, it is released to all parties simultaneously. The NYC DOH has no special standing in this regard.

#### LIST OF ATTACHMENTS

This version of the memorandum does not contain the attachments, because it has been difficult for some to open the file with the attachments. However, you can access the same documents from the websites listed with the attachments.

You can also access this memo with all of the attachments at either: [www.NYenviroLAW.org](http://www.NYenviroLAW.org) or [http://cbns.qc.edu/asbestos<sup>5</sup>\\_references.pdf](http://cbns.qc.edu/asbestos<sup>5</sup>_references.pdf)

<sup>5</sup> [www.epa.gov/region8/superfund/libby/qsafe.html](http://www.epa.gov/region8/superfund/libby/qsafe.html)

<sup>6</sup> Addison, J. (1995) Vermiculite: a review of the mineralogy and health effects of vermiculite exploitation. Reg. Tox. Pharm. 21: 397-405.

You can download Adobe Acrobat Reader Version 4.0 for free from a very dependable, easy, safe website at: <http://www.adobe.com/products/acrobat/readstep.html>

NYC Department of Health (February 8, 2002) NYC Department of Health presents findings from indoor air sampling in Lower Manhattan. Posted at: <http://www.nyc.gov/html/doh/html/public/press02/pr08-208.html> or [www.NYenviroLAW.org](http://www.NYenviroLAW.org)

NYC Department of Environmental Protection. (Undated) Air, noise and hazardous materials. Web page posted at <http://www.nyc.gov/html/dep/html/airnonit.html>

U.S. EPA (August 2001) Integrated Risk Management Information System (IRIS) Summary for Asbestos, posted at <http://www.epa.gov/iris/subst/0371.htm>

USEPA (2001) Appendix A to Subpart E—Interim Transmission Electron Microscopy Analytical Methods—Mandatory and Nonmandatory—and Mandatory Section to Determine Completion of Response Actions, 40 CFR—CHAPTER I—PART 763. Posted at: [www.epa.gov/epahome/cfr40.htm](http://www.epa.gov/epahome/cfr40.htm)

Miele, J.A., Commissioner, NYC Department of Environmental Protection (October 25, 2001) Letter to Residents of Lower Manhattan. Posted at [www.NYenviroLAW.org](http://www.NYenviroLAW.org)

Weis, C.P., Senior Toxicologist/Science Support Coordinator, U.S. EPA (December 20, 2001) Excerpts from: Amphibole mineral fibers in source materials in residential and commercial areas of Libby pose an imminent and substantial endangerment to public health. Posted at: <http://www.epa.gov/region8/superfund/libby/riskassess.html>

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STATEMENT OF JANE KENNY, REGIONAL ADMINISTRATOR, ENVIRONMENTAL PROTECTION AGENCY

Good morning Mr. Chairman and members of the subcommittee. I am Jane M. Kenny, Region 2 Administrator with the U.S. Environmental Protection Agency (EPA). I welcome this opportunity to join my Federal, State and city colleagues to discuss the ongoing response to the tragic events of September 11th by EPA.

Today is February 11, 2002. It has been 5 months since that terrible day. After months of incredibly intense work, we can now reflect on the impacts of the attacks and the extraordinary efforts made by so many individuals and government at all levels. EPA and our Federal, State and city partners have all played important roles in the protection of public health and the cleanup efforts. Today, we look toward the future and the ultimate recovery of Lower Manhattan.

On the morning of September 11th, EPA responded immediately as events unfolded. Our emergency response teams were on the scene that day in Lower Manhattan, in Brooklyn, where the smoke plume was moving, and in New Jersey—assessing the possible public health and environmental impacts of the attacks. Let me assure you that EPA's highest priority then and throughout this response has been protecting the health of everyone in the New York metropolitan area.

Since September 11th, EPA and other Federal, State and city agencies have taken over 10,000 samples of dust, air, drinking water, and storm water runoff at and around the World Trade Center site. We have also sampled in Brooklyn, Queens, the Bronx and Staten Island, at the Fresh Kills landfill and in New Jersey.

In addition to the monitoring conducted by our Federal, State and city partners, we have tested for the presence of pollutants such as asbestos, fine particulate matter, lead and other metals, volatile organic compounds, dioxin, PCBs and other substances that could pose a threat to the public and workers at the site. These samples are taken from more than 20 fixed monitoring stations at and around Ground Zero and an existing New York State air quality-monitoring network that was augmented for the World Trade Center response. The agency also uses portable sampling equipment to collect data from a range of locations in Lower Manhattan. Fortunately, the vast majority of our tests continue to find levels of these contaminants below standards or guidelines set to protect public health. We have also found that environmental conditions on and off the site have improved considerably over time.

While this news may be reassuring to the general public, it is important to emphasize—as we have from day one—that the risks are different for response workers at the World Trade Center site; they have been working long hours in dusty and what were very smoky conditions. That is why we have repeatedly said that response workers should wear respirators and other protective gear.

We have found asbestos fibers in some of the outdoor air and dust samples taken at Ground Zero and in the surrounding area. To date, out of more than 5,500 outdoor air samples taken at and around the site, only 15 have had levels of asbestos that exceed the Asbestos Hazard Emergency Response Act or AHERA standard, we



use to determine if children can re-enter a school building after asbestos has been removed or abated. Of the 15 exceedances, all but four were recorded before September 30.

Where we found elevated levels of asbestos in the dust or where dusty conditions were observed, EPA used large HEPA vacuum trucks to pick it up. We've cleaned sidewalks, the promenade at Battery Park City, local playgrounds and parks and even children's sand boxes. EPA has led the effort to monitor the outdoor environment with support from the New York State Department of Environmental Conservation (DEC), while the city of New York has taken the lead for the reoccupancy of buildings.

We do know that some people returning to area homes and businesses have found dusty environments. EPA recommends that interiors be cleaned with the assumption that any dust may contain asbestos. The New York City Department of Environmental Protection (DEP) has issued instructions to building owners and managers directing them to use professional asbestos inspectors to assess the presence of asbestos-containing materials and to use licensed abatement contractors to conduct any necessary cleanup work. EPA, the Department of Health and Human Services through the Agency for Toxic Substances and Disease Registry (ATSDR) and the New York City Department of Health (DOH) has recommended ongoing and frequent cleaning to minimize future risks from any dust that might remain. All cleanups should be done using wet wipe methods on surfaces and vacuums with HEPA—high efficiency particulate air-filters.

Regarding some Federal buildings, EPA took a small number of indoor air samples in several buildings. The General Services Administration changed the filters on the air conditioning systems and, after noting significant amounts of dust tracked into Federal building lobbies by workers responding at the World Trade Center, asked EPA to have them cleaned. The lobby cleanup, announced in a September 18 press release, was done by EPA contractors using HEPA vacuum trucks already operating in the area. No other specialized cleanup was conducted on the upper floors at 290 Broadway or 26 Federal Plaza.

Now I would like to detail some of our other findings and response efforts. EPA has been testing for numerous volatile organic compounds or VOCs such as benzene—at several sites within and near the perimeter of the World Trade Center site. To protect workers, EPA takes what are called “grab” samples of VOCs where smoke plumes have been sighted. These samples—taken at ground level on the pile—provide a snapshot at a moment in time of worst-case exposure. The samples—taken daily—are immediately analyzed at EPA's highly sophisticated mobile laboratory set up at the perimeter of the site. The proximity allows us to relay the results directly to the New York City Fire Department.

EPA standards and guidelines are set with an ample margin of safety to protect public health. In some samples taken since September 11th, EPA testing at Ground Zero has found the presence of benzene at levels that have exceeded Federal guidelines. Taking the more protective approach, we continue to urge workers to wear their respirators.

However, EPA air samples of pollutants such as benzene taken at the perimeter of the work site find levels that are very low or non-detectable. Dioxin levels were generally below health-based guidelines. Once the fires were diminished, concentrations of several chemicals, declined in most cases to non-detectable levels, even at the work site.

DEC routinely monitors for fine particulates—those smaller than 2.5 microns—at their existing network of monitoring stations. DEC and EPA have added four additional monitoring stations in Lower Manhattan. With a few exceptions early on, fine particulates have been below the level of concern for the general public, as well as groups more sensitive to air pollutants.

We know that materials in construction dust and smoke can be irritating to the eyes, nose, throat and respiratory tract. They can cause more serious reactions in sensitive populations, such as people with respiratory problems or asthma. Again, this is one of the reasons we have recommended that workers wear respirators and impacted homes and businesses be properly cleaned. Sensitive groups have been advised by New York City DOH and the Centers for Disease Control and Prevention (CDC) to take special precautions and consult their physicians if they are experiencing symptoms.

In addition, we also tested drinking water in cooperation with New York City DEP and water quality in the Hudson and East Rivers. All samples of drinking water, which were analyzed for a wide range of contaminants, met Federal standards. Analysis of runoff following heavy rain on September 14 did show some elevated levels of dioxins, asbestos and other pollutants. Follow-up sampling found levels back to those normally found in area waters.

Almost immediately after the attacks, Governor Pataki asked President Bush to declare a Federal disaster, activating the Federal Response Plan. The plan becomes effective when destruction from a disaster goes beyond local and State capabilities. Twenty-seven Federal agencies and the American Red Cross are activated to supplement State and city resources, with the Federal Emergency Management Agency (FEMA) in the lead. In the World Trade Center response, Federal agencies have provided funding, personnel, technical expertise, equipment and other resources at New York City's request. Acting on mission assignments generated by FEMA, EPA is the lead agency for hazardous waste disposal and has also taken primary responsibility for monitoring the ambient air, water and drinking water and coordinating the sampling data for all the response agencies. In addition, EPA was asked to manage worker and vehicle wash down operations at the site and the Fresh Kills landfill, which has been receiving debris from the disaster site.

In support of the agencies directly responsible for worker safety, EPA initially supplied the New York City Office of Emergency Management (OEM) 12,432 respirators, 37,600 dust cartridges, 13,000 pairs of safety glasses and 1000 hard hats. In addition, 1465 respirators, 2608 cartridges plus Tyvek suits, booties and hard hats were provided to the New York State Departments of Environmental Conservation and Health. The U.S. Coast Guard, at the request of FEMA, worked with EPA to assist with the response, and the New York State National Guard conveyed the equipment to the city for distribution to response workers.

On September 11th, EPA provided a flyer to FEMA for distribution at Ground Zero that emphasized the potential danger from asbestos and urged workers to wear protective gear. By September 20, EPA had set up worker wash down operations at the site, at which flyers were distributed and signs posted recommending the use of respirators and other protective gear. During daily interagency site operations meetings, EPA repeatedly emphasized the need for response workers to wear their respirators. This message was continuously reiterated at community meetings and with the press.

EPA has set up a full service, winterized wash station at which workers can vacuum off their work clothes, shower and change before going home. Signs directing workers to wear protective gear are posted. Several thousand workers pass through the wash station every day.

EPA recognizes that the collapse of towers was a cataclysmic event unlike any we have experienced. The monitoring data collected in response to this event, warrants further study. With this in mind, in October, EPA began a health risk evaluation and a comparative toxicological study. These are in addition to studies being conducted by other agencies and academic institutions.

Through our health risk evaluation, we hope to better understand the possible health risks to people who may have been exposed to various pollutants during several periods following the disaster. EPA is reviewing ambient air monitoring data gathered by EPA, OSHA, the New York State Department of Environmental Conservation and various academic and commercial entities.

The Agency is assessing possible exposures during the first days after the attack, the following several weeks and the subsequent months through early January. This evaluation focuses on the different population groups of concern—response workers and volunteers at Ground Zero, residents and workers in the immediate surrounding areas.

We expect to have a preliminary report completed this month, which we will share with your Subcommittee and the public. A more detailed evaluation, building on our initial findings, should be complete by early May, with the final report due in April 2003.

Our second investigation is a comparative toxicity analysis. The objective is to compare the toxicity of the particles released from the World Trade Center collapse to other particulate samples of high and low toxicity that have been tested on animals. In this effort, we are comparing particles collected from Ground Zero to fly ash from oil-fired power plants, dust recovered from the volcanic eruption of Mount St. Helens and urban ambient air particles.

EPA is also collaborating with New York City and State officials, with two components of the Department of Health and Human Services through the National Institute of Environmental Health Sciences and the Centers for Disease Control and Prevention, and various academic institutions on research in progress and the identification of future research needs. These efforts will help us better understand the magnitude of any effects from the World Trade Center disaster.

In addition, EPA has supported the Federal Agency for Toxic Substances and Disease Registry (ATSDR) and the New York City Department of Health in their study of residences impacted by the World Trade Center collapse. We are committed to helping residents and business employees in Lower Manhattan address their con-

cerns about the indoor air. We will continue to work with the city agencies until people are assured that their health is protected.

Before concluding, I would like to touch on one additional topic. From the start, EPA has been committed to sharing the results of our data with the public and to helping people understand what they mean. Under incredible circumstances—having witnessed the attacks and been evacuated from our Lower Manhattan offices—EPA staff began the process of sampling, analyzing, interpreting and conveying environmental data to the first-line response agencies, the press and the public. All of the agencies use our data to assess the risks to workers and the public, and to develop approaches to address any concerns.

EPA has taken the lead in making the data available to the public through our website. Sampling results for the major pollutants of concern and daily summaries of our monitoring results are available at *www.epa.gov*. A complete set of laboratory results—updated daily—is available to the public at our offices at 290 Broadway in Lower Manhattan.

Response workers and the people of New York have been through much trauma and uncertainty. We hope that our findings, comprising thousands of pages of text, will help them address concerns about their health and their environment. Be assured that we will be vigilant in our ongoing efforts.

As we look to the future, we will work with our Federal, State and city partners and Congress, on science-based approaches that ensure that public health is protected.

In closing, Mr. Chairman, I would like to thank you for giving us this opportunity to share the work of the many dedicated and professional EPA employees who have worked tirelessly to protect the health of all New Yorkers in the wake of this unprecedented event.

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RESPONSES BY JANE M. KENNY TO ADDITIONAL QUESTIONS FROM SENATOR SMITH

*Question 1.* Please provide the Committee with all available information regarding the location and use of monitors employed to analyze air quality in the wake of September 11, 2001 attack on New York City. Please identify monitors that were in operation prior to September 11, 2001, as well as any monitors put in place after that date. At a minimum your response should address:

- (a) the precise locations and type of each of those monitors;
  - (b) when data samples were collected from each monitor;
  - (c) whether any of those monitors have been removed, and if so when;
  - (d) a description of the use of any non-stationary air monitors.
- (e) In addition, please supply the Committee with the data taken from each monitor for, at a minimum, the period from September 11th to November 11, 2001.

Any additional information that may be useful or helpful in understanding the information requested above would be welcome.

Response. Since September 11th, EPA has taken over 15,000 samples of dust, air, drinking water, and stormwater runoff at and around the World Trade Center site. We have also sampled in Brooklyn, Queens, the Bronx and Staten Island, at the Fresh Kills Landfill and in New Jersey. The following is a description of EPA's monitoring activities:

FIXED LOCATION ROUTINE AIR SAMPLING AND MONITORING STATIONS

EPA has collected time-weighted air samples at fixed locations in Lower Manhattan and analyzed these samples for asbestos, metals, dioxin, polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), silica, particulates (PM<sub>2.5</sub>, PM<sub>10</sub>) and aldehydes. EPA also collected and analyzed air quality samples for asbestos, metals and particulates from fixed locations on and at the perimeter of the Fresh Kills Landfill in Staten Island.

In addition, EPA collected and analyzed air samples for asbestos, dioxin, volatile organic compounds (VOCs), aldehydes and particulates from monitoring locations that are part of the New York State Department of Environmental Conservation (NYSDEC) air sampling network, including permanent sites and locations added after September 11th.

Air samples of asbestos were also collected and analyzed from monitoring locations in New Jersey that augmented the New Jersey Department of Environmental Protection's permanent air monitoring network.

Attachment 1 (WTC—EPA Time-Weighted Air Quality Sampling at Fixed Stations) provides sample locations, parameters, sampling frequency, sampling start date, sampling end date and the reason why the sampling location was moved or eliminated, if applicable. Attachment 2 shows exact sampling locations.

## FIXED LOCATION NON-ROUTINE/EPISODIC AIR SAMPLING AND MONITORING STATIONS

EPA conducted non-routine/episodic monitoring for isocyanates, phosgene (a possible product of Freon combustion), other gases and VOCs at fixed locations. A summary of this monitoring follows:

*Isocyanates.*—Isocyanate samples were collected on December 11 and 19 at locations (See Attachment 2) R, A, 3B (Church and Vesey Streets), B, C, D, P, S, E, North Tower and Vista Hotel (World Trade Center Building 3), and on February 8 and 12 at locations R, E, P, S, D, C, B, 3A (at the SW corner of Building 5, near Church and Dey Streets), A, Vista Hotel and North Tower. Isocyanate samples were analyzed by EPA contract laboratories, which provided a lower level of detection than that provided by the tape meter screening devices used for additional real-time monitoring. Real-time monitoring for isocyanates using the tape meters was performed on December 4, 6, 11 and 19 at locations R, A, 3B, B, C, D, P, S, E, North Tower, South Tower, Austin Tobin Plaza, Vista Hotel (West and Liberty Streets.) and World Trade Center Building 4.

*Phosgene and other gases.*—From September 19 to January 20, EPA monitored twice daily for phosgene, chlorine, sulfur dioxide, hydrogen cyanide, hydrofluoric acid, hydrochloric acid, ammonia, explosive gases, oxygen and total VOCs at all fixed monitoring locations in Lower Manhattan to determine the presence of gross amounts of airborne contaminants. The monitoring was discontinued based on consistently negligible or non-detectable readings throughout the affected area. This monitoring was performed using hand-held, non-stationary monitoring instruments and provided real-time snapshot results.

## DATA COLLECTION FOR RISK EVALUATION STUDIES

EPA's Office of Research and Development (ORD) has done time-weighted sample collection (24-hour samples each day) and analysis for particulates, metals and elemental and organic carbon, as well as continuous monitoring of PM concentrations at locations A and C (including alternate site C1) and K. ORD has also been collecting VOC grab samples at worker breathing levels at sites A, C and K and from outside the 16th floor at 290 Broadway (site 16). Typically, samples were collected each day at sites A, C and K and periodically at 290 Broadway (See Attachments 1 and 2).

## NON-FIXED LOCATION AIR SAMPLING AND MONITORING

In addition to fixed location monitoring, EPA continues to sample and monitor air quality at non-fixed locations. VOC grab samples are taken daily at various locations at Ground Zero, generally in the vicinity of the North Tower, South Tower and Austin Tobin Plaza. EPA originally analyzed these samples using the national Emergency Response Team Trace Atmospheric Gas Analyzer (TAGA) and now analyzes the samples at our Mobile Laboratory, stationed at the perimeter of the site. This allows us to provide results within four hours of sampling. The data is used to alert the Fire Department of New York (FDNY) and Ground Zero workers about conditions that pose immediate health concerns. A total of four VOC grab samples are collected daily at ground level or breathing level.

Air monitoring is also performed during activities conducted by EPA to remove hazardous materials and to recover oil from storage tanks throughout the Ground Zero excavation, particularly when those events take place within confined spaces. This monitoring is performed to ensure that air quality in the vicinity of the response workers is within permissible levels, and to determine the proper level of personal protective equipment that must be worn during these operations. Oxygen, hydrogen sulfide, carbon monoxide, explosive gases and total VOCs have been routinely measured.

EPA has also conducted air monitoring at the special request of the FDNY. On several occasions air monitoring was performed during below-grade entries in or near the main and auxiliary World Trade Center chiller plants. The standard five-gas monitor, mentioned above, was used along with a halocarbon monitor purchased specifically to detect Freon R-22 (chlorodifluoromethane). This monitoring was performed as needed and three times daily during the excavation of the main chiller plant. The daily R-22 monitoring using the halocarbon meter was discontinued when a permanent R-22 monitoring system was installed by the New York City Department of Design and Construction. Freon R-22 monitoring was discontinued after the recent removal of the chiller plant.

We have provided a record of our sampling results to date (See Attachment 3).

*Question 2.* Please provide a precise description of the type of safety equipment that was distributed to personnel in the Ground Zero area and the date that equipment was made available, including, but not limited to:

- respiration masks made available to the workers;
- when decontamination showers and procedures were implemented; and
- what contractors were employed to distribute masks and operate and oversee the decontamination showers and procedures.

Response. On September 11th and in the immediate aftermath of the attacks, EPA relied on the stock of personal protective gear (respirators, cartridges, tyvek suits and other equipment) that the EPA national Environmental Response Team had on-hand in our Edison, New Jersey offices. The equipment was used by EPA response personnel, the Agency's Criminal Investigations Division and local New Jersey county responders. By September 14, EPA had placed an emergency order for additional protective gear for distribution to response workers. By September 22, EPA had distributed thousands of respirators, cartridges and other gear to New York City. EPA supplied the following personal protective equipment to the city: 22,100 air purifying respirators, 30,500 sets of P100 particulate cartridges, 14,000 pairs of safety glasses and 1,000 hard hats. In addition, 600 respirators, 2,000 cartridges plus tyvek suits, booties and hard hats were supplied to the New York State Departments of Environmental Conservation and Health. Mine Safety Appliances Company (MSA) and 3M brand respirators with GME-P100 OSHA-approved cartridges were supplied.

Initially, respirators and other protective gear purchased by EPA were delivered to the New York City Office of Emergency Management by the U.S. Coast Guard, which had been activated by EPA for the response. Some equipment was delivered directly to the city by the manufacturers. The bulk of the EPA-purchased personal protective equipment was transported from the EPA Edison facility and delivered to the Office of Emergency Management by the New York State National Guard for distribution to response workers.

On September 20, EPA began operating the first personal wash station for workers at Ground Zero at the southeast corner of the marina. Shortly thereafter, EPA posted signs at the wash station and provided flyers (Attachment 4) that instructed response workers about personal safety and health protection. On September 22, EPA began operating the first vehicle wash station on West Street near Murray Street. Over the past seven months, as many as 18 wash stations have been operating at the site. These wash stations have been operated by Clean Harbors Inc. and Miller Environmental Inc. under contract to the U.S. Coast Guard. The Coast Guard continues to provide valuable assistance to EPA and the workers at Ground Zero through contractor procurement and oversight services.

On November 24, EPA opened the central wash station at West Street near Vesey Street. It was constructed, is operating, and will eventually be dismantled under EPA's contract with Earth Tech Inc. The wash tent has provided a place at which workers can decontaminate and change their work clothes, shower, store their belongings, wash up and eat. The showers have received minimal use and are being partially dismantled.

*Question 3.* Please provide copies of all pamphlets, flyers or other handouts explaining air quality risks provided to the workers and the dates each item became available.

Response. On September 11th, EPA developed a flyer (Attachment 5) entitled Asbestos Hazards and Precautions, which was provided to the Federal Emergency Management Agency (FEMA) for distribution at Ground Zero. The flyer stated that "Cleanup workers should be protected with appropriate eye protection, air purifying respirators and personal protective clothing." As stated above, just after September 20, EPA also distributed information about the need to wear respirators and other protective gear at our worker wash at the site. In addition, during daily interagency meetings at the city's Emergency Operations Center, EPA repeatedly emphasized the hazardous conditions at the site and the need for response workers to wear their respirators.

EPA used every opportunity during communications with the public and the press to urge response workers at Ground Zero to wear respirators. On September 13, Administrator Whitman appeared before the media at Ground Zero to emphasize the need for workers to wear their respirators. EPA's role in providing respirators was covered in our press releases (Attachments 6, 7, 8, 9 and 10) of September 13, 14, 18, 21 and 30. On numerous occasions EPA response staff discussed with FDNY personnel the need for proper respiratory protection when working at Ground Zero. On October 5, EPA sent a letter to the New York City Department of Health (NYCDOH) highlighting our concerns about workers not wearing respirators (At-

tachment 11). In addition to our press releases, numerous news accounts included comments by EPA officials on the importance of respiratory protection at Ground Zero.

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RESPONSES BY JANE M. KENNY TO ADDITIONAL QUESTIONS FROM SENATOR CLINTON

*Question 1.* You stated in your testimony that EPA is responsible for “coordinating the sampling data for all the response agencies.” Can you please tell us more about this? Is this coordinated data available to the public?

Response. In the aftermath of the World Trade Center disaster, many organizations and agencies involved in the response conducted sampling and monitoring activities to assess environmental impacts. NYCDOH initially requested that the data be forwarded to them so that it could be aggregated and made available to Federal, State and local decision-makers. Initial sampling results were discussed among the agencies during daily telephone conference calls and were shared in hard copy and electronically when possible.

On September 25, 2001, the city asked EPA to develop a database to collect and track the results of the multi-agency ambient air monitoring. On September 28, EPA finalized the World Trade Center Multi-Agency Database that houses data from thirteen Federal, State and private organizations that conducted environmental monitoring after the September 11th event. The participating organizations send their data to EPA in many formats from electronic spreadsheets to hard copy to be manually entered into the database. Some of the organizations conducted limited testing and stopped submitting results after the first week. EPA, NYSDEC and New York City Department of Environmental Protection (NYCDEP) continue to monitor and submit results daily to the database. EPA and NYSDEC have provided roughly 95 percent of the data in the database.

The World Trade Center Multi-Agency Database has been used primarily as a tool for the response agencies. Data from some of the organizations was not quality assured for accuracy in the early months and could not be publicly released. EPA began to make our monitoring results and data from NYSDEC available to the public on EPA’s website in late September. All of EPA’s monitoring data, with the exception of the complex analytical data ORD has collected for research, was made available in our Lower Manhattan offices at 290 Broadway (See attachment 12). Other government organizations including the Occupational Safety and Health Administration (OSHA), NYSDEC and NYCDEP have posted their monitoring results on their respective websites.

EPA has been assured by participating government agencies that data contained in the World Trade Center Multi-Agency database has now been quality assured and will continue to be as additional data is submitted. The database, which will include data provided by government agencies, will be made available to the public on EPA’s website this spring.

*Question 2.* How exactly does EPA relay its information to the firefighters, to the schools?

Response. Within hours of the attacks, EPA began to coordinate its response activities through FEMA. Initially, information was shared with the FDNY and other responding agencies at the city’s Emergency Operations Center and the response center at P.S. 89. Currently, EPA hand-delivers our VOC data to the FDNY on a daily basis and discusses the results with the Deputy Chief in charge of health and safety. We also meet regularly with FDNY representatives to discuss sampling results and future needs. In addition, the VOC data is also delivered daily to New York City health and safety contractors at the AMEC trailer at Ground Zero. AMEC has been assigned responsibility for overall site health and safety at Ground Zero. As explained earlier, the proximity of our Mobile Laboratory to the World Trade Center site makes it possible for us to quickly relay information to the response agencies.

EPA participates in general contractor meetings twice each week and attends weekly health and safety meetings with representatives of all the on-site contractors. EPA also attends a weekly health and safety meeting that addresses site safety issues related to governmental personnel working at Ground Zero World Trade Center.

EPA has had regular communications with the New York City Board of Education (NYCBOE) regarding environmental conditions in Lower Manhattan. The NYCBOE uses our maps and data summaries at meetings with parent organizations, school representatives and local groups. Printed copies of EPA data summaries have been important communications tools for local residents who do not have access to the Internet. EPA has reported any results that exceeded Federal standards or bench-

marks which have been few to the NYCBOE. We have also informed the Chair of the local community board and the president of the Stuyvesant High School Parents Association about several results that exceeded standards or benchmarks near the barge operation adjacent to the school. In addition, we have provided information to the environmental consultant for Stuyvesant High School, appeared at a Stuyvesant Parents Association meeting on air quality and fielded numerous calls from concerned parents seeking information.

*Question 3.* You indicated in your testimony that EPA did conduct some indoor sampling in some of the Federal buildings in Lower Manhattan. Please provide the results of that sampling.

Response. EPA took a small number of indoor air samples (Attachment 13) at 290 Broadway and 26 Federal Plaza on September 13 and at 100 Church Street on October 23. At 290 Broadway and 26 Federal Plaza, low levels of asbestos were detected in several of the samples. At 100 Church Street no samples were found to be above the minimum detection limit. The General Services Administration (GSA), our Federal landlord, also took dust and air samples in our building and at the Federal Court House at 500 Pearl Street. Asbestos was found in some of the dust samples and low levels of asbestos were detected in some of the air samples. EPA vacuumed up the visible dust that had been tracked into Federal building lobbies by response workers before we received the monitoring results from GSA.

As detailed above, EPA's Office of Research and Development sampled periodically outside at 290 Broadway to gather data for a health risk evaluation. (See Attachment 1.)

*Question 4.* In your testimony, you indicated that only 15 asbestos samples exceeded the AHERA standard. Yet your website says that there were 31 exceedances, as does Carl Johnson in his testimony. Can you explain?

Response. EPA used our agency website to get information to the public as quickly as possible. By late September, we were posting asbestos results to the website almost as soon as the data was received from the lab and reviewed. Later, after consulting with experts in asbestos analysis techniques, we found we had been making an additional, unnecessary technical adjustment for the volume of air sampled, which affected the results. We ultimately stopped making this adjustment. For consistency of scientific comparisons, we then reevaluated the data we had previously posted on the EPA website and corrected the asbestos values where necessary.

This lowered the number of asbestos exceedances. Given the extremely low percentage of asbestos exceedances now 21 out of almost 8,000 in Lower Manhattan the significance of the adjustments is minor.

*Question 5.* Please provide information on the rate of sampling and reporting of data since September 11th. The frequency of sampling varies between sampling parameters and locations.

Response. As described in our response to Question 1 from Senator Smith above, we conducted a wide range of sampling at a variety of rates ranging from continuous daily sampling to less frequent episodic sampling. (See Attachment 1.)

In the aftermath of the disaster, information about our monitoring results and response activities was shared daily with the other Federal, State and local response agencies, summarized for the press and reported to thousands of local residents at public meetings and through our telephone hot-line. As soon as we were assured that the data was accurate, all daily summaries and laboratory reports, with the exception of the complex ORD data collected for research, were made available in our Lower Manhattan offices. Data related to the major pollutants of concern was posted on our website beginning in late September.

*Question 6.* As you know, EPA has been widely criticized for the statements that it made in the first few days following the attack. Please respond to this criticism, and explain what the Agency intends to do to improve its communications efforts in the future.

Response. At each stage of our response to the events of September 11th, we have based our findings on the scientific data before us. The statements made by EPA about the results of air quality monitoring in Lower Manhattan have been based on sound science. To date, the results of our comprehensive tests of the outdoor air consistently indicate that air quality in Lower Manhattan did not and does not pose an increase to significant long-term health risk to those who live, work or visit here.

Of course, as we emphasized from the start, this does not apply to workers at Ground Zero who must wear respirators and other appropriate protective equipment, even now that the fires are out. We were aware that the dusty and smoky conditions during the months following the disaster could and did cause a range of respiratory problems, especially among sensitive groups such as people with asth-

ma. Our advice to anyone experiencing symptoms was that they should consult a physician as soon as possible. We also emphasized that people returning to dusty homes and workplaces should have their interior spaces professionally cleaned.

We note that Dr. George Thurston of the New York University School of Medicine testified at the February 11 Senate Committee hearing that “While our analyses are consistent with the Government’s conclusion that the WTC dust is not likely to have short- or long-term serious health impacts on otherwise healthy local residents, we found that it is very irritating and capable of causing the symptoms reported by many residents.”

EPA is collaborating with our Federal, State and city partners to address ongoing concerns about indoor air quality through a multi-agency task force. The group has already made considerable progress. With EPA’s guidance, NYCDEP will soon begin to remove residual debris from roofs and building facades, EPA will conduct a pilot study of indoor cleaning techniques, and all of the agencies will continue to assess the cleaning that has been conducted and develop testing criteria.

In the event of a future disaster, EPA will be better prepared to quickly communicate monitoring results to the public. We have developed a database for collecting and tracking environmental monitoring results and have identified standards and benchmarks to help us evaluate our findings. We have revised agency operations at a national level to identify opportunities for improving responses especially under terrorist attacks. Additionally we will complete a regional after-action review to identify opportunities for improvement.

*Question 7.* Eric Goldstein of Natural Resources Defense Council recommended that it should be examined whether there should be shorter term standards for exposure to high intensity bursts of particulate matter (i.e. shorter than a 24-hour measuring standard), and whether standards should be established for exposure to fiberglass, dioxin and other pollutants that are not currently part of the formal standard setting process. Please comment.

Response. As part of its responsibilities under the Clean Air Act, EPA periodically (every five years) conducts a review of scientific advances for criteria pollutants. EPA is currently in the middle of a comprehensive, periodic review of the most recent scientific information on health effects associated with exposure to ambient particles. This review includes a full evaluation of available information on health effects associated with exposures over a wide range of averaging times, including annual, 24-hour periods and shorter periods such as hourly. When completed, this scientific review will form the basis for EPA’s decision on whether revisions to the PM standards, such as the agency’s actions in establishing a new standard for PM<sub>2.5</sub>. EPA will take advice from the Agency’s scientific advisory committee and public comments into account in making any decisions.

With respect to other pollutants such as dioxin and fiberglass, EPA currently has a formal, two-stage standard-setting process that addresses such pollutants. Under Section 112 of the Clean Air Act, EPA establishes technology-based emissions standards for specific sources of the 188 listed hazardous air pollutants (including dioxin and fiberglass, as a fine mineral fiber).

Ultimately, EPA will evaluate the residual risks that would remain after such emission standards are met and sets risk-based standards, as appropriate, to protect public health.

In addition, EPA has been developing Acute Exposure Guidelines for dozens of chemicals that will establish three levels of concern from reversible to irreversible anticipated effects for exposure durations of 30 minutes, 60 minutes, 4 hours and 8 hours. The guidelines will be published following peer review by the National Academy of Sciences. These guidelines are being established on a “worst first” basis, addressing the chemicals widely understood to be most toxic in short, intense exposures. Dioxin and fiberglass have less acute toxicity than the chemicals for which guidelines are now being established.

*Question 8.* There have been reports that some trucks transporting debris from the site are uncovered and not fully wetted down. Who is responsible for monitoring this operation? What further actions can be taken to ensure that this operation is conducted in a manner that is as clean as possible?

Response. All trucks leaving the World Trade Center site are required by the city to be covered. Typically, the trucks go through a cutting station, where any overhanging metal is burned off. The drivers then either apply their own covers or the trucks are covered with rolled material, which is applied on the cutting stands. In the fall, the trucks were routinely wet down. Wetting operations were curtailed during short periods during the winter, when sub-freezing temperatures made the procedure too hazardous; wetting is not done when the debris is already sufficiently wet because of site conditions.



Various agencies have responsibility for vehicles leaving the site, including:

- EPA, which operates vehicle wash down stations at World Trade Center exit points to prevent vehicles from tracking contaminants off the site;
- the New York City Department of Design and Construction, which is responsible for overall site operations, including traffic routing;
- NYCDOH, which also monitors trucks to ensure that they have been washed down as required under an order from the NYCDOH commissioner. It is our understanding that NYCDOH issued violations and fines for trucks that they determined were not adequately washed down or covered.
- NYSDEC, which enforced traffic control at Ground Zero last fall and monitored trucks to ensure that loaded vehicles were covered. NYSDEC informed EPA that the agency issued citations for trucks that were not properly covered, in violation of State regulations.

*Question 9.* Why are the debris barges not being required to be covered in some fashion?

Response. It is our understanding that the city has not covered the barges because the sharp-edged exposed metal in the World Trade Center debris would destroy any covering material. Instead, the debris-laden barges are wet down to suppress the dust. EPA raised this issue with New York City officials and was informed that the mesh-like material used to cover the barges when they carted municipal waste to the Fresh Kills Landfill would not be practical under these conditions.

*Question 10.* What actions will be taken during the rebuilding process to reduce as much as possible the noise, dust, diesel exhaust and other forms of pollution at the site?

Response.

New York State and New York City have primary responsibility for the redevelopment of Lower Manhattan. EPA is working with the city, State and other Federal agencies on ways to mitigate emissions from diesel engines associated with the recovery and rebuilding of the World Trade Center area. The Agency is encouraging the State and city to promote and require the use of ultra low sulfur diesel fuel (ULSD) and retrofit devices for diesel powered equipment and vehicles. The use of diesel particulate filters has the potential to reduce emissions of particulates up to 95 percent and the use of ULSD can lower sulfur oxides up to 99 percent. On March 22, EPA Regional Administrator Jane Kenny recommended to FEMA that increased costs associated with using ULSD and installing retrofit devices be reimbursable.

In addition, EPA is serving on the Federal Task Force to Rebuild New York City. We have and will continue to encourage our Federal partners to apply "green" standards in Federal contracts and grants for World Trade Center redevelopment, to fund clean ferries, and to advocate the use of lower polluting construction equipment, cleaner burning alternative fuels and green construction practices.

An Environmental Review and Planning Subcommittee of the Federal Task Force has been established. FEMA has prepared a preliminary draft programmatic environmental assessment addressing, in a generic way, potential impacts associated with future projects. As specific projects are proposed, more detailed environmental documents will be developed to address the potential impacts and any necessary mitigation.

*Question 11.* There are reportedly many building roofs and terraces in and around Ground Zero that have not been cleaned since September 11th. Will EPA be providing assistance in this regard?

Response. Many building exteriors were cleaned by building owners as instructed by NYCDEP. In January and February, EPA, NYCDEP, NYSDEC and the New York State Department of Labor performed site visits at more than 400 buildings to assess exterior building cleanups conducted by building owners in the vicinity of the World Trade Center. Residual debris was observed in isolated areas at the perimeter of roofs, at the base of parapet walls and in gutters of 211 of these buildings. Debris was also visible on horizontal surfaces of building facades.

As announced in a March 25 press release (Attachment 14), NYCDEP will remove residual debris from rooftops and facades with EPA's support. OSHA will work in a coordinated effort with the city and EPA to ensure the safety and health of the workers performing this cleaning. The work is expected to begin as soon as the city completes its contracting process. This action is the result of collaboration between New York City and the Federal Government through EPA's Task Force on Indoor Air in Lower Manhattan.

*Question 12.* Are some of the air quality data gathered in the first two weeks after September 11th still being withheld, and if so why?

Response. EPA has made every effort to provide data to elected officials, the media or the public as soon as possible. Under circumstances of extreme difficulty, having been evacuated from our Manhattan offices, EPA staff developed a system for sampling, analyzing, interpreting and conveying environmental monitoring results to the first-line responders, the press and the public. A website was developed to present the complex scientific data to the public in a format that was easy to navigate and understand. Copies of laboratory reports and data summaries were provided to requesting members of the public as soon as the information was validated through an expedited quality assurance process. As stated above, the Agency began to post data on our website in late September. By October 16, EPA's data, with the exception of research data collected by ORD, was made available for review in our Lower Manhattan offices. The data repository is kept up-to-date and new data is regularly posted on our website.

*Question 13.* Do you have adequate resources to meet response needs? Has access to resources been an obstacle to fulfilling your responsibilities in this regard?

Response. Acting on mission assignments from FEMA under the Federal Response Plan, EPA is the lead agency for hazardous substances. EPA has been given primary responsibility for monitoring the ambient air, water and drinking water and coordinating the sampling data for all of the response agencies. In addition, EPA was asked to manage worker and vehicle wash down operations at the site and at the Fresh Kills Landfill, which has been receiving debris from the disaster site. A mission assignment from FEMA confirms that FEMA will provide funding for the performance of the assigned activities.

The \$94 million committed to EPA by FEMA has been sufficient to provide for the activities described above. New mission assignments, including those to address the assessment and remediation of indoor spaces, will also require FEMA funding.

*Question 14.* Please provide information on activities planned for protecting public health and the environment at and around Fresh Kills after current disaster-related activity ends.

Response. In September, EPA established a network of fixed air monitors at the Fresh Kills Landfill and on the perimeter of the site to protect workers who handle World Trade Center debris at the landfill and people living in nearby neighborhoods. EPA monitors for asbestos, particulate matter/dust and metals at these fixed monitoring stations. (See Attachment 1.)

New York State operates a federally approved air monitoring network that includes ambient monitoring stations on Staten Island. These monitors, which are adjacent to the Fresh Kills Landfill and in the surrounding neighborhood, measure particulate matter and hazardous air pollutants. Monitoring results are available to the public, in some cases in real-time, on the state's Web page. EPA and the State will continue to review this data to ensure that citizens are not exposed to unhealthful levels of pollutants related to disaster response activities or normal operations at the landfill. In addition, EPA will continue to provide the State with fiscal support under Section 105 of the Clean Air Act and technical support for future monitoring.

New York State is authorized to manage the Fresh Kills Landfill and we expect that the State will address post-disaster operations at the landfill.

**WTC- EPA Time-Weighted Routine Air Quality Sampling at Fixed Stations**

Site Name	Site Location	Analytical Parameters	Sampling Frequency	Laboratory Required?	**S-Date	**E-Date	Reason Dropped
Location A	Berkley St & West Broadway	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	9/15/2001	ongoing	
		Dioxins (2)/PCBs PAHs Metals Silica	8 hour sample twice per week		9/22/2001	ongoing	
Location B	Church St and Day St	Asbestos	24 hr. sample daily	EPA/ORD Lab	9/26/2001	ongoing	
		Dioxins (2)/PCBs PAHs Metals Silica	2 - 12 hour samples daily	EPA Contracted Lab	9/21/2001	ongoing	
Location C	Liberty St and Trinity St	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	11/1/2001	ongoing	
		Dioxins (2)/PCBs PAHs Metals Silica	8 hour sample twice per week		11/18/2001	ongoing	
Location C1	Broadway and Liberty St	Asbestos	24 hr. sample daily	EPA/ORD Lab	11/18/2001	ongoing	Note - Station replaced Location C1
		Dioxins (2)/PCBs PAHs Metals Silica	2 - 12 hour samples daily	EPA Contracted Lab	11/18/2001	ongoing	
Location D	Albany St & Greenwich St	Asbestos	24 hr. sample every 3rd day	EPA Contracted Lab	10/28/2001	ongoing	Station moved to Location C due to WTC Site Access Problems
		Dioxins (2)/PCBs PAHs Metals Silica	2 - 12 hour samples daily		EPA/ORD Lab	11/17/2001	
Location E	Libert St & South End Ave	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	9/15/2001	ongoing	
		Dioxins (2)/PCBs PAHs Metals Silica	8 hour sample twice per week		EPA Contracted Lab	9/22/2001	ongoing
Location F	Vesey St & West St	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	9/15/2001	ongoing	Temporary sampling coincided with demolition at Ground Zero preventing access to usual station.
		Dioxins (2)/PCBs PAHs Metals	8 hour sample twice per week		EPA Contracted Lab	9/26/2001	
Location G	Church & Duane St	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	9/17/2001	ongoing	Temporary station coincided with Media Center

**WTC- EPA Time-Weighted Routine Air Quality Sampling at Fixed Stations**

Site Name	Site Location	Analytical Parameters	Sampling Frequency	Laboratory Required?	**S-Date	**E-Date	Reason Dropped
Location H	Chase Manhattan Plaza	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	9/16/2001	2/4/2002	Consistently low values Difficult access
Location I	Broadway & Wall St	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	9/16/2001	2/4/2002	Consistently low values Difficult access
Location J	Warren & West St	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	9/17/2001	ongoing	
Location K	Albany & West St	Asbestos Particulates*	2 - 12 hour samples daily 24 hr. sample daily	EPA Contracted Lab EPA/ORD Lab	9/17/2001 9/21/2001	ongoing ongoing	
Location L	North Side of Stuyvesant High	Total particulates Asbestos	~ 8 hours/day 2 - 12 hour samples daily	No. Onsite Dataram EPA Contracted Lab	10/11/2001 9/22/2001	ongoing ongoing	
Location M	Harrison St & West St	Total particulates	~ 8 hours/day	No. Onsite Dataram	10/11/2001	10/22/2001	Station moved to Location R since tree, which held \$11,000. sampler, was removed
Location N	Pier 25, Southside	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	9/20/2001	ongoing	Note - \$600 sampling pump fixed to fence after tree removal
Location O	Albany St & South End Ave	Total particulates Asbestos	~ 8 hours/day 2 - 12 hour samples daily	No. Onsite Dataram EPA Contracted Lab	10/11/2001 9/18/2001	ongoing ongoing	
Location P	Albany St & South End Ave	Asbestos Dioxins (2)/PCBs PAHs Metals Silica	2 - 12 hour samples daily 8 hour sample twice per week	EPA Contracted Lab	9/22/2001 9/22/2001 1/17/2001 9/22/2001 10/17/2001	2/4/2002 ongoing ongoing ongoing ongoing	Low Levels Proximity to Station S
Location Q	Barclay St & West St	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	9/24/2001	ongoing	
Location R	Stuyvesant High School - North Side	Total particulates Dioxins (2)/PCBs PAHs Metals Silica	~ 8 hours/day 8 hour sample twice per week	No. Onsite Dataram EPA Contracted Lab	10/23/2001 9/22/2001 1/17/2001 9/26/2001 10/17/2001	ongoing ongoing ongoing ongoing ongoing	Note - Station replaced Station M

**WTC- EPA Time-Weighted Routine Air Quality Sampling at Fixed Stations**

Site Name	Site Location	Analytical Parameters	Sampling Frequency	Laboratory Required?	**S-Date	**E-Date	Reason Dropped
Location S	Rector Pl & South End Ave	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	9/25/2001	ongoing	
		Dioxins (2)/PCBs	8 hour sample twice per week		9/22/2001	ongoing	
		PAHs			11/11/2001	ongoing	
		Metals Silica			9/22/2001	ongoing	
Location T	Pier 6 Heliport	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	10/12/2001	2/6/2002	NYC stoppage of Pier 6 barge operations
Location U	Pier 6, Exit 2	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	10/12/2001	4/21/2002	Repetitive vandalization of equipment + Pier 6 ops stopped
Location V	Pier 6, Bus Sign	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	10/12/2001	4/21/2002	Repetitive vandalization of equipment + Pier 6 ops stopped
Location W	Wash Tent, West Street & Murray	Asbestos	2 - 12 hour samples daily	EPA Contracted Lab	11/17/2001	ongoing	
WTC - Building 5 SW	AKA, Location 3A (formerly known as Austin Tobin Plaza)	Dioxins (2)/PCBs	8 hour sample twice per week	EPA Contracted Lab	9/22/2001	ongoing	
		PAHs			11/12/2001	ongoing	
		Metals Silica			9/22/2001	ongoing	
S.I. Landfill Sites	17 Landfill Sites + 3 offsite locations	Asbestos	1 - 12 hour sample daily	EPA Contracted Lab	9/19/2001	ongoing	Locations 9 & 10 dropped on 11/26/01 when OSHA assumed personnel safety monitoring in these siting areas. Location 11 dropped on 2/26/02 when area operations terminated.
		Total particulates	12 hour sample daily when temp. & humidity specs are met.	No. Onsite Dataram equipment monitors and generates data onsite.	9/19/2001	ongoing	
	2 Landfill Sites + 3 Offsite Locations	Metals	1 - 12 hour sample weekly	EPA Contracted Lab	12/2/2001	ongoing	

**WTC-EPA Time-Weighted Routine Air Quality Sampling at Fixed Stations**

Site Name	Site Location	Analytical Parameters	Sampling Frequency	Laboratory Required?	**S-Date	**E-Date	Reason Dropped
<b>Extended Monitoring Network- NYSDEC Air Monitoring Stations</b>							
1	Park Row & Spruce Street, NY, NY	Asbestos	12 hour sample daily	EPA Contracted Lab, NYSDEC Sample collection	9/29/2001	ongoing	
		Dioxin (1)	72 hour sample every 3 days	EPA Region 7 Lab	10/15/2001	ongoing	
		VOC's	24 hr. sample every 3rd day	EPA/ORD Lab	2/13/2002	ongoing	
		Aldehydes	24 hr. sample every 3rd day	NYSDOH Lab	12/21/2001	ongoing	
		PM Speciation	24 hr. sample every 3rd day	EPA Contracted Lab, NYSDEC Sample Collection	12/21/2001	ongoing	
		PM Sizing	continuous-by NYSDEC	Climet	1/5/2002	ongoing	
2	Chambers St. & West St, NY, NY	PM10, PM2.5	continuous- by NYSDEC	PM 2.5 TEOM/PM10 filter	10/2/2001	ongoing	
		Asbestos	12 hour sample daily	EPA Contracted Lab, NYSDEC Sample collection	9/29/2001	ongoing	
		Dioxin (1)	72 hour sample every 3 days	EPA Region 7 Lab	10/15/2001	ongoing	
		VOC's	24 hr. sample every 3rd day	EPA/ORD Lab	2/13/2002	ongoing	
		Aldehydes	24 hr. sample every 3rd day	NYSDOH Lab	1/17/2002	ongoing	
		PM Speciation	24 hr. sample every 3rd day	EPA Contracted Lab, NYSDEC Sample Collection	12/21/2001	ongoing	
3	U.S. Coast Guard, 1 South Street, NY, NY (Battery Pk)	PM Sizing	continuous-by NYSDEC	Climet	1/5/2002	ongoing	
		PM10, PM2.5, PM10	continuous- by NYSDEC	PM 2.5 TEOM/PM10 filter	10/2/2001	ongoing	
		Asbestos	12 hour sample daily	EPA Contracted Lab, NYSDEC Sample collection	10/1/2001	12/22/2001	Interim site, had consistently low values
4	Canal Street Post Office, 350 Canal Street, NY NY	PM10, PM2.5	continuous- by NYSDEC	PM 2.5 TEOM/PM10 filter	10/2/2001	12/23/2001	
		Asbestos	12 hour sample daily	EPA Contracted Lab, NYSDEC Sample collection	9/29/2001	12/3/2001	Consistently low values
			24 hour sample daily- by NYSDEC	PM 2.5 filter/PM10 filter	pre-9/11	ongoing	

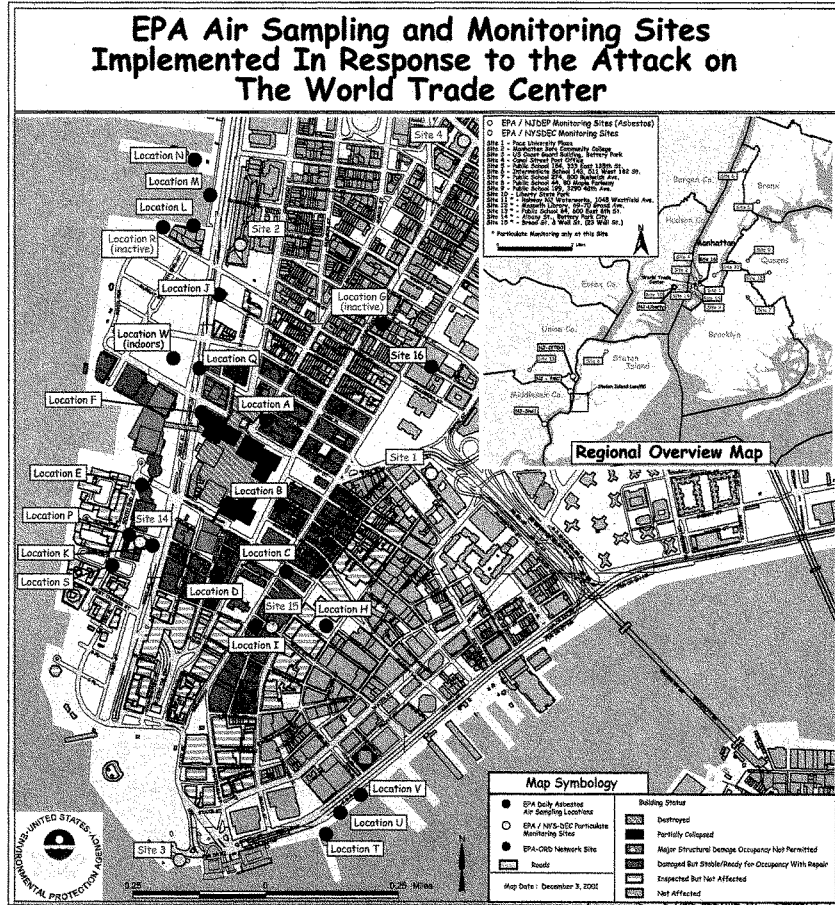
**WTC- EPA Time-Weighted Routine Air Quality Sampling at Fixed Stations**

Site Name	Site Location	Analytical Parameters	Sampling Frequency	Laboratory Required?	**S-Date	**E-Date	Reason Dropped
5	PS 154, 333 East 35th Street, Bronx, NY 10454	PM2.5 Asbestos	continuous-by NYSDEC 12 hour sample daily	PM 2.5 TEOM EPA Contracted Lab, NYSDEC Sample collection	pre-9/11 10/1/2001	ongoing ongoing	
6	JS 143, 511 West 182nd Street NY, NY 10033	PM2.5 Asbestos	continuous-by NYSDEC 12 hour sample daily	PM 2.5 TEOM EPA Contracted Lab, NYSDEC Sample collection	pre-9/11 10/1/2001	ongoing ongoing	
7	PS 274, 800 Bushwick Ave, Brooklyn, NY 11221	PM2.5 Asbestos	continuous-by NYSDEC 12 hour sample daily	PM 2.5 TEOM, PM10 filter EPA Contracted Lab, NYSDEC Sample collection	pre-9/11 10/1/2001	ongoing ongoing	
8	PS 44, 80 Maple Parkway, Staten Island, NY 10303	PM2.5 Asbestos	continuous-by NYSDEC 12 hour sample daily	PM 2.5 TEOM EPA Contracted Lab, NYSDEC Sample collection	pre-9/11 10/3/2001	ongoing ongoing	
9	PS 199, 35-20 48th Ave, Long Island City, NY 11104	PM2.5 Asbestos	continuous-by NYSDEC 12 hour sample daily	PM 2.5 TEOM EPA Contracted Lab, NYSDEC Sample collection	pre-9/11 10/2/2001	ongoing ongoing	
<b>Extended Monitoring Network- NJDEP Air Monitoring Stations</b>							
NJ-Shell	West Avenue, Sewaren, NJ	Asbestos	1 - 12 hour sample on Mon. and Thurs.	EPA Contracted Lab, Contractor shuttle service	9/19/2001	12/10/2001	No exceedances.
NJ-Citgo	Tremly Point Road, Linden, NJ	Asbestos	1 - 12 hour sample on Mon. and Thurs.	EPA Contracted Lab, Contractor shuttle service	9/19/2001	12/10/2001	No exceedances.
NJ-FMC	Roosevelt Blvd., Cartaret, NJ	Asbestos	1 - 12 hour sample on Mon. and Thurs.	EPA Contracted Lab, Contractor shuttle service	9/19/2001	12/10/2001	No exceedances.
NJ-Liberty	Liberty State Park, @ WTC Disaster Family Center	Asbestos	1 - 12 hour sample on Mon. and Thurs.	EPA Contracted Lab, Contractor shuttle service	9/19/2001	12/10/2001	No exceedances. 4

**WTC- EPA Time-Weighted Routine Air Quality Sampling at Fixed Stations**

Site Name	Site Location	Analytical Parameters	Sampling Frequency	Laboratory Required?	**S-Date	**E-Date	Reason Dropped
<b>Extended Monitoring Network- EPA/ORD Air Monitoring Stations</b>							
14	Albany & West St NY, NY	Dioxin (1)	72 hour sample every 3 days	EPA Region 7 Lab	10/1/2001	ongoing	
		PM Speciation	24 hr. sample every 3rd day	EPA contracted Lab	12/21/2001	ongoing	
		PM Sizing	Continuous-by NYSDEC	NYSDEC Sample Collection	1/5/2002	ongoing	
		PM10, PM2.5	continuous-by NYSDEC	Climate PM2.5&PM10 TEOM/ PM10 filter	12/24/2001	ongoing	
15	23 Wall Street, NY, NY	PM10, PM2.5	continuous-by ZNYSDEC	PM2.5&PM10 TEOM/ PM10 filter	11/17/2001	ongoing	
		Aldehydes	24 hr. sample every 3rd day	NYSDOH Lab	12/24/2001	ongoing	
		VOC's	24 hr. sample every 3rd day	EPA/ORD Lab	2/13/2002	ongoing	
		PAHs & SVOCs	12 & 23 hour samples	NYSDEC Sample collection EPA/ORD Lab	9/26/2001	10/21/2001	Interim sampling only
16	290 Broadway NY, NY	Particulates*	continuous	EPA/ORD Lab	9/22/2001	ongoing	
		<p><b>DIOXIN Notes:</b> Dioxin (1) samples are collected by DESA Region 2 EPA personnel and analyzed by Region 7.                      Dioxin (2) samples are collected by ERRD Region 2 EPA personnel and analyzed by EPA Contract Lab.</p> <p>* In addition to 24 hour daily samples for PM2.5, metals and elemental/organic carbon measured on 24-hr daily samples in combination with continuous PM measurements currently conducted by EPA/ORD contractor (Mantech)</p>					





**U.S. Environmental Protection Agency (EPA)  
WTC Daily Summary  
Wednesday, September 12, 2001**

**Most Recent Results (as of 9/11)**

**Dust Samples**

EPA's emergency response team was on-site at the World Trade Center disaster site shortly after the collapse of Towers 1 and 2. The team took four samples of dust in the immediate vicinity of the debris pile, and analyzed them for lead and asbestos. All four samples contained lead concentrations that were well below EPA's lead action levels – levels at which EPA would recommend some type of remediation. One of the dust samples contained no detectable levels of asbestos. Two samples contained less than 1% asbestos – the level used define asbestos-containing material. One sample contained 4.5% asbestos – a potential concern to emergency response workers. EPA has advised that people involved in the search and rescue effort wear protective equipment – particularly appropriate masks – to reduce their exposure to the dust.

**Air: Non-Fixed Samples in Brooklyn and New Jersey**

Four air samples were collected in Brooklyn because the prevailing winds are blowing in an easterly direction. The samples were analyzed for volatile organic compounds (VOCs), lead and asbestos. None of the samples had detectable levels of lead. Asbestos was not detected in two samples, and the other two had levels of asbestos that were well below EPA's threshold level of concern. Two samples had no detectable levels of VOCs, and two had very low levels of the VOC compounds of benzene-toluene-ethylene-xylene (BTEX). The levels of BTEX identified were below EPA's threshold of concern.

EPA also obtained four air samples from Liberty State Park in New Jersey, across the Hudson River from the World Trade Center. Neither asbestos nor lead were detected in any of the samples. Two of the samples contained some toluene (a VOC), which probably originated from automobile exhaust or gasoline generators being used near the sample collection locations.

EPA Air Sampling Event - WTC Response Activities  
September 11 - 15, 2001

MAP ID	SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS	RESULTS	SAMPLE POINT FOR AERIN	GENERAL USE AERIN	SAMPLE TEAM	STATUS
1	00177	Sept 12, 2001	Air	PM10	None Detected	East St. - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00183	Sept 12, 2001	Air	PM10	None Detected	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00218	Sept 12, 2001	Air	PM10	None Detected	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00229	Sept 12, 2001	Air	PM10	None Detected	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00343	Sept 12, 2001	Air	PM10	PM10 Particulate Matter	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00352	Sept 12, 2001	Air	PM10	None Detected	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00368	Sept 12, 2001	Air	PM10	None Detected	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00427	Sept 12, 2001	Air	PM10	None Detected	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00430	Sept 12, 2001	Air	PM10	None Detected	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00439	Sept 12, 2001	Air	PM10	None Detected	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00446	Sept 12, 2001	Air	PM10	None Detected	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00448	Sept 12, 2001	Air	PM10	None Detected	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00449	Sept 12, 2001	Air	PM10	None Detected	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent
1	00524	Sept 12, 2001	Air	PM10	None Detected	Manhattan - 1st St. - 5th St.	Lower Manhattan	Health Physics / Response / Contamination / RI / M	Adherent

not received. See September 29, 2001 (15 Sept01) for WTC ActivitySample\_11a summary table because AirWire spot aircomp event summary through 15 Sept01

NYER Asbestos Samples Results			Asbestos Concentration		IR Screening method		TEM
Date Sampled	Sample Number	Sample Location	Matrix	P.M.	% Type		
9/12/01 0.00	00930	NYSC-Comp	Dust	ND		No	
9/12/01 0.00	00931	REM	Dust	ND		Yes	
9/12/01 0.00	00932	Congress	Dust	< 1% Chrysotile		No	
9/12/01 0.00	00933	Deghen-car	Dust	ND		Yes	
9/12/01 0.00	00934	Deghen-rod	Dust	0.5% Chrysotile		Yes	
9/12/01 0.00	00921	NYSC-Pole1	Vacuum				ND
9/12/01 0.00	00922	NYSC-walkwa	Vacuum				ND
9/12/01 0.00	00923	Cran1-Ledge	Vacuum				ND
9/12/01 0.00	00924	Cran2-Truck	Vacuum				ND
9/12/01 0.00	00925	REM	Vacuum				ND
9/12/01 0.00	00926	REM-Honda	Vacuum				ND
9/12/01 0.00	00927	Congress	Vacuum				ND
9/12/01 0.00	00928	Deghen-accura	Vacuum				ND
9/12/01 0.00	00929	Deghen-accura	Vacuum				ND
9/12/01 0.00	00593	Field Blank	Vacuum				ND
9/12/01 0.00	00594	Lot Blank	Vacuum				ND
9/12/01 0.00	00595	Trip Blank	Vacuum				ND
9/12/01 0.00	00771	#4 Bulk	Dust	<1% Chrysotile		Yes	
9/12/01 0.00	00772	#5 Bulk	Dust	<1% Chrysotile		Yes	
9/12/01 0.00	00773	#6 Bulk	Dust	<1% Chrysotile, <1% Amosite		Yes	
9/12/01 0.00	00774	#7 Bulk	Dust	<1% Chrysotile, <1% Amosite		No	
9/12/01 0.00	00775	#1 Bulk	Dust	<1% Chrysotile		Yes	
9/12/01 0.00	00776	#4 Bulk	Dust	<1% Chrysotile		Yes	
9/12/01 0.00	00854	#2 Bulk	Dust	<1% Chrysotile, <1% Amosite		No	
9/12/01 0.00	00777	Loc# 1	Air				ND
9/12/01 0.00	00853	Loc# 2	Air				ND
9/12/01 0.00	00778	Loc# 3	Air				ND
9/12/01 0.00	00779	Loc# 4	Air				ND
9/12/01 0.00	00780	Loc# 4 Dup	Air				ND
9/12/01 0.00	00851	Loc# 5	Air				ND
9/12/01 0.00	00852	Loc# 6	Air				ND
9/12/01 0.00	00835	Trip Blank	Air				ND
9/12/01 0.00	00836	Lot Blank	Air				ND

ND - Nondetect, Vacuum - Dust sample collected using Microvacuum

EPA Air Sampling Events - WTC Response Activities  
September 11 - 15, 2001

WTP ID	SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS	RESULTS	SAMPLE POINTS FOR AERON	CFM/HR FOR AERON	SAMPLE PLUM	ANALYTE
1	00277	Sept 12, 2001	Air	HBM	None Detected	Box St - Bronx St	Lowest Emission	Boxing - Electric - Inman St / Occident St RI AC	Adaptive
3	00833	Sept 12, 2001	Air	HBM	None Detected	Clinton St - Church St	Lowest Emission	Stuyvesant - Electric - Inman St / Occident St RI AC	Adaptive
5	00178	Sept 12, 2001	Air	HBM	None Detected	Greenwich St - Canal St	Lowest Emission	Greenwich - Electric - Inman St / Occident St RI AC	Adaptive
6	00179	Sept 12, 2001	Air	HBM	None Detected	Greenwich St - Canal St	Lowest Emission	Greenwich - Electric - Inman St / Occident St RI AC	Adaptive
8	00851	Sept 12, 2001	Air	HBM	None Detected	Greenwich St - Canal St	Lowest Emission	Greenwich - Electric - Inman St / Occident St RI AC	Adaptive
10	00852	Sept 12, 2001	Air	HBM	None Detected	Greenwich St - Canal St	Lowest Emission	Greenwich - Electric - Inman St / Occident St RI AC	Adaptive
12	00908	Sept 13, 2001	Air	HBM	None Detected	Greenwich St - Canal St	Lowest Emission	Greenwich - Electric - Inman St / Occident St RI AC	Adaptive
14	00917	Sept 13, 2001	Air	HBM	None Detected	Greenwich St - Canal St	Lowest Emission	Greenwich - Electric - Inman St / Occident St RI AC	Adaptive
16	00910	Sept 13, 2001	Air	HBM	None Detected	Greenwich St - Canal St	Lowest Emission	Greenwich - Electric - Inman St / Occident St RI AC	Adaptive
18	00909	Sept 13, 2001	Air	HBM	None Detected	Greenwich St - Canal St	Lowest Emission	Greenwich - Electric - Inman St / Occident St RI AC	Adaptive
20	00916	Sept 13, 2001	Air	HBM	None Detected	Greenwich St - Canal St	Lowest Emission	Greenwich - Electric - Inman St / Occident St RI AC	Adaptive
22	00918	Sept 13, 2001	Air	HBM	None Detected	Greenwich St - Canal St	Lowest Emission	Greenwich - Electric - Inman St / Occident St RI AC	Adaptive
24	00919	Sept 13, 2001	Air	HBM	None Detected	Greenwich St - Canal St	Lowest Emission	Greenwich - Electric - Inman St / Occident St RI AC	Adaptive
26	00921	Sept 13, 2001	Air	HBM	None Detected	Greenwich St - Canal St	Lowest Emission	Greenwich - Electric - Inman St / Occident St RI AC	Adaptive

EPA Air Sampling Events - WTC Response Activities  
September 11 - 15, 2001

MAP ID	SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS	RESULTS	SAMPLE POINT LOCATIONS	GENERAL JOB AIDS	SAMPLE TEAM	ANALYST
1	00771	Sept 12, 2001	Air	HEC	None Detected	Des. St. / Transit St.	Lower Manhattan	Samuel F. Perez / Josemar / Custodio / REAC	Adelstein
2	00853	Sept 12, 2001	Air	HEC	None Detected	Rivers St. / Church St.	Lower Manhattan	Samuel F. Perez / Josemar / Custodio / REAC	Adelstein
3	00778	Sept 12, 2001	Air	HEC	None Detected	Greenwich St. / Canal St.	Lower Manhattan	Samuel F. Perez / Josemar / Custodio / REAC	Adelstein
4	00779	Sept 12, 2001	Air	HEC	None Detected	West St. / West of West St. / I-95	Lower Manhattan	Samuel F. Perez / Josemar / Custodio / REAC	Adelstein
5	00851	Sept 12, 2001	Air	HEC	UNDETECTABLE	West Side Hwy. / Transit St.	Lower Manhattan	Samuel F. Perez / Josemar / Custodio / REAC	Adelstein
6	00852	Sept 12, 2001	Air	HEC	None Detected	Park St. / St. Nicholas	Lower Manhattan	Samuel F. Perez / Josemar / Custodio / REAC	Adelstein
7	00108	Sept 11, 2001	Air	HEC	None Detected	Children St. / 14th Street / Hudson	Brooklyn	Charles K. Martyn / Custodio / REAC	Adelstein
8	00109	Sept 11, 2001	Air	HEC	None Detected	Remond St. / Brooklyn / Dumont	Brooklyn	Charles K. Martyn / Custodio / REAC	Adelstein
9	00110	Sept 11, 2001	Air	HEC	None Detected	NYSC - 14th St. / Court St. / Manhattan St.	Brooklyn	Charles K. Martyn / Custodio / REAC	Adelstein
10	00109	Sept 11, 2001	Air	HEC	None Detected	Convent St. / 14th Street / Dumont	Brooklyn	Charles K. Martyn / Custodio / REAC	Adelstein
11	00110	Sept 11, 2001	Air	HEC	None Detected	Remond St. / Brooklyn / Dumont	Brooklyn	Charles K. Martyn / Custodio / REAC	Adelstein
12	00111	Sept 11, 2001	Air	HEC	None Detected	Lockport at the Canal - Liberty Park	Queens Cts.	Perez / Sambo / REAC	Adelstein
13	00112	Sept 11, 2001	Air	HEC	None Detected	Lockport at WTC - Liberty Park	Queens Cts.	Perez / Sambo / REAC	Adelstein
14	00113	Sept 11, 2001	Air	HEC	None Detected	14 Ave. Plaza / 14th Street / community	Queens Cts.	Perez / Sambo / REAC	Adelstein

**U.S. Environmental Protection Agency (EPA)  
WTC Daily Summary  
Thursday, September 13, 2001**

**Most Recent Results (as of 9/12)**

**Dust Samples**

EPA collected seven dust samples in the vicinity of ground zero and analyzed them for asbestos. All contained less than 1% asbestos, the level used to define asbestos-containing material. Five dust samples were also collected in South Brooklyn and Brooklyn Heights. All contained less than 1% asbestos.

**Air: Non-Fixed Samples in Manhattan and Brooklyn**

Nine air samples were collected in and around the hot zone. Asbestos was not detected in any of the samples. Twelve air samples taken in Brooklyn were also non-detect for asbestos.

Sample #	Location	Mat'r x	Lead Conc	Asbestos	Total VOCs, ppbv
111981	Corner of Greenwich & Warren St NYC	Dust	120 mg/Kg	< 1% Chrysotile	NA
111980	Corner of Reade & Hudson St NYC	Dust	250 mg/Kg	< 1% Chrysotile	NA
111979	Corner of Murray St & West Side NYC	Dust	200 mg/Kg	4.49% Chrysotile	NA
111978	Corner of West Broadway & Warren NYC	Dust	170 mg/Kg	None Detected	NA
307/561	Remsen St @ Promenade Brooklyn	Air	ND	0.0048 Sicc Chrysotile	42*
562	Remsen St @ Promenade Brooklyn	Air	ND	0.0048 Sicc Chrysotile	NA
308/563	Granberry St @ Columbia Brooklyn	Air	ND	None Detected	ND
309/564	Congress St @ Columbia Brooklyn	Air	ND	0.0048 Sicc Chrysotile	ND
310/565	Court St @ Montague Brooklyn	Air	ND	None Detected	10
416/667/668	near Command Center Liberty Park	Air	ND	None Detected	0.6J
417/665/666	near Command Center Liberty Park	Air	ND	None Detected	0.6J
418/661/664	looking at Ellis Island Liberty Park	Air	ND	None Detected	0.6J
419/664/663	looking at World Trade Center Liberty Park	Air	ND	None Detected	ND

Action Level

OSHA  
1 fiber/m<sup>3</sup>

Detection bands  
1 cc  
1 cc  
1 cc

9/11/01

\* 3 ppb toluene, 7 ppb benzene, 1 ppb ethylbenzene, 3 ppb styrene, 1 ppb m & p xylene, 3 ppb chloroethane  
5 ppb trichlorofluoromethane, 19 ppb non target freon compounds



EPA Air Sampling Event - WTC Response Activities  
September 11 - 15, 2001

WTC ID	SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS	RESULTS	SAMPLE POINT FOR AEROS	GENERAL LOCATION	SAMPLE TEAM	STATUS
1	00727	Sept 12, 2001	Air	HBM	None Detected	District, Times Sq	Times Square	Health Physics/Injury/Contamination/RF/VI	Adherent
1	00733	Sept 12, 2001	Air	HBM	None Detected	Manhattan, St. Patrick St	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent
3	00736	Sept 12, 2001	Air	HBM	None Detected	Greenwich St, York St	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent
6	00729	Sept 12, 2001	Air	HBM	None Detected	West St, West of West Side Hwy	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent
8	00754	Sept 12, 2001	Air	HBM	None Detected	St. Nat. Hwy, Avenue N	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent
10	00752	Sept 12, 2001	Air	HBM	None Detected	Park Pl, W. Broadway	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent
17	00708	Sept 12, 2001	Air	HBM	None Detected	Madison St, Columbus Hospital	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent
18	00707	Sept 12, 2001	Air	HBM	None Detected	Madison St, West Broadway	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent
19	00710	Sept 12, 2001	Air	HBM	None Detected	West St, West of West Side Hwy	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent
20	00709	Sept 12, 2001	Air	HBM	None Detected	Greenwich St, Columbus Hospital	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent
21	00716	Sept 12, 2001	Air	HBM	None Detected	West St, West of West Side Hwy	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent
26	00718	Sept 12, 2001	Air	HBM	None Detected	Madison St, Columbus Hospital	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent
33	00719	Sept 12, 2001	Air	HBM	None Detected	West St, West of West Side Hwy	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent
37	00721	Sept 12, 2001	Air	HBM	None Detected	West St, West of West Side Hwy	Manhattan	Health Physics/Injury/Contamination/RF/VI	Adherent

not Revised - Sat, September 29, 2001 11:59am  
file: C:\1 - WTC - Activities\Sample\_Data\summary tables\Adherent\_Air\wtc\_091618\_0901.rpt

**U.S. Environmental Protection Agency (EPA)  
WTC Daily Summary  
Friday, September 14, 2001**

**Most Recent Results (as of 7:00 p.m., 9/13)**

**Indoor Air Samples**

EPA's Thursday sampling focused on indoor air quality in several buildings in the area of the World Trade Center. With plans to open some buildings for business soon, the Agency will determine if there is any asbestos present that might pose a risk to workers.

EPA took 13 indoor air samples for asbestos at the Federal Buildings at 26 Federal Plaza (Broadway between Duane and Worth Streets) and 290 Broadway (Broadway between Duane and Reade Streets). These buildings are likely to be good indicators of asbestos levels in sound buildings in the area of the disaster. All of the asbestos levels were below the OSHA exposure limit of 0.1 fibers per cubic centimeter.

In addition, EPA took an outdoor air sample at One Chase Plaza (between Pine, Liberty, Nassau and Williams Streets). The asbestos concentration was also well below the threshold of concern.

**Sampling Plans**

Today, EPA emergency response teams are in the area of the disaster conducting additional sampling activities including:

- Establishing nine permanent air monitoring stations as close to ground zero as safety precautions will allow and in business and residential areas below Canal Street. The stations will collect data on asbestos, volatile organic compounds (VOCs), lead and PCBs.
- Collecting air samples, which will be tested on-site for VOCs using a highly sophisticated mobile testing unit called the TAGA (Trace Atmospheric Gas Analyzer). The TAGA is similar to a unit used during the Gulf War to sample emissions from the oil fires in Kuwait.
- Sampling dust for asbestos, PCBs, lead and polycyclic aromatic hydrocarbons (PAHs) in the Wall Street area.
- Taking water quality samples from the Hudson River.

EPA will also be coordinating additional weekend air monitoring with New York City and New York State.

**Press Information  
Friday, September 14**

**Thursday, September 13 Air Sampling Results**

EPA's Thursday sampling focused on indoor air quality in several buildings in the area of the World Trade Center. With plans to open some buildings for business soon, the Agency is trying to determine if there is any asbestos present that might pose a risk to workers.

EPA took 13 indoor air samples for asbestos at the Federal Buildings at 26 Federal Plaza (Broadway between Duane and Worth) and 290 Broadway (Broadway between Duane and Reade Streets). These buildings are likely to be good indicators of asbestos levels in sound buildings in the area of the disaster. All of the asbestos levels were below the OSHA exposure limit of 0.1 fibers per cubic centimeter.

In addition, EPA also took an outdoor air sample at One Chase Plaza (between Pine, Liberty, Nassau and Williams Streets). The asbestos concentration was also well below the threshold of concern.

**Sampling Plans**

Today, EPA emergency response teams are in the area of the disaster conducting additional sampling activities including:

- Establishing 6 permanent air monitoring stations as close to ground zero as safety precautions will allow and in business and residential areas below Canal Street. The stations will collect data on asbestos, volatile organic compounds (VOCs), lead and PCBs.
- Collecting air samples, which will be tested on-site for VOCs, using a highly sophisticated mobile testing unit called the TAGA (Trace Atmospheric Gas Analyzer). The TAGA is similar to a unit used during the Gulf War to sample emissions from the oil fires in Kuwait.
- Sampling dust for asbestos, PCBs, lead and polycyclic aromatic hydrocarbons (PAHs) in the Wall Street area.
- Taking water quality samples from the Hudson River.

EPA will also be coordinating additional weekend air monitoring with New York City and New York State.

NYC Response  
Asbestos Analysis Results

Date	Sample No.	Sampling Location	Matrix	PLM Results	TEM Results fibers/cc	IR (Results)	Comments
9/13/01	16370	26 Fed-13th Floor	Air		0.0064		Chrysotile asbestos
9/13/01	16371	26 Fed-13th Floor	Air		<0.0033		
9/13/01	16372	26 Fed-Lobby South	Air		0.0072		Chrysotile asbestos
9/13/01	16373	26 Fed-Lobby West	Air		0.0037		
9/13/01	16374	26 Fed-39th Floor	Air		<0.0038		
9/13/01	16375	26 Fed-38th Floor	Air		<0.0039		
9/13/01	16376	26 Fed-26th Floor	Air		<0.0038		
9/13/01	27490	290 Bway-8th Floor	Air		0.0042		
9/13/01	27491	290 Bway-Lobby	Air		<0.0043		
9/13/01	27492	290 Bway-22 Fl N	Air		<0.0041		
9/13/01	27493	290 Bway-22 Fl S	Air		0.004		Chrysotile asbestos
9/13/01	27494	290 Bway-L-1	Air		0.0133		Chrysotile asbestos
9/13/01	27495	290 Bway-L-2	Air		0.0044		Chrysotile asbestos
9/13/01	571	One Chase Plaza	Air		0.0098		Chrysotile asbestos
TEM	Transmission Electron Microscopy						

**U.S. Environmental Protection Agency (EPA)  
WTC Daily Summary  
Saturday, September 15, 2001**

**Most Recent Results (as of 7:00 p.m., 9/14)**

**Air: Fixed Monitors in New York City**

EPA has established nine permanent air monitoring stations in and around ground zero. These monitors are taking samples in 12-hour intervals and are being tested for asbestos. Samples have been sent to a lab, and results are expected late morning. EPA is in the process of establishing two more monitoring stations.

**Air: Non-Fixed Samples in New York City**

EPA's TAGA unit (Trace Atmospheric Gas Analyzer) has been in operation since last night. EPA is using the unit to take air samples throughout the area and analyze for VOCs. Results from today's sampling are expected tonight or tomorrow.

**Dust Samples**

EPA collected dust samples from the financial district yesterday. Levels of asbestos in these samples were low. In fact, none of the samples met EPA's definition of asbestos-containing material - material containing more than 1% asbestos fibers. EPA will continue to collect dust from the financial district and will analyze this dust for asbestos, lead and polycyclic aromatic hydrocarbons (PAHs).

**Ambient Water Sampling**

EPA took a sample of the Hudson River just off Vesey Street at a storm drain that would have carried storm water from the ground zero site during yesterday's rain. This sample is being analyzed for a number of contaminants, including metals, PCBs, dioxin, and polybrominated biphenyls. Results are expected early next week. Results on the organic chemicals depend on an outside lab.

**Drinking Water Samples**

EPA will join the city to sample the drinking water distribution system below 14<sup>th</sup> Street. These samples are being taken at routine sampling sites and will be analyzed for normal drinking water parameters - both chemical and biological. The New York City Department of Environmental Protection (NYCDEP) will split the samples with EPA for their own analysis.

**Sewage Treatment Plant Samples**

EPA is taking samples at three locations at Newtown Creek Wastewater Treatment Plant, which is the recipient of wastewater from lower Manhattan. The samples will be analyzed for a number of contaminants including many of those tested for in the Hudson (see above). Also, the samples are being analyzed for total suspended solids and biochemical oxygen demand, which are common indicators of how well a waste water treatment plant is operating. Samples will also be analyzed for asbestos. Results are expected next week. These samples will be compared to the Hudson River sample and will ensure that the plant is handling the storm water from lower Manhattan.

**Ongoing Activity**

EPA has 10 HEPA filter SUPERVAC vacuum trucks, each with a 3,000 gallon capacity, which are assisting the city in cleaning the streets in the financial district. Dust and other materials vacuumed will be kept in air-tight containers and disposed of properly. Today, EPA continued its vacuuming activities in the financial district. The city has asked EPA to make one truck available to vacuum large debris or cars pulled from ground zero.

**Press information**  
**Saturday, September 15**

**Today/Ongoing:**

EPA has 10 HEPA filter vacuum trucks with a 3,000 gallon capacity assisting the city in cleaning the streets in the financial district. Dust and other materials vacuumed will be kept in air tight containers and disposed of properly.

EPA established 9 permanent air monitoring stations in and around ground zero. These monitors are taking samples in 12 hour intervals that are being tested for asbestos. Samples have been sent to a lab, and results are expected late morning. EPA is establishing 2 more monitoring stations.

EPA collected dust samples from the financial district yesterday. Levels of asbestos in these samples were low. In fact, none of the samples met EPA's definition of asbestos containing material – material containing more than 1% asbestos fibers.

EPA's TAGA unit, a sophisticated mobile sampler used to look for volatile organic compounds (VOCs) in the area near ground zero has been operating since last night. EPA is using the unit to take air samples throughout the area and analyze for VOCs. Results from today's sampling are expected tonight or tomorrow.

EPA took a sample of the Hudson River just off Vesey Street at a storm drain that would have carried storm water from the ground zero site during yesterday's rain. This sample is being analyzed for a number of contaminants, including metals, PCBs, Dioxin, and polybrominated biphenyls. Results are expected early next week. Results on the organic chemicals depend on an outside lab.

**Sampling Plans For Future**

Today, EPA will continue its vacuuming activities in the financial district. The city has asked EPA to make one truck available to vacuum large debris or cars pulled from ground zero.

EPA is also continuing sampling from its 9 permanent air monitors in and near around ground zero. In addition to asbestos, these samples will be tested for VOCs, PCBs and lead –MAYBE DIOXIN?

EPA will also continue to collect dust from the financial district and will analyze this dust for asbestos, lead and polycyclic aromatic hydrocarbons (PAHs).

EPA will join the city to sample the drinking water distribution system below 14<sup>th</sup> Street. These samples are being taken at routine sampling sites and will be analyzed for normal drinking water parameters - both chemical and biological. The city DEP will split the samples with EPA for their own analysis.

EPA is taking samples at three locations at Newtown Creek Wastewater Treatment Plant. The samples, which will be analyzed for a number of contaminants including all those tested for in the Hudson (see above) with the exception of PPBs. Also, the samples will be tested for total suspended solids and biological oxygen demand, which are common to gauge how well a waste water treatment plant is operating, as well as asbestos. These samples will be compared to the Hudson River sample and will ensure that the plant is handling the storm water from lower manhattan.



## Samples Taken So Far:

## Samples From Air Monitors in and Around "Ground Zero"

- ☐ 57 samples taken (in 6 12-hour cycles) **31 were analyzed** (26 could not be analyzed because the filters became clogged)
- ☐ Out of 31 analyzed - 6 were marginally above the 70 structures per millimeter squared that we use to clear schools after asbestos removal under AHERA.
- ☐ Four samples taken for mercury. All non-detects.

## Samples of Dust:

- ☐ Out of a total of 83 dust samples taken to date, 20 were over the 1% limit for EPA's definition of asbestos containing material.

## Drinking Water:

- ☐ 13 samples of drinking water were taken throughout the lower manhattan distribution system (in the water mains). A few results are not in (radionuclides, PCBs and haloacetic acids), but for all other chemical and biological parameters, results show that every sample meets drinking water standards.

## Hudson River:

- ☐ 1 sample, taken near storm drain draining from ground zero. Results pending.

## Sediments:

- ☐ 3 samples collected from surface of sediment that was dredged to allow access for barges. Results pending. Preliminary results show PCB levels at between .630 and 1.2 ppm. This compares with about 1ppm in the NY harbor area.

100-27-2001 17:27

F. 05/05

100-27-2001 17:27

NYC Response 5/11/01  
 Asbestos Bulk Sample Analysis Results

Date	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	TEM Results Acc	TEM Results f/min	Comments
8/14/2001	06326	Christie's Malls, 65 Wall Street	Dust	<1 Chrysotile			
8/14/2001	06327	Corner of New and Exchange	Dust	<1 Chrysotile			
8/14/2001	06328	Wall Street and Pearl	Dust	<1 Chrysotile			
8/14/2001	06329	Pearl and Cedar	Dust	<1 Chrysotile			
8/14/2001	06330	Liberty and William	Dust	<1 Chrysotile			
8/14/2001	06331	Trump Building (Pine Street)	Dust	<1 Chrysotile			
8/14/2001	06332	15 Nassau Street	Dust	<1 Chrysotile			
8/14/2001	06333	59 Nassau Street	Dust	<1 Chrysotile			
8/14/2001	06334	Corner of Fulton and Nassau	Dust	<1 Chrysotile			
8/14/2001	06335	Corner of Nassau and Broadway	Dust	<1 Chrysotile			
8/14/2001	06336	Finley Street, Corner of Nassau and William	Dust	<1 Chrysotile			
8/14/2001	06337	Ann. and Park Row	Dust	<1 Chrysotile			

NYC  
 5/11/01

same as above  
 No. 22

**U.S. Environmental Protection Agency (EPA)  
WTC Daily Summary  
Sunday, September 16, 2001**

**Most Recent Results (as of 7:00 p.m. 9/15)**

**Air: Fixed Monitors in New York City**

Air samples taken from nine permanent air monitors in and around ground zero were, for the most part, below background levels. One sample, taken from the "hot zone" – an area accessed only by response workers – was above EPA's very protective standard of 70 structures of asbestos per square millimeter. This standard is used to determine whether children may re-enter school buildings after asbestos removals. While the level found in the sample was not considered high, EPA continues to advise personal protective equipment for the emergency response workers.

**Dust Samples**

Twenty-nine dust samples taken from the area immediately surrounding ground zero west of Broadway, were analyzed for asbestos content. Of the 29, 13 samples had slightly greater than 1% asbestos content, which is the level used to define asbestos-containing material. All other samples were below 1%. This area remains restricted, and EPA will coordinate with the city to resample and use its SUPERVAC vacuum trucks to clean the area.

**Drinking Water Samples**

EPA and the New York City Department of Environmental Protection (NYCDEP) jointly sampled the drinking water distribution system below 14<sup>th</sup> Street. These samples were taken at routine sampling sites and will be analyzed for normal drinking water parameters - both chemical and biological. NYCDEP split samples with EPA for its own analysis. Results are expected by early next week.

**Sediment Samples**

EPA took samples of sediment to be dredged from the Hudson in order to allow barges to come in and carry away debris. Samples will be tested for metals, pesticides, PCBs, polycyclic aromatic hydrocarbons (PAHs), BTX (benzene, toluene and xylene) and dioxins. Results are expected early next week. However, dredging at the lower Manhattan site and disposal at the Newark Bay Pit will be allowed immediately because the Pit is for material that fails ocean dumping criteria and cannot go to land facilities without treatment.

**Ongoing Activity**

EPA's ten HEPA filter SUPERVAC vacuum trucks are cleaning the lobbies of five federal buildings and assisting the city in cleaning the area surrounding City Hall. Yesterday these trucks were used to clean the financial district. Dust and other materials vacuumed will be kept in air-tight containers and disposed or properly.

EPA is continuing to collect dust samples from the area.

NYC Response  
Asbestos Bulk Sample Analysis Results

Date	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	TEM Results BCC	TEM Results f/short	Comments
8/15/2001	06338	Warren & Church	Dust	<1 Chrysotile			
8/15/2001	06339	47 Broadway	Dust	<1 Chrysotile			
8/15/2001	06340	Church & Vessey	Dust	<1 Chrysotile			
8/15/2001	06341	Brooklyn & Broadway	Dust	<1 Chrysotile			
8/15/2001	06342	Brooklyn & Murray	Dust	<1 Chrysotile			
8/15/2001	06343	Brooklyn & Murray	Dust	<1 Chrysotile			
8/15/2001	06344	Park Place & W. Broadway	Dust	ND			
8/15/2001	06345	Chambers & W. Broadway	Dust	1.3 Chrysotile			
8/15/2001	06346	Chambers & W. Broadway	Dust	<1 Chrysotile			
8/15/2001	06347	Chambers & North End	Dust	1.3 Chrysotile			
8/15/2001	06348	Wagon & North End	Dust	<1 Chrysotile			
8/15/2001	06349	Murray & North End	Dust	<1 Chrysotile			
8/15/2001	06350	Murray & North End	Dust	1.2 Chrysotile			
8/15/2001	06351	Greenwich & Warren	Dust	1.2 Chrysotile			
8/15/2001	06432	Trinity & Reister	Dust	<1 Chrysotile			
8/15/2001	06433	Trinity & Thomas	Dust	1.3 Chrysotile			
8/15/2001	06434	Walden & Albany	Dust	<1 Chrysotile			
8/15/2001	06435	Albany & South End	Dust	<1 Chrysotile			
8/15/2001	06436	South End & W. Thomas	Dust	1.6 Chrysotile			
8/15/2001	06437	Battery Pl & 7th Pl	Dust	1.4 Chrysotile			
8/15/2001	06438	Battery Pl & West	Dust	1.4 Chrysotile			
8/15/2001	01163	Brooklyn & Broadway	Dust	1.4 Chrysotile			
8/15/2001	01164	Brooklyn & Broadway	Dust	<1 Chrysotile			
8/15/2001	01165	Liberty & Broadway	Dust	1.3 Chrysotile			
8/15/2001	01166	Greenwich & Albany	Dust	1.3 Chrysotile			
8/15/2001	01167	Liberty & South End	Dust	1.4 Chrysotile			
8/15/2001	01168	Vessey & West St	Dust	<1 Chrysotile			
8/15/2001	01169	Church & Deamp	Dust	<1 Chrysotile			
8/15/2001	01170	Chase Manhattan TN	Dust	<1 Chrysotile			
8/15/2001	01171	Brooklyn & Wall	Dust	<1 Chrysotile			

ND = Not Detected  
PLM = Polarized Light Microscope

*Resampling All areas that are above 10%.  
Inside the restricted area. - none in Financial District*

**U.S. Environmental Protection Agency (EPA)  
WTC Daily Summary  
Monday, September 17, 2001**

**Most Recent Results (as of 3:30 p.m., 9/17)**

**Air: Fixed Samples in New York City**

Air samples taken from the ten permanent air monitors in and around ground zero were, for the most part, below background (normal levels expected in an urban environment) levels for asbestos. One sample, taken within the hot zone, accessed only by response workers, was above EPA's protective standard of 70 structures per square millimeter for re-entry into schools after asbestos removal. While the level was not considered high, EPA continues to advise emergency response workers to wear personal protective equipment.

**Air: Non-Fixed in New York City**

EPA's TAGA (Trace Atmospheric Gas Analyzer) unit, a sophisticated mobile sampler has been used in the area near ground zero to take air samples throughout the area and analyze for VOCs and freon. None of the results from the six sampling locations indicate any levels of concern.

**Dust Samples**

Five dust samples were taken from the restricted area south of ground zero. One sample has already been analyzed for asbestos content and showed an asbestos content greater than 1% (2.1%), which is the definition commonly used to define asbestos-containing material. The four remaining samples will be analyzed for asbestos, volatile organic compounds (VOCs), lead and dioxin, with results expected later this week. EPA is coordinating with the city to resample and vacuum areas where samples contain greater than 1% asbestos.

**Drinking Water Samples**

EPA and the New York City Department of Environmental Protection (NYCDEP) sampled drinking water at 13 distribution points in lower Manhattan on September 15. Typically, sampling is done at the water main distribution points and not at the tap. The majority of the results are not yet available (see below). However, there were no detectable levels of asbestos in any of the drinking water samples.

**Ongoing activity**

The city will be sampling from several water tanks located on the top of buildings and has requested that EPA analyze these samples for asbestos and PCBs.

EPA is continuing collecting dust samples from the area.

**Press Information**  
**Monday, September 17**

**Most Recent Results (as of 3:30pm 9/17):**

Air samples taken from 10 permanent air monitors in and around ground zero were, for the most part, below background levels. One sample, taken within the hot zone, accessed only by response workers, was above EPA's background level of seventy structures per square meter. While the level was not considered high, EPA continues to advise personal protective equipment for the emergency response workers.

1 Dust sample taken from the restricted area south of ground zero, was analyzed for asbestos content. The sample showed an asbestos content greater than 1% (2.1%), which is the definition commonly used to define asbestos containing material. EPA is coordinating with the city to resample and vacuum areas where samples contain greater than 1% asbestos.

EPA and the NYC DEP sampled drinking water at 13 distribution points in lower Manhattan on September 15. The majority of the results are not in (see below). There were no detectable levels of asbestos in the drinking water.

**Pending Results:**

EPA's TAGA unit, a sophisticated mobile sampler has been used to look for volatile organic compounds (VOCs) in the area near ground zero has been operating since Friday night. EPA is using the unit to take air samples throughout the area and analyze for VOCs, and freon. Results are provided periodically during the day.

On September 15, EPA took a sample of the Hudson River just off Vesey Street at a storm drain that would have carried storm water from the ground zero site during yesterday's rain. This sample is being analyzed for a number of contaminants, including metals, PCBs, Dioxin, polybrominated biphenyls (PBB's) and asbestos. Results are expected early next week (week of 9/17). Results on the organic chemicals depend on an outside lab.

EPA and the city jointly sampled the drinking water distribution system below 14<sup>th</sup> Street. These samples were taken at routine sampling sites and will be analyzed for normal drinking water parameters - both chemical and biological. The city DEP split the samples with EPA for their own analysis. Asbestos results are in (above). Other results are expected by early next week.

EPA took samples at three locations at Newtown Creek Wastewater Treatment Plant, which is the recipient of storm sewer flow in lower Manhattan. The samples, which will be analyzed for a number of contaminants including all those tested for in the Hudson (see above) with the exception of PBBs. Also, the samples are being analyzed for total suspended solids and biochemical oxygen demand, which are common indicators of how well a waste water treatment plant is operating. Samples will also be analyzed for asbestos. Results are expected later this

week.

EPA took samples of sediment to be dredged from the Hudson in order to allow barges to come in and carry away debris. Samples will be tested for toxicity, metals, pesticides, PCBs, PAHs, BTX and dioxins. Results will come in over the next 6 weeks. However, dredging and disposal at the Newark Bay Pit will be allowed immediately because the Pit is for material that fails ocean dumping criteria and cannot go to land facilities without treatment.

**Ongoing activity:**

EPA has HEPA filter SUPERVAC vacuum trucks. These trucks were used to vacuum the lobbies of federal buildings and to clean the financial district. Dust and other materials vacuumed will be kept in air tight containers and disposed of properly. They will be available to address other areas, as needed.

EPA has now established 10 permanent air monitoring stations in and around ground zero, including in the financial district. These monitors are taking samples in 12 hour intervals that are being tested for asbestos.

EPA is continuing collecting dust samples from the area.

**EPA Region 2 World Trade Center Emergency Response Activities to Date  
September 17, 2001**

Since the day of the World Trade Center disaster, EPA Emergency Response personnel have worked closely with state and local officials as well as other federal agencies to ensure the safety of rescue workers and surrounding population. EPA has assisted numerous financial firms in gaining access to their buildings and returning to operation.

The activities include:

- **Continuous air monitoring:** EPA has set up ten continuous air monitors in and around "ground zero," and is testing samples for the presence of asbestos, VOCs, lead and dioxin. The majority of sample results thus far indicate that asbestos levels are below levels of concern. The highest levels came from a monitor located one-half block from ground zero, demonstrating the need for rescuers to wear appropriate protective gear. We are awaiting other results.
- **Outdoor air sampling:** Before establishing the continuous air monitoring stations, EPA took daily air samples from a number of locations in lower Manhattan, as well as in western Brooklyn and Liberty State Park in New Jersey. Air samples were taken, a vast majority again showing levels of asbestos and other chemicals below EPA's threshold of concern. In fact, in most cases, asbestos was not detected.
- **Indoor air sampling:** EPA took 13 samples of indoor air in two federal buildings last week, and again all samples showed asbestos levels that were well below levels of concern. These buildings are likely to be good indicators of asbestos levels in sound buildings in the area of the disaster. EPA also reviewed data from an environmental company hired by the New York Stock Exchange to inspect its building prior to the reopening on Monday, Sept. 17. Data from the Stock Exchange also showed no levels of concern.
- **Dust Sampling:** EPA has taken samples of dust in and around ground zero, including in the financial district. Most of these samples were below EPA's definition of asbestos containing material (1% asbestos). Where samples were shown to have greater than 1% asbestos - numbers ranged from 1.1 to 4.5% - EPA has vacuumed up the dust using special trucks and has re-sampled.
- **Vacuum Trucks:** EPA has been operating 10 SUPERVAC HEPA vacuum trucks to help the city cleanup the streets in the financial district, clean lobbies of federal buildings, and to assist where needed.
- **Drinking Water Sampling:** EPA and the city split samples taken from 13 routine drinking water sampling points in water mains in lower Manhattan. Most of the analysis is not yet completed on these samples, but there were no detectable levels of asbestos.
- **Hudson River Sampling:** EPA took a sample at the site of a storm drain near "ground zero" during a rain storm to determine the level of contaminants in water running off the site into the Hudson River. Results are expected this week.
- **TAGA Unit:** EPA is using its sophisticated mobile air monitoring unit to take samples of air and test for air toxics. None of the six samples taken indicated levels of concern.
- **Wastewater Treatment Plant:** EPA took several samples from the Newtown Creek Sewage Treatment Plant, which is the recipient of storm water from lower Manhattan. Results are expected later this week.



September 17, 2001 (11:18am) Preliminary  
New York City/ World Trade Center Sampling Activities  
Drinking Water Sampling 09/15/01

EPA Personnel: Dick Coleates  
 Bob Morrell

Sampling Date: 09/15/01

Sample Matrix: drinking water

Locations: 13 locations in southern Manhattan. The locations are 131350, 35550, 30150, 37950, 32350, 30350, 30250, 30450, 30550, 30950, 30050, 31850, 31050.

Sampling Activities: Grab samples were collected at 13 stations in the NYC drinking water distribution systems. All locations are part of the City's routine monitoring program, but have not been sampled since the WTC disaster because NYCDEP samplers were not permitted access to lower Manhattan.

**EPA Region 2**

**Laboratory**

parameters: Metals  
 Pesticides/PCBs  
 NVOAs  
 THMs  
 Haloacetic Acids (HAAs)  
 Harness  
 total and fecal coliforms  
 heterotrophic plate count

**Contract**

**Laboratory**

**Parameters**

(Raj Singhvi  
 coordinating): Asbestos

**NYSDOH**

**Laboratory**

Parameters: Gross alpha and beta radioactivity

Field parameters: pH  
 conductance  
 salinity  
 free chlorine

Preliminary  
 DW as best  
 results

File  
 014

**Preliminary Results:**

**Asbestos:** Asbestos was analyzed in all of the samples by a certified drinking water laboratory. Asbestos was reported as non detect (less than the detection limit of 1.5 million fibers per liter (MFL)). The federal drinking water MCL for asbestos is 7 MFL greater than 10 microns in length.

NYC Response  
Asbestos Water Sample Analysis Results

Date Sampled	Sample No.	Sampling Time	Matrix	Asbestos Fibers (MFL)	Comments
9/15/2001	1	2002	Water	<6.01	
9/16/2001	2	1427	Water	<6.01	
9/16/2001	3	1559	Water	<6.01	

MFL: Millions of fibers per liter  
Method of Sample Analysis: EPA 100.2

File  
copyEPA Air Analytical Results of Sampling Events from Fixed Stations on 9/15-16/01

**Lower Manhattan** Fixed ambient air sampling stations have been established at seven locations in the vicinity of Ground Zero. Samples were collected for the presence of asbestos over two consecutive 12 hour periods (round 3 and 4). Asbestos was detected marginally above background (70 structures/mm<sup>3</sup>) in a duplicate sample taken from sampling location E (Intersection of Liberty and South End Ave.). The duplicate samples obtained from location E registered 53 and 90 structures/mm<sup>3</sup> respectively. All but one of the round 4 (8:00 am - 8:00 pm, 9/16) samples were unable to be analyzed for asbestos content due to clogging of the air filters with general particulate matter.

**Methodology** Asbestos fiber analysis by Transmission Electron Microscopy (TEM) - EPA 40 CFR Part 763 (AHERA).

**Precautions** EPA continues to advise personal protective equipment for the emergency response and cleanup workers, decontamination of workers, dust suppression, and tarping over removal debris while in transport.

NYC Response  
Asbestos Air Sampling Results at Fixed Locations

Date	Sample No.	Sampling Location	Matrix	Round 3 S/mm2 (S-F/cc)*	Round 4 S/mm2 (S-F/cc)*	Comments
9/15-16/01	581/1401	G	Air	<16 (<0.0043)	16 (0.0089)	Chrysotile asbestos
9/15-16/01	582/1402	A	Air	<13.3 (<0.0046)	NA	Chrysotile asbestos
9/15-16/01	583/1403	B	Air	<8 (<0.0039)	NA	Chrysotile asbestos
9/15-16/01	584/1404	C	Air	<16 (<0.0043)	NA	Chrysotile asbestos
9/15-16/01	585/1407	D	Air	<8 (<0.0043)	NA	Chrysotile asbestos
9/15-16/01	586/1408	E	Air	53.33 (0.0190)	NA	Chrysotile asbestos
9/15-16/01	587/1409	E**	Air	90 (0.0321)	NA	Chrysotile asbestos
9/15-16/01	588/1410	F	Air	24 (0.0085)	NA	Chrysotile asbestos
9/15-16/01	589/1405	H	Air	<16 (<0.0043)	NA	Chrysotile asbestos
9/15-16/01	590/1406	I	Air	<16 (<0.0043)	NA	Chrysotile asbestos

NA: not analyzed due to overloading of particulates

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)

\*Structure (S) Roughly equivalent to Fiber (F)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm2, volume 1200L, for 25MM filter (TEM)

A: Intersection of Barclay+West Broadway

B: Intersection of Church+Dey St.

C: Intersection of Liberty+Bowdway

D: Intersection of Greenwich+Albany;

E: Intersection of Liberty+South End Ave. E\*\* : Duplicate

F: Intersection of Vesey+West St.

G: Intersection of Church and Duane

H: One Chase Plaza

Round 3: 8:00PM (9/15) - 8:00AM (9/16)

Round 4: 8:00AM (9/15) - 8:00PM (9/16)

ERT 9/17/01 9:30AM

NYC Response  
Asbestos Bulk Sample Analysis Results

Date	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/18/01	00439	Battery Park and Memorial	Dust	2.1	Chrysotile
ND Not Detected					
PLM Polarized Light Microscope, NY ELAP 198.1 Method					
ERT 9/17/01 2:00PM					

*Dore LaPosta  
FBI  
for 9/17/01 2:15 PM*

September 18, 2001 (7:04am)

Preliminary Data

New York City/ World Trade Center Sampling Activities  
Street Runoff Asbestos Results

EPA Personnel: Dennis McChesney  
Stephen Hale

Sampling platform: EPA Whaler/ NYCFD Fire boat (tied)

Sampling Date: 09/14/01  
Sampling Time: 1430-1500  
Location: Foot of Rector St at Hudson River. Samples were collected from approx 1 foot diameter direct runoff pipe  
Sample Matrix: Water  
Analytes (Laboratory): Metals (Region 2)  
PCBs/PBBs (Axys)  
PAHs (Axys)  
Dioxins/Furans (Axys)  
Asbestos (NYSDOH)

Sampling: Discrete grab samples of washdown water discharging to the Hudson River were collected as it flowed out of the pipe, before entering the River. Sanitation workers were hosing the street in the vicinity.

**Preliminary Asbestos Results reported by Dr. James Weber, DOH - Wadsworth**

Chrysotile Asbestos 0.61%  
9.6 Billion Fibers/L  
0.045 g/L  
Amphibole Asbestos ND  
Particulates: 7.4 g/L  
Blank Sample Bottle ND

> 1% is regulated in building material, MCL 7 MFL, 10-4 cancer risk 700 MFL



U.S. EPA Region 2 Laboratory  
Data Report

*Metals*

Survey Name: WTC - Rector St. Runoff

Project Number: 01090012

\* Sorted by: Analysis T

Analysis Type: METALS TAL ICP AQUEOUS

AC03448 Field Station ID: WTC-1

Coll. Ending Date/Time: 9/14/01 15:00

Matrix: Aqueous

Collection Begin Date/Time: 09/14/01 14:30

Sample Description: Rector St. Runoff

CAS Number	Analyte Name	Result	Units	Rmk. Code
007440224	SILVER	30	ug/L	L
007429905	ALUMINUM	640,000	ug/L	
007440382	ARSENIC	140	ug/L	
007440393	BARIUM	8,600	ug/L	
007440417	BERYLLIUM	78	ug/L	
007440702	CALCIUM	5,500,000	ug/L	
007440439	CADMIUM	180	ug/L	QR
007440484	COBALT	160	ug/L	
007440473	CHROMIUM	3,000	ug/L	
007440508	COPPER	4,000	ug/L	
007439896	IRON(2714)	320,000	ug/L	
007440097	POTASSIUM	100,000	ug/L	
007439954	MAGNESIUM	990,000	ug/L	
007439965	MANGANESE	32,000	ug/L	
007440235	SODIUM	100,000	ug/L	QP
007440020	NICKEL	910	ug/L	
007439921	LEAD	5,200	ug/L	
007782492	SELENIUM	56	ug/L	QR
007440360	ANTIMONY	470	ug/L	
007440280	THALLIUM	100	ug/L	U
007440622	VANADIUM	790	ug/L	
007440666	ZINC	49,000	ug/L	

Analysis Type: MERCURY

AC03448 Field Station ID: WTC-1

Coll. Ending Date/Time: 9/14/01 15:00

Matrix: Aqueous

Collection Begin Date/Time: 09/14/01 14:30

Sample Description: Rector St. Runoff

CAS Number	Analyte Name	Result	Units	Rmk. Code
007439976	MERCURY	8.7	ug/L	

Project Approval: \_\_\_\_\_ Date: \_\_\_\_\_

NY = Not Validated; Inc = Result not entered



**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Tuesday, September 18, 2001**

**Most Recent Results (as of 12:00 p.m., 9/18):**

**Air: Fixed Monitors in New York City**

In the most recent rounds of ambient air sampling, 21 samples were collected and analyzed from 11 monitoring sites (one new monitor was has been added). Four of these samples had levels of asbestos that were marginally above the level that EPA is using as a level of concern. EPA continues to advise personal protective equipment for the emergency response workers.

**Air: Non-Fixed in New York City**

EPA has taken and analyzed four air samples taken near "ground zero," for mercury. No detectable mercury was found in the samples.

**Dust Samples**

Five dust samples were taken from the restricted area south of ground zero. All samples have been analyzed for asbestos content and showed an asbestos content greater than 1%, which is the level commonly used to define asbestos-containing material. EPA is coordinating with the city to resample and use EPA's SUPERVAC trucks to vacuum areas outside of "ground zero" where samples contain greater than 1% asbestos.

**Drinking Water Samples**

EPA and the New York City Department of Environmental Protection (NYCDEP) sampled drinking water at 13 distribution points in lower Manhattan on September 15. Typically, sampling is done at the water main distribution points and not at the tap. We are awaiting some of the results for PCB's, haloacetic acids and radionuclides, but all other results (chemical and biological) for drinking water constituents show no exceedances of any drinking water standards.

**Sediment Samples**

EPA took samples of sediment to be dredged from the Hudson where barges will come in and carry away debris. Samples will be tested for toxicity, metals, pesticides, PCBs, polycyclic aromatic hydrocarbons (PAHs), BTX (benzene, toluene and xylene – types of volatile organic compounds or VOCs) and dioxins. Results will come in over the next 6 weeks. However, dredging at the lower Manhattan site and disposal at the Newark Bay Pit will be allowed immediately because the Pit is for material that fails ocean dumping criteria and cannot go to land facilities without treatment. Preliminary chemical analyses show levels of PCB's at between 0.630 and 1.2 parts per million. PCB levels in the harbor are normally in the 1 ppm level. We are awaiting the toxicity and bioaccumulation results.

**Ongoing activity**

EPA continues to use its HEPA filter SUPERVAC vacuum trucks. This evening, EPA plans to vacuum areas of Battery Park where samples have shown levels of asbestos above EPA's level of concern. These trucks were used to vacuum the lobbies of federal buildings and to clean the financial district earlier. Dust and other materials vacuumed are being kept in air-tight containers

and disposed of properly. Vacuum trucks will be available to address other areas, as needed.

EPA has now established one additional permanent air monitoring station bringing the total operating stations to 11 in and around "ground zero", including in the financial district. These monitors are taking samples in 12-hour intervals that are being tested for asbestos and other contaminants. EPA has also established 8 monitors stations at Fresh Kills Landfill and has begun collecting samples.

The city will be sampling from several water tanks located on the top of buildings. They have requested that we facilitate the analysis of these samples for asbestos and PCBs. EPA has received one sample and expects to get more today, 9/18.

EPA is continuing collecting dust samples from the area and also continues to work with firms in the financial district.

**Press information  
Tuesday, September 18**

**Most Recent Results (as of 12:00 pm 9/18):**

(NEH) EPA has taken and analyzed four air samples taken near "ground zero," for mercury. No detectable mercury was found in the samples.

In the most recent rounds of ambient air sampling, 21 samples were collected and analyzed from 11 monitoring sites. Four of these samples were marginally above the level that EPA is using as a level of concern. EPA continues to advise personal protective equipment for the emergency response workers.

Five dust samples were taken from the restricted area south of ground zero. All samples have been analyzed for asbestos content and showed an asbestos content greater than 1%, which is the definition commonly used to define asbestos containing material. EPA is coordinating with the city to resample and vacuum areas outside of "ground zero" where samples contain greater than 1% asbestos.

EPA and the NYC DEP sampled drinking water at 13 distribution points in lower Manhattan on September 15. Typically, sampling is done at the water main distribution points and not at the tap. We are awaiting some of the results for PCB's, haloacetic acids and radionuclides, but all other results (chemical and biological) for drinking water constituents show no exceedances of any drinking water standards.

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**Pending Results:**

EPA's TAGA unit, a sophisticated mobile sampler has been used in the area near ground zero to take air samples throughout the area and analyze for VOCs, and freon. None of the results from the six sampling locations indicate any levels of concern.

On Saturday, September 15, EPA took a sample of the Hudson River just off Vessey Street at a storm drain that carried runoff from the ground zero site during Friday's rain. This sample is being analyzed for a number of contaminants, including metals, PCBs, Dioxin, polybrominated biphenyls (PBB's) and asbestos. Results are expected later this week (week of 9/17).

EPA took samples at three locations at Newtown Creek Wastewater Treatment Plant, which is the recipient of wastewater from lower Manhattan. The samples will be analyzed for a number of contaminants including all those tested for in the Hudson (see above) with the exception of PPBs. Also, the samples are being analyzed for total suspended solids and biochemical oxygen demand, which are common indicators of how well a waste water treatment plant is operating. Samples will also be analyzed for asbestos. Results are expected later this week (week of 9/17).

**Ongoing activity:**

EPA continues to use its HEPA filter SUPERVAC vacuum trucks. This evening, EPA plans to vacuum areas of Battery Park where samples have shown levels of asbestos above EPA's level of concern. These trucks were used to vacuum the lobbies of federal buildings and to clean the financial district earlier. Dust and other materials vacuumed are being kept in air tight containers and disposed of properly. Vacuum trucks will be available to address other areas, as needed.

EPA has now established one additional permanent air monitoring station bringing the total operating stations to 11 in and around "ground zero", including in the financial district. These monitors are taking samples in 12 hour intervals that are being tested for asbestos and other contaminants. EPA has also established 8 monitors stations at Fresh Kills Landfill and began collecting samples.

The city will be sampling from several water tanks located on the top of buildings. They have requested that we facilitate the analysis of these samples for asbestos and PCBs. EPA has received one sample and expects to get more today, 9/18.

EPA is continuing collecting dust samples from the area and also continues to work with firms in the financial district.

7-2  
6-28

**"Ground Zero" Air Sampling Situation Report**  
**Tuesday, September 18, 2001 ( 11:00am)**

Mercury in Air

- 4 Samples Collected around WTC
- All less than MDL of 0.083
- 0.3 ug m<sup>3</sup> is risk based #

Asbestos Bulk Dust

- 4 samples collected @ WTC
- results - two @ 2%  
                  one @ 3%  
                  one @ 4%
- 13 Perimeter Bulk Samples - 2 Non-Detects, 11 Less than 1%

Fixed Air Sampling Locations

- First Round of Sampling 8pm - 8am, Sept 16-17  
10 Locations  
1 Duplicate  
    **Location F** marginally above - normalized @ 72 S/mm<sup>2</sup>  
    All other samples below 70 S/mm<sup>2</sup> (normalized)
- Second Round of Sampling 8am - 8pm, Sept 17  
11 Locations  
1 Duplicate  
    8 Overloaded  
    3 Above 70 S/mm<sup>2</sup> - normalized for reduced flow rate  
        **Location A** - 77 S/mm<sup>2</sup> (normalized for reduced Vol)  
        **Location J** - 71 S/mm<sup>2</sup> (normalized for reduced Vol) (96)  
        **Location K** - 134 S/mm<sup>2</sup> (normalized for reduced Vol)

Sample Adjustments - Changing to Three 8hr Samples due overload of particulate matter

## NYC Response

## Results of the Analysis for Mercury in Air

Sample Number	Sampling Location	Date Collected	Volume Air (L)	RESULTS $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$
01175	Dey & Church	09/16/01	120	U	0.083
01181	Liberty & Tnnity	09/16/01	120	U	0.083
01185	Greenwich & Albany	09/16/01	120	U	0.083
01193	Vesey & west	09/16/01	60	U	0.167

MDL denotes Method Detection Limit

U denotes less than the MDL (not detected)

\*\* no air volume sampled; results reported as  $\mu\text{g}/\text{tube}$

NYC Response  
Asbestos Bulk Sample Analysis Results

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/16/01	C06351	WTC	Dust	3 Chrysotile	
9/16/01	C06353	WTC	Dust	4 Chrysotile	
9/16/01	C06354	WTC	Dust	2 Chrysotile	
9/16/01	C06355	WTC	Dust	2 Chrysotile	

PLM Polarized Light Microscope by Method EPA 800/R-93/116

NYC Response  
Asbestos Bulk Sample Analysis Results

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/17/01	06076	#1 Jacob Javits Center	Dust	ND	
9/17/01	06077	#2 Jacob Javits Center	Dust	ND	
9/17/01	06356	Greenwich & Murray	Dust	<1 Chrysotile	
9/17/01	06357	W. Broadway & Barclay	Dust	<1 Chrysotile	
9/17/01	06358	100 Church Street	Dust	<1 Chrysotile, <1 Amosite	
9/17/01	06359	Vesey & Church	Dust	<1 Chrysotile	
9/17/01	06360	Dey & Church	Dust	<1 Chrysotile	
9/17/01	06361	Thames & Trinity Place	Dust	<1 Chrysotile	
9/17/01	06362	Greenwich & Thames	Dust	<1 Chrysotile, <1 Amosite	
9/17/01	06363	Carlisle & Washington	Dust	<1 Chrysotile	
9/17/01	06364	Brooklyn-Battery TNL(N)	Dust	<1 Chrysotile, <1 Amosite	
9/17/01	06365	South End & Liberty	Dust	<1 Chrysotile	
9/17/01	06366	North End & Warren	Dust	<1 Chrysotile, <1 Amosite	

PLM Polarized Light Microscope by Method NY State ELAP 198.1

ERT 9/18/01

NYC Response  
Asbestos Air Sampling Results at Fixed Locations

Date	Sample No.	S.L.	Matrix	Round 5*** <5µ (<5µ) S (f)	Round 5 S/mm2 (S-F/cc)*	Round 6*** <5µ (<5µ) S (f)	Round 6 S/mm2 (S-F/cc)*	Comments
9/16-17/01	451/464	G	Air	1 (0)	8 (0.0043)	0 (0)	<8 (<0.0062)	Chrysotile asbestos
9/16-17/01	452/465	A	Air	0 (0)	<3.48 (<0.0048)	4 (0)	7.32 (0.0246)	Chrysotile asbestos
9/16-17/01	453/466	B	Air	0 (0)	<8 (<0.0043)	NA	NA	Chrysotile asbestos
9/16-17/01	461/467	C	Air	0 (0)	<8 (<0.0043)	NA	NA	Chrysotile asbestos
9/16-17/01	456/470	D	Air	4 (0)	5.32 (0.0171)	NA	NA	Chrysotile asbestos
9/16-17/01	457/472	E	Air	1 (1)	16 (0.0088)	NA	NA	Chrysotile asbestos
9/16-17/01	458/473	E**	Air	1 (0)	8 (0.0043)	NA	NA	Chrysotile asbestos
9/16-17/01	459/474	F	Air	5 (0)	7.2 / 40 (0.0214)	NA	NA	Chrysotile asbestos
9/16-17/01	454/468	H	Air	0 (1)	8 (0.0043)	NA	NA	Chrysotile asbestos
9/16-17/01	455/469	I	Air	1 (0)	8 (0.0043)	NA	NA	Chrysotile asbestos
9/16-17/01	460/475	J	Air	0 (3)	24 (0.0128)	5 (0)	17.40 (0.0308)	Chrysotile asbestos
9/16-17/01	7471	K	Air	NO Sample	NO Sample	7 (0)	134.56 (0.0431)	Chrysotile asbestos

NA: not analyzed due to overloading of particulates

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L. Sampling Locations

Sample volume is below recommended limit of the method: \*\*\*720 Liters, \*\*\*\*500 Liters

\*Structure (S) Roughly equivalent to Fiber (F)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm2, volume 1200L, for 25MM filter (TEM)

- A: Intersection of Barclay+West Broadway
- B: Intersection of Church+Dey St.
- C: Intersection of Liberty+Trinity
- D: Intersection of Greenwich+Albany
- E: Intersection of Liberty+South End Ave.
- F: Intersection of Versey+West St.
- G: Intersection of Church and Duane
- H: One Chase Plaza
- I: Wall Street+Broadway
- J: Corner of West and Warren
- K: Corner of Albany and West

56  
500  
Not analyzed  
(1200)

ERT 9/18/01 9:30AM



September 18, 2001 (11:13am)

Preliminary Results

New York City/ World Trade Center Sampling Activities  
Drinking Water Sampling 09/15/01

**EPA Personnel:** Richard Coleates  
 Robert Morrell

**Sampling Date:** 09/15/01

**Sample Matrix:** Drinking Water

**Preliminary Results Summary:** Microbiological contamination was absent. Asbestos was also not detected. Two (2) THMs were detected below the federal Maximum Contaminant Level (MCL). No other regulated organic contaminants were detected. Metals were detected, but at concentrations below federal MCLs. Chlorination and system pressure appear adequate, and turbidity was normal. Data is expected late afternoon 09/18/01 for Pesticides/PCBs, HAAs, and radionuclides

**Locations:** 13 locations in southern Manhattan. The locations are 131350, 35550, 30150, 37950, 32350, 30350, 30250, 30450, 30550, 30950, 30050, 31850, 31050.

**Sampling Activities:** Grab samples were collected at 13 stations in the NYC drinking water distribution systems. All locations are part of the City's routine monitoring program, but have not been sampled since the WTC disaster because NYCDEP samplers were not permitted access to lower Manhattan.

**EPA Region 2**

**Laboratory**

**parameters:** Metals  
 Pesticides/PCBs  
 BNAs  
 VOCs/THMs  
 Haloacetic Acids (HAAs)  
 Total coliforms and *E. coli*  
 Heterotrophic plate count  
 Hardness

**Contract**

**Laboratory**

**Parameters**

(Raj Singhvi  
 coordinating): Asbestos

**NYSDOH****Laboratory****Parameters:** Gross alpha and beta radioactivity**Field parameters:** pH  
conductance  
salinity  
free chlorine**Preliminary Results:****System Pressure:** Sampling personnel reported that pressure appeared normal.**Asbestos:** Asbestos was analyzed in all of the samples by a certified drinking water laboratory. Asbestos was reported as non detect (less than the detection limit of 1.5 million fibers per liter (MFL)). The federal drinking water MCL for asbestos is 7 MFL greater than 10 microns in length.**Microbiology:** Drinking water microbiological parameters were analyzed in the EPA Region 2 laboratory. Testing indicated the absence of total coliforms and *E. coli*. The Heterotrophic Plate Count, an indicator of total bacteria (pathogenic and non-pathogenic) was also negative.**Metals:** Metals parameters, including mercury, were analyzed by the EPA Region 2 laboratory. All detected metals were at concentrations below the federal MCL. Mercury was not detected in any sample.**VOCs/THMs:** Two THMs were detected in each of the thirteen (13) samples. Chloroform was consistently detected at a concentration of about 40 ug/L. Bromodichloromethane was also consistently detected at a concentration around 6 ug/L. The federal MCL for total THMs is 100 ug/L. No sample exceeded the federal MCL. No other VOCs were detected in any sample.**Base Neutral/Acid Extractables (BNAs):** Six (6) BNAs regulated under the federal Safe Drinking Water Act were analyzed in the EPA Region 2 Laboratory. BNAs were not detected in any sample. Hexanedioic acid ester, a non-target compound, was tentatively identified at 120 and 38 ppb in samples collected at locations 30150 and 30250, respectively. There is no MCL for this compound.**Pesticides/PCBs:** Samples are being analyzed by the EPA Region 2 laboratory. Data is expected late afternoon on Tuesday 09/18/01.**Haloacetic Acids (HAAs):** Samples are being analyzed by the EPA Region 2 laboratory. Data is expected late afternoon on Tuesday 09/18/01.

**Radionuclides (Gross Alpha particle activity and beta particle and photon activity):** Samples are being analyzed at NYSDOH - Wadsworth Laboratories in Albany. Data is expected late afternoon on Tuesday 09/18/01.

**Free Chlorine:** Free chlorine was detected at concentrations between 0.15 to 0.73 mg/L. All samples other than that where the concentration was 0.15 mg/L were above 0.3 mg/L. NYCDEP's result at this location was 0.22 mg/L. Overall, data suggests that the supply is adequately disinfected.

**Turbidity:** Turbidity must be kept below 5 NTU, and was at about one tenth of that value in all samples, which is within the normal range for NYC water.

**Conventional Parameters:** All of the conventional parameters (hardness, phosphate, fluoride, pH), which do not have primary MCLs, were within normal limits.

September 18, 2001 (11:11am) Preliminary  
New York City/ World Trade Center Sampling Activities  
Dredge Material Sediment Sampling 09/15/01

**EPA Personnel:** Dennis McChesney  
 Kathleen Savino  
**DEC Personnel:** Stephen Zahn. DEC Police Officers/Boat operators

**Sampling platform:** NYSDEC Police Vessel

**Sampling Date:** 09/15/01  
**Sampling Time:** 1725-1843  
**Location:** Foot of Vesey by CSO M-6  
**Sample Matrix:** Sediment

**Preliminary Results:** Two (2) PCBs (Aroclors) were detected at concentrations exceeding NOAA Effects Range Medium (ERM), and average concentrations in Harbor sediments. Lead and mercury were also detected above the ERM and average Harbor sediment concentrations. PAHs associated with coal tar creosote and industrial activity were detected. Five (5) PAH compounds exceeded the ERM, and all were from a single shallow sample. PAH exceedences of ERMs were all less than a factor of two (2). Three VOCs were detected at very low concentrations. Dioxin/Furan data is expected from the contract lab on Wednesday 09/19/01. Dredge material disposal is at the Newark Bay contaminated sediment borrow pits.

**Analytes (Laboratory):** Metals (REAC, Raj Singhvi coordinating)  
 Pesticides/PCBs (REAC, Raj Singhvi coordinating)  
 PAHs (REAC, Raj Singhvi coordinating)  
 VOCs (REAC, Raj Singhvi coordinating)  
 Dioxins/Furans (Paradigm Analytical, Raj Singhvi coordinating)  
 Toxicity (EPA Region 2)

**Pre-dredged areas:** Discrete samples were collected from three (3) transects shore (by Joe DiMaggio Drive) to the Hudson River (west to east) using a petit ponar dredge sampler. The entire sample (about 6 inches depth) was collected, and the VOC sample was allocated to as sample jar. The remaining sample was homogenized, and allocated to sample jars. Dredging operations are ongoing.

**Dredge Material:** The operating dredge acquired a full bucket of sediment and laid it on the barge deck. Three (3) discrete samples were collected from throughout the dredge sample (surface, interior). Samples were processed for analysis as

above.

**Dredge Material Disposal:** Dredged material is destined for the contaminated dredge material borrow pits on the west side of Newark Bay.

**Preliminary Results:**

**Volatile Organic Compounds (VOCs):** Three VOCs (acetone, carbon disulfide, 2-butanone) were detected at very low concentrations. Acetone was detected in the lab blank, suggesting laboratory contamination with this common laboratory reagent.

**Base Neutral/Acid Extractables (BNAs):** BNAs were detected in all of the samples. The highest concentrations were detected in the six (6) inch deep petit ponar grab sample that was collected closest to the Joe DiMaggio Drive bulkhead (sample P-1). The compounds detected are often associated with highway runoff, creosote treated marine pilings, and industrial activities. Detected concentrations were compared to the ecological Effects Range Low (ERL) and Effect Range Medium (ERM) established by NOAA for the eleven (11) compounds for which these values exist. Five (5) compounds exceeded the ERM, and all were in the petit ponar grab (P-1) sample. ERM exceedences were all less than a factor of two (2). **Figure attached.**

**Metals:** All samples were analyzed for arsenic, cadmium, copper, lead, and mercury. All of the metals were detected in all of the samples. As for PAHs, petit ponar sample P-1 contained the highest concentrations of all of the metals. Concentrations of the metals in all of the six samples collected exceeded the upper concentrations detected throughout NY Harbor during EPA's 1994-1995 REMAP survey **Figure attached.**

<u>Metal</u>	<u>Detected Range</u>	<u>mg/Kg (ppm)</u>		<u>Mean Result 1993 -1994 EPA REMAP Survey NY/NJ Harbor Estuary*</u>
		<u>ERL</u>	<u>ERM</u>	
Arsenic	8.8 - 13	8.2	70	10.33 ± 2.05
Cadmium	0.71 - 2.6	1.2	9.6	0.71 ± 0.13
Copper	88 - 220	34	270	72.53 ± 17.4
Lead	110 - 250	46.7	218	78.8 ± 12.8
Mercury	1.2 - 2.8	0.15	0.71	0.74 ± 0.14

\* ± is the 90% confidence interval

**PCBs:** PCBs were analyzed as aroclors in all samples. Two (2) PCBs (Aroclor 1254 and 1260) were detected in all of the samples. No other PCBs were detected in any sample.

The profile of the PCBs indicated that they were "weathered", suggesting that they have been entrained in the sediment for a long period of time. **Figure attached.**

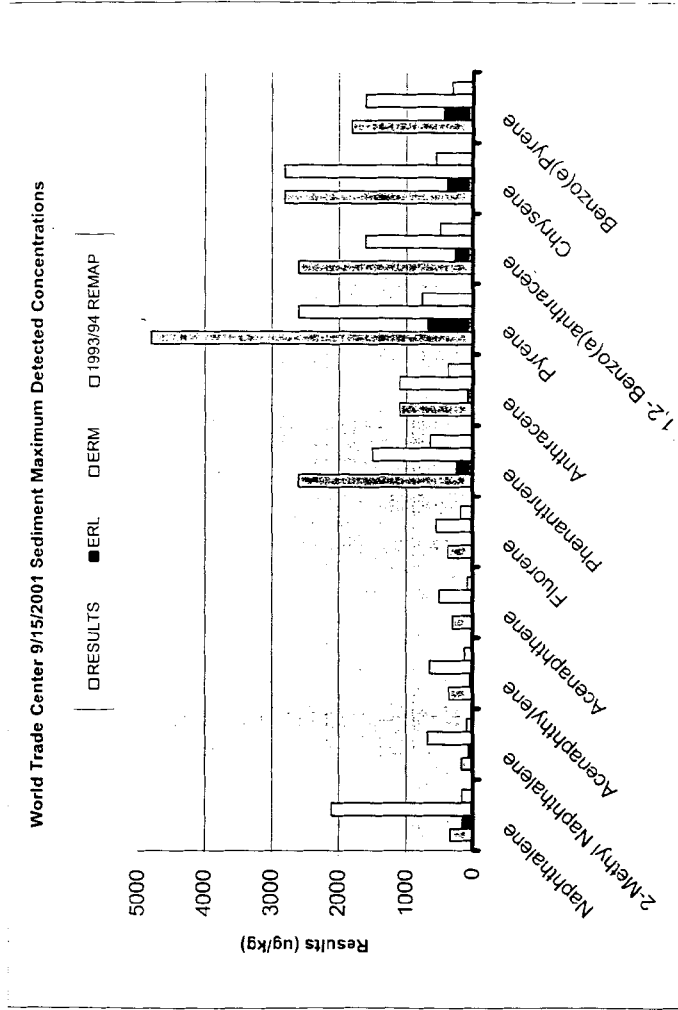
	ug/Kg (ppb)			Mean Result
	<u>Detected</u> <u>Range</u>	<u>ERL</u>	<u>ERM</u>	1993 -1994 EPA REMAP Survey of <u>NY/NJ Harbor Estuary</u>
1254	370 - 700	NA	NA	NA
1260	280 - 510	NA	NA	NA
<b>Total</b>	630 - 1210	22.7		224 ± 42*

\* ± is the 90% confidence interval

**Dioxins/Furans:** Initial runs of the samples failed to pass QC. Samples are being re-analyzed and the data is expected on Wednesday 09/19/01.

**Data Analysis:** The highest concentrations of analyzed constituents were detected in the petit ponar dredge sample taken close to shore (Joe DiMaggio Drive). A CSO is also located in this area. PCBs (aroclor) detected in this sample were weathered suggesting a relatively old source. The detected PAHs are ubiquitous in industrialized areas, and bear the fingerprint of coal tar creosote used to treat marine pilings. Many submerged pilings area present in the area. Dredging operations were resulting in high concentrations of suspended matter in the vicinity, and some settling of suspended sediment. This area has not been subjected to dredging for a long period of time.

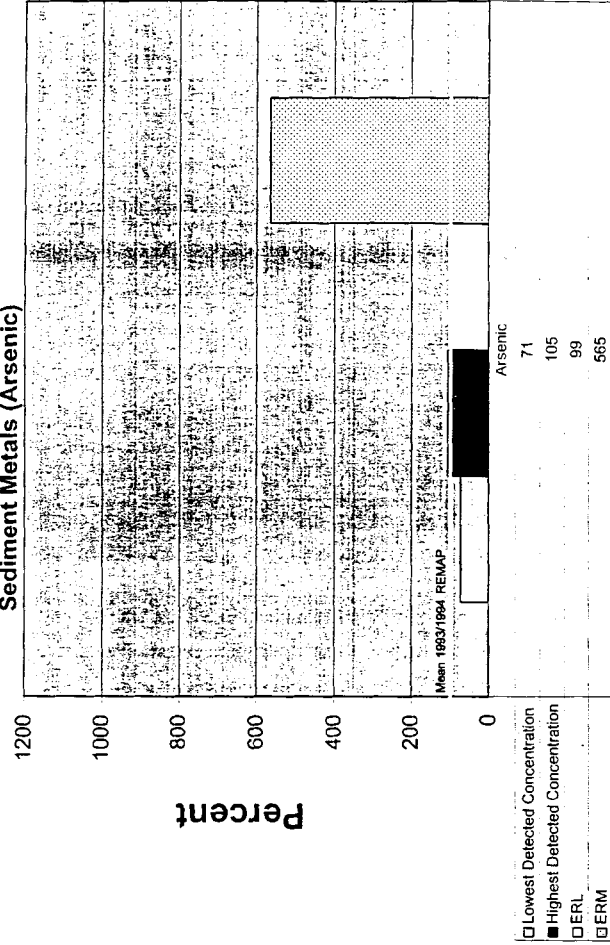
9/18/01 8:52 AM



1.) Sampling Location WTC-P1 showed the Maximum Detected Concentrations of the six sites  
2.) Only PAHs with ERU/ERM were graphed.

9/18/01 10:48 AM

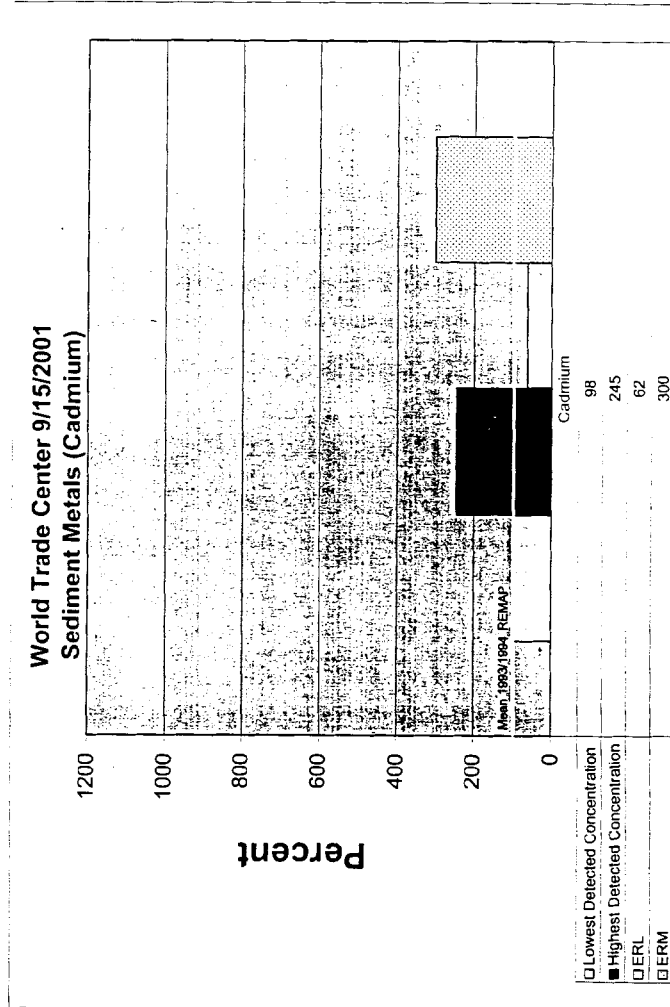
**World Trade Center 9/15/2001  
Sediment Metals (Arsenic)**



1.) Data Normalized to 100% of mean sediment concentration of the 1993/1994 EPA REMAP Harbor Data  
 2.) ERL - NOAA Effects Range Low  
 3.) ERM - NOAA Effects Range Medium

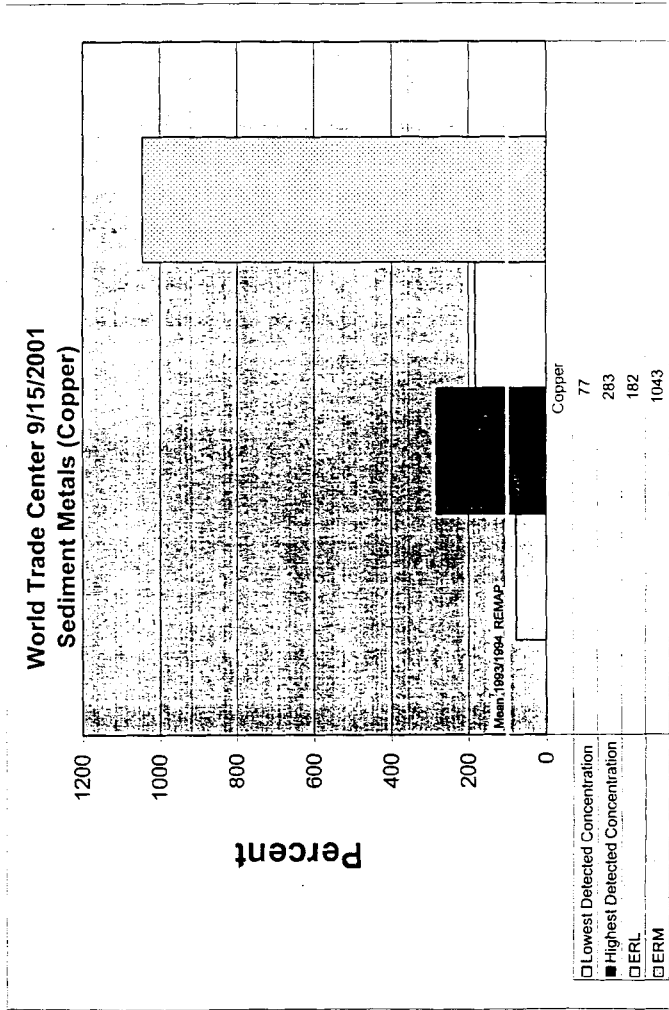


9/18/01 10:47 AM



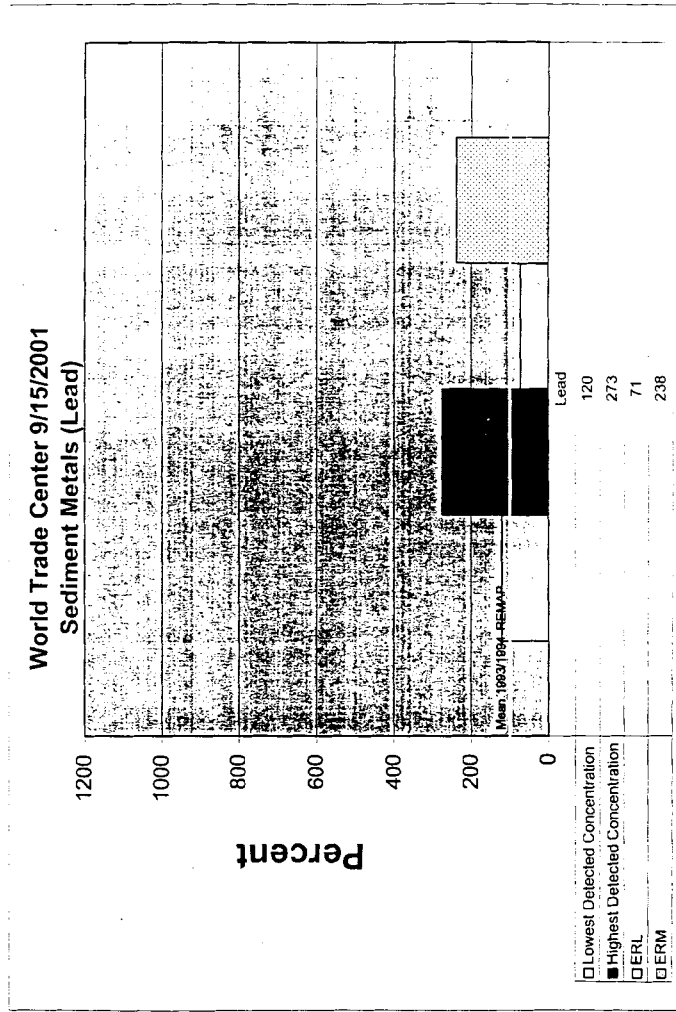
1.) Data Normalized to 100% of mean sediment concentration of the 1993/1994 EPA REMAP Harbor Data  
2.) ERL - NOAA Effects Range Low  
3.) ERM - NOAA Effects Range Medium

9/18/01 10:52 AM



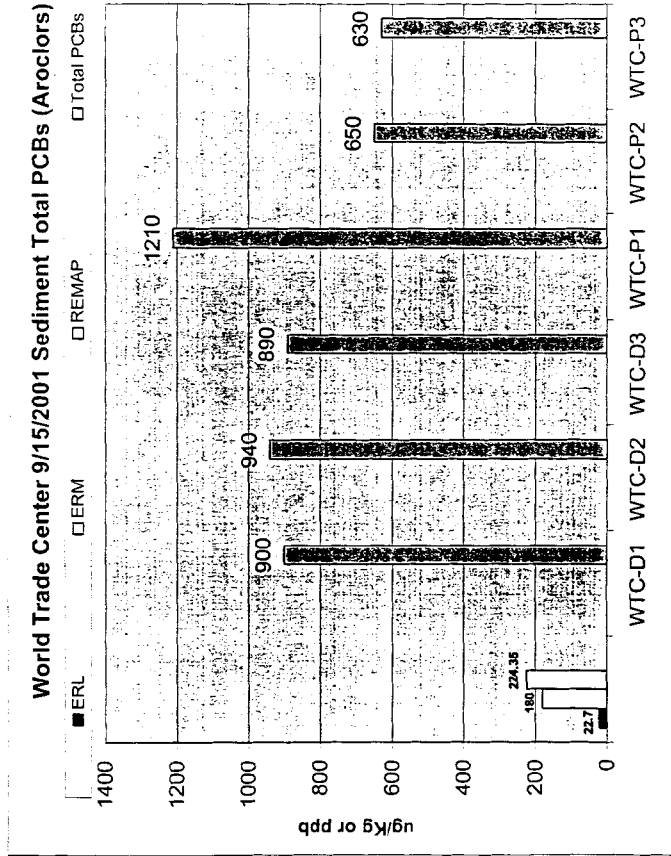
1.) Data Normalized to 100% of mean sediment concentration of the 1993/1994 REMAP Harbor Data  
2.) ERL - NOAA Effects Range Low  
3.) ERM - NOAA Effects Range Medium

9/18/01 10:54 AM



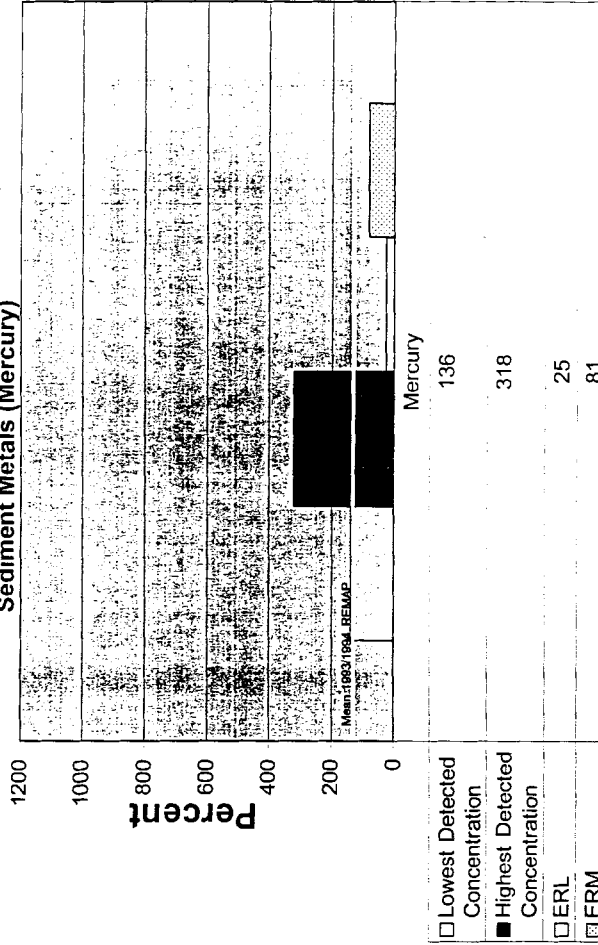
1.) Data Normalized to 100% of mean sediment concentration of the 1993/1994 EPA REMAP Harbor Data  
 2.) ERL - NOAA Effects Range Low  
 3.) ERM - NOAA Effects Range Medium

9/18/01 10:40 AM



9/18/01 10:56 AM

### World Trade Center 9/15/2001 Sediment Metals (Mercury)



1.) Data Normalized to 100% of mean sediment concentration of the 1993/1994 EPA REMAP Harbor Data  
 2.) ERL - NOAA Effects Range Low  
 3.) ERM - NOAA Effects Range Medium

212  
 for Samples for analysis  
 with  
 N.d.g. 2.

Results for 9/16/01

File name	NYC027	File name	NYC028	File name	NYC029
Sample Location	Day & Church	Liberty & Trinity	Liberty & West	Sample Location	Liberty & West
Sample Number	00608	00607	00604	Sample Number	00604
Volume	0.25 L	0.25 L	.25 L	Volume	.25 L
Acetone	14 ppb	Chloromethane	10 ppb	Acetone	19 ppb
Toluene	4 ppb	Acetone	23 ppb		
		Benzene	20 ppb		
		Toluene	7 ppb		

File name	NYC030	File name	NYC031	File name	NYC032
Sample Location	West & Vessey	Liberty & Greenwich	Albany & Wash	Sample Location	Albany & Wash
Sample Number	00603	00606	00605	Sample Number	00605
Volume	0.25 L	0.25 L	0.25 L	Volume	0.25 L
Acetone	16 ppb	Acetone	8 ppb	Acetone	17 ppb
MTBE	5 ppb	Benzene	6 ppb	Benzene	5 ppb
Toluene	6 ppb	Toluene	8 ppb		

*These are the VOC results, including TICs, for the Tedlar bag grab samples collected at six locations for ambient air monitoring on 16 Sep 2001.*

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Wednesday, September 19, 2001**

**Most Recent Results (as of 7 p.m., 9/19):**

**Air: Fixed Samples in New York City**

EPA's most recent rounds of air samples from 11 fixed monitoring sites in and around the "hot zone" were below the EPA limit for asbestos. This brings the total number of samples taken from fixed monitors to 68.

**Air: Non-Fixed in New York City**

On September 18, EPA took readings of outdoor air at 12 locations around ground zero for chemicals including hydrogen sulfide, volatile organic compounds (VOCs), carbon monoxide and sulfur dioxide. All readings indicated that levels were normal and posed no public health concern.

**Air: Fresh Kills Landfill**

EPA has also started to monitor the air around the Fresh Kills Landfill, where debris from the World Trade Center collapse is being sent for disposal. Eight air monitors set up by the agency show no detectable levels of asbestos from the landfill. The agency will continue to monitor the landfill for asbestos and for particulate matter in the coming days.

**Dust Samples**

Twelve additional dust samples were taken from the area yesterday, and are being analyzed. This brings the total number of dust samples taken by EPA to date to 83.

**Drinking Water Samples**

Results from lower Manhattan drinking water samples taken by EPA and New York City were received. Asbestos was not detected in any of the samples, nor was any bacterial contamination. PCBs and pesticides levels were below detectable levels, and metals (including mercury) and radioactivity (both alpha and beta) did not exceed EPA drinking water standards.

**Sewage Treatment Plant Samples**

On September 16, EPA took samples at three locations at Newtown Creek Wastewater Treatment Plant, which is the recipient of wastewater from lower Manhattan. The samples were analyzed for a number of contaminants including many of those tested for in the Hudson (see above). Results for metals and mercury were all below the permit discharge limits. We await results for asbestos, PCBs, polycyclic aromatic hydrocarbons (PAHs) and dioxins. The samples were also analyzed for total suspended solids and biochemical oxygen demand, which are common indicators of how well a waste water treatment plant is operating. Based on these results, the plant is operating within its permit limits.

Should it rain later this week, EPA will collect water samples from the Hudson and East Rivers where storm sewers and surface water in lower Manhattan is discharged. Samples will be tested for asbestos, PCBs, PAHs, metals and total suspended solids.

**Ongoing activity:**

EPA continued to use its HEPA filter SUPERVAC vacuum trucks today, and cleaned the streets of Battery Park City. Cleaning will continue late into the evening. The trucks were used to vacuum the lobbies of federal buildings and to clean the financial district earlier. Dust and other materials are vacuumed, kept in air tight containers and disposed of properly. Vacuum trucks will be available to address other areas, as needed.

The agency is setting up four wash stations for rescue and recovery workers at ground zero, and three for trucks. Starting tomorrow at the wash stations, workers' clothing, boots, protective gear and tools will be collected for proper and thorough washing, and the workers will be able to wash off and change into clean clothing before going home. Emergency wash down and rapid wash down (for worker breaks of short duration for eating, breaks, meetings) will also be available. Any heavy equipment departing the zone will be washed down prior to departure as well. Signs informing rescuers of the need for protective gear will be posted throughout the wash areas. EPA will also continue to distribute respirator masks to emergency personnel working in the hot zone.

EPA and the Coast Guard's National Strike Force continued to lead key corporate personnel into buildings in the "hot zone" to retrieve important information and check computer systems. Buildings are cleared for contaminants and adequate oxygen prior to entry. Today, EPA and the Coast Guard led 12 workers into 3 corporate locations in and around ground zero. To date, EPA and the Coast Guard have received 41 requests from corporations for such assistance, and has completed 34 entries. More are to follow in the coming days.



**Press Information**  
**Wednesday, September 19**

**Most Recent Results (as of 7 pm 9/19):**

**Air**

EPA's most recent rounds of air samples from 11 fixed monitoring sites in and around the "hot zone" were below the EPA limit for asbestos. This brings the total number of samples taken from fixed monitors to 68.

EPA has also started to monitor the air around the Fresh Kills Landfill, where debris from the World Trade Center collapse is being sent for disposal. Eight air monitors set up by the agency show no detectable levels of asbestos from the landfill. The agency will continue to monitor the landfill for asbestos and for particulate matter in the coming days.

On September 18, EPA also took readings of outdoor air at 12 locations around ground zero for chemicals including hydrogen sulfide, VOCs, carbon monoxide and sulfur dioxide. All readings indicated that levels were normal and posed no public health concern.

**Dust**

Twelve additional dust samples were taken from the area yesterday, and are being analyzed. This brings the total number of dust samples taken by EPA to date to 83. The 12 new samples include some from window sills of residences in Battery Park City.

**Water**

Results from lower Manhattan drinking water samples taken by EPA and the NYC DEP were received. Asbestos was not detected in any of the samples, nor was any bacterial contamination. PCBs and pesticides levels were below detectable levels, and metals (including mercury) and radioactivity (both alpha and beta) did not exceed EPA drinking water standards.

EPA took samples of sediment to be dredged from the Hudson where barges will come in and carry away debris. Samples will be tested for toxicity, metals, pesticides, PCBs, PAHs, BTX and dioxins. Results will come in over the next 6 weeks. However, dredging at the lower Manhattan site and disposal at the Newark Bay Pit will be allowed immediately because the Pit is for material that fails ocean dumping criteria and cannot go to land facilities without treatment. Preliminary chemical analyses show levels of PCB's at between 0.630 and 1.2 parts per million. PCB levels in the harbor are normally in the 1 ppm level. We are awaiting the toxicity and bioaccumulation results.

On September 16, EPA took samples at three locations at Newtown Creek Wastewater Treatment Plant, which is the recipient of wastewater from lower Manhattan. The samples were analyzed for a number of contaminants including all those tested for in the Hudson (see above) with the exception of PPBs. Results for metals and mercury were all below the permit discharge limits. We await results for asbestos, PCBs, PAHs and dioxins. The samples were also analyzed for total suspended solids and biochemical oxygen demand, which are common indicators of how well a waste water treatment plant is operating. Based on these results, the plant is operating

within its permit limits.

Should it rain later this week, EPA will collect water samples from the Hudson and East Rivers where storm sewers and surface water in lower Manhattan is discharged. Samples will be tested for asbestos, PCBs, PAHs, metals and total suspended solids.

**Pending Results:**

On Saturday, September 15, EPA took a sample of the Hudson River just off Vesey Street at a storm drain that carried runoff from the ground zero site during Friday's rain. This sample is being analyzed for a number of contaminants, including metals, PCBs, Dioxin, polybrominated biphenyls (PBB's) and asbestos. Results are expected later this week (week of 9/17).

**Ongoing activity:**

EPA continued to use its HEPA filter SUPERVAC vacuum trucks today, and cleaned the streets of Battery Park City. Cleaning will continue late into the evening. The trucks were used to vacuum the lobbies of federal buildings and to clean the financial district earlier. Dust and other materials are vacuumed, kept in air tight containers and disposed of properly. Vacuum trucks will be available to address other areas, as needed.

The agency is setting up four wash stations for rescue and recovery workers at ground zero, and three for trucks. Starting tomorrow at the wash stations, workers' clothing, boots, protective gear and tools will be collected for proper and thorough washing, and the workers will be able to wash off and change into clean clothing before going home. Emergency wash down and rapid wash down (for worker breaks of short duration for eating, breaks, meetings) will also be available. Any heavy equipment departing the zone will be washed down prior to departure as well. Signs informing rescuers of the need for protective gear will be posted throughout the wash areas. EPA will also continue to distribute respirator masks to emergency personnel working in the hot zone.

The city will be sampling from several water tanks located on the top of buildings. They have requested that we facilitate the analysis of these samples for asbestos and PCBs. EPA has received three samples and expects to get more shortly. The city has directed buildings with water tanks to flush tanks that had water at the time of the terrorist attack on the WTC.

EPA and the Coast Guard's National Strike Force continued to lead key corporate personnel into buildings in the "hot zone" to retrieve important information and check computer systems. Buildings are cleared for contaminants and adequate oxygen prior to entry. Today, EPA and the Coast Guard led 12 workers into 3 corporate locations in and around ground zero. To date, EPA and the Coast Guard have received 41 requests from corporations for such assistance, and has completed 34 entries. More are to follow in the coming days.

**EPA Emergency Response to WTC Disaster  
Sample Update, September 19, 2001**

EPA Region 2 samples taken since September 11, 2001:

**Samples From Fixed Air Monitors in and Around "Ground Zero"**

- 97 samples taken. **71 were analyzed** (26 could not be analyzed because the filters became clogged)
- Out of **71 analyzed** - 7 were marginally above the 70 structures per millimeter squared that we use to clear schools after asbestos removal under AHERA.
- Four samples taken from monitors in NJ indicated no detectable levels of asbestos.
- Four samples taken for mercury. All non-detects.

**Other Air Samples:**

- Real-time readings of outdoor air taken at locations around ground zero for chemicals including hydrogen sulfide, VOCs, carbon monoxide and sulfur dioxide. Low levels of phosgene and hydrogen cyanide were detected. All readings indicated that levels were normal and posed no public health concern.

**Samples of Dust:**

- Out of a total of 85 dust samples analyzed to date, 25 were over the 1% limit for EPA's definition of asbestos containing material. EPA continues to sample dust in the area.

**Drinking Water Samples:**

- 13 samples of drinking water were taken throughout the lower Manhattan distribution system (in the water mains). Samples met drinking water standards for biological and chemical contaminants, as well as radionuclides and asbestos.

**Hudson River:**

- 1 sample, taken near storm drain draining from ground zero. Results show high levels of PCBs. More testing to take place today during rain.

**Sediments:**

- 3 samples collected from surface of sediment that was dredged to allow access for barges. Results pending. Preliminary results show PCB levels at between .630 and 1.2 ppm. This compares with about 1ppm in the NY harbor area.

**ALSO:**

- EPA and the Coast Guard's National Strike Force continue to lead key corporate personnel into buildings in the "hot zone" to retrieve important information and**

**check computer systems.** Buildings are cleared for contaminants and adequate oxygen prior to entry. To date, EPA and the Coast Guard have received **42** requests from corporations for such assistance, and has completed **35** entries. More are to follow.

File

**Air Sampling Situation Report  
Tuesday, September 19, 2001 ( 11:00am)**

Fixed Ambient Air Sampling Locations

- Round 7
- 8am Sept 17 - 8pm Sept 17.....All less than 70 S/mm2

Landfill Air Sampling locations (Asbestos sampling)

- 8 Locations
- all Non-Detects

Direct Reading Instruments

- No immediate public/occupational health threat
  - Phosgene
  - Hydrogen Cyanide
  - Hydrogen Sulfide
  - VOCs
  - Oxygen
  - LEL
  - CO
  - Nitric Oxide (NO)
  - Sulfur Dioxide (SO<sub>2</sub>)

TAGA Samples

- GC/MS.....Result of Sept 18
- No immediate public/occupational health threat

F.L.

NYC Response  
Asbestos Air Sampling Results at Fixed Locations

Date	Sample No.	S.L.	Matrix	Sample Volume	Round 7 <5µ (>5µ) S (#)	Round 7 S/mm2 (S-Ficc)*	Comments
9/17-18/01	1491	G	Air	720 Liters	0 (0)	<8 (<0.0043)	Chrysotile asbestos
9/17-18/01	1492	A	Air	720 Liters	1 (0)	8 (0.0043)	Chrysotile asbestos
9/17-18/01	1493	B	Air	720 Liters	1 (0)	8 (0.0043)	Chrysotile asbestos
9/17-18/01	1494	C	Air	430 Liters	0 (0)	<5 (<0.0045)	Chrysotile asbestos
9/17-18/01	1497	D	Air	720 Liters	1 (0)	8 (0.0043)	Chrysotile asbestos
9/17-18/01	1498	K	Air	720 Liters	0 (0)	<8 (<0.0043)	Chrysotile asbestos
9/17-18/01	1500	F	Air	720 Liters	1 (1)	16(0.0086)	Chrysotile asbestos
9/17-18/01	1501	F**	Air	720 Liters	0 (0)	<8 (<0.0043)	Chrysotile asbestos
9/17-18/01	1495	H	Air	720 Liters	1 (0)	8 (0.0043)	Chrysotile asbestos
9/17-18/01	1496	I	Air	720 Liters	0 (0)	<8 (<0.0043)	Chrysotile asbestos
9/17-18/01	1502	J	Air	720 Liters	0 (0)	<8 (<0.0043)	Chrysotile asbestos
9/17-18/01	1503	N	Air	720 Liters	0 (0)	<8 (<0.0043)	Chrysotile asbestos

NA: not analyzed due to overloading of particulates

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L.: Sampling Locations

Sample volume is below recommended limit of the method: ~~720 Liters~~ ~~430 Liters~~

\*Structure (S) Roughly equivalent to Fiber (F)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm2, volume 1200L, for 25MM filter (TEM)

A: Intersection of Barclay+West Broadway

B: Intersection of Church+Dey St.

C: Intersection of Liberty+Trinity

D: Intersection of Greenwich+Albany;

E: Intersection of Liberty+South End Ave.

F: Intersection of Vesey+West St. F\*\* Duplicate

G: Intersection of Church and Duane

H: One Chase Plaza

I: Wall Street+Broadway

J: Corner of West and Warren

K: Corner of Albany and West

Round 7: 8:00PM (9/17) - 8:00AM (9/18)

ERT 9/19/01 9:30AM

Landfill Sept 18 File

NYC Response  
Asbestos Air Sampling Results at Fresh Kill

Date	Sample No.	S.L.	Matrix	Sample Volume	TEM Fiber/cc	PCM * S-F/cc	Comments
9/18/01	OO671	Location 1A	Air	720 Liters	<0.0083	<0.0083	
9/18/01	OO672	Location 2	Air	720 Liters	<0.0083	<0.0083	
9/18/01	OO673	Location 3	Air	720 Liters	<0.0083	<0.0083	
9/18/01	OO674	Location 4	Air	720 Liters	<0.0083	<0.0083	
9/18/01	OO675	Location 5	Air	720 Liters	<0.0083	<0.0083	
9/18/01	OO676	Location 6	Air	720 Liters	<0.0083	<0.0083	
9/18/01	OO677	Location 7	Air	720 Liters	<0.0083	<0.0083	
9/18/01	OO678	Location 8	Air	720 Liters	<0.0083	<0.0083	

NA: not analyzed due to overloading of particulates

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L.: Sampling Locations

\*PCM NIOSH method 7400 Revision 3, Issue 2

\*Structure (S) Roughly equivalent to Fiber (F)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm2, volume 1200L, for 25MM filter (TEM)

File  
p. 3

Location	Date	Time	Tape Meters				Electrochemical Cell								Cannonball			
			004050		010076		4407				731219							
			CI	CO	COCl <sub>2</sub>	HCN	H <sub>2</sub> S	VOC	LEL	O <sub>2</sub>	CO	NO	SO <sub>2</sub>	O <sub>2</sub>	LEL			
pphv	pphv	pphv	ppbv	ppm	ppm	%	%	ppm	ppm	ppm	%	%						
G	09/18/01	12:20	-	0	-	0	0	0.7	0	21.1	0	0	0	0.8	20.8	0		
A	09/18/01	12:40	-	0	-	0	0	0.5	0	21.3	0	0	0	0.9	20.8	0		
B	09/18/01	12:45	-	0	-	0	0	0.6	0	21.3	2	86	1.3	20.9	0			
C	09/18/01	13:00	-	0	-	0	0	0.6	0	21.3	4	700	0.3	20.8	0			
H	09/18/01	13:10	-	0	-	0	0	0.5	0	21.3	0	0	1.0	21.0	0			
I	09/18/01	13:20	-	0	-	0	0	0.5	0	21.3	1	0	0.8	20.9	0			
D	09/18/01	13:30	-	0	-	0	0	0.4	0	21.3	1	700	0.7	20.9	0			
K	09/18/01	13:40	-	0	-	0	0	0.2	0	21.3	0	(125)	1.0	20.9	0			
E	09/18/01	13:45	-	0	-	0	0	0.2	0	21.4	0	5	1.2	20.7	0			
F	09/18/01	13:55	-	0	-	0	0	0.1	0	21.5	0	4	1.5	20.8	0			
J	09/18/01	14:00	-	0	-	0	0	0.1	0	21.5	0	4	1.4	20.8	0			
N	09/18/01	14:05	-	0	-	0	0	0.2	0	21.4	0	4	1.8	20.9	0			

A: Intersection of Barday+West Broadway  
 B: Intersection of Church+Dey St.  
 C: Intersection of Liberty+Trinity  
 D: Intersection of Greenwich+Albany  
 E: Intersection of Liberty+South End Ave.  
 F: Intersection of Vesey+West St.  
 G: Intersection of Church and Diane  
 H: One Chase Plaza  
 I: Wall Street+Broadway  
 J: Corner of West and Warren  
 K: Corner of Albany and West  
 N: Valley Hall Court Pier 12



Location	Date	Time	Tape Meters				Electrochemical Cell 4407							PHD		Cannonball	
			004050 Cl ppbv	010076 COCL2 ppbv	H2S ppbv	H2O ppbv	H2S ppm	VOC ppm	LEL %	O2 %	CO ppm	Cl2	NO ppm	SO2 ppm			
G	09/18/01	17:17		0		0	0.0	0	21.3	0	0	0	0	0	0	0	0.6
A	09/18/01	17:24		0		0	0.1	0	21.3	0	0	0	0	0	0	0	0.6
B	09/18/01	17:32		0		0	0.4	0	21.3	0	0	0	0	0	0	0	0.9
C	09/18/01	17:40		0		0	0.1	0	21.3	0	0	0	0	0	0	0	0.8
H	09/18/01	18:00		0		0	0.1	0	21.3	0	0	0	0	0	0	0	0.7
I	09/18/01	18:10		0		0	0.6	0	21.3	0	0	0	0	0	0	0	0.4
D	09/18/01	18:15		0		0	0.7	0	21.3	0	0	0	0	0	0	0	0.1
K	09/18/01	18:25		0		0	0.7	0	21.3	0	0	0	0	0	0	0	0.8
E	09/18/01	18:30		0		0	0.5	0	21.2	0	0	0	0	0	0	0	0.5
F	09/18/01	18:45		0		0	0.1	0	21.2	0	0	0	0	0	0	SAT	0.6
J	09/18/01	18:50		0		0	0.1	0	21.2	0	0	0	0	0	0	0	0.6
N	09/18/01	19:00		0		0	0.5	0	21.2	0	0	0	0	0	0	0	0.5

- A: Intersection of Barclay+West Broadway
- B: Intersection of Church+Day St.
- C: Intersection of Liberty+Trinity
- D: Intersection of Greenwich+Albany
- E: Intersection of Liberty+South End Ave.
- F: Intersection of Vesey+West St.
- G: Intersection of Church and Duane
- H: One Chase Plaza
- I: Wall Street+Broadway
- J: Corner of West and Warren
- K: Corner of Albany and West
- N: Volney Ball Court Pier 26

EKT 9/19/01

NYC Response  
 Volatile organic compound analysis results

GC/MS Results for 9/18/01

File name	NYC048	File name	NYC049	File name	NYC050
Sample Location	Instrument Blank	Sample Location	Tedlar Bag Blank	Sample Location	Ambient Blar
Sample Number		Sample Number		Sample Number	N.River Terra
Volume		Volume	1.0 L	Volume	0.5 L
All	n.d. (not detected)	Acetone	1.3 ppb	Acetone	4.9 ppb
				Toluene	2.0 ppb

File name	NYC051	File name	NYC052	File name	NYC053
Sample Location	Liberty & West St.	Sample Location	Greenwich & Liberty	Sample Location	WTC Main Squa
Sample Number	1305	Sample Number	1315A	Sample Number	1325
Volume	0.5 L	Volume	0.5 L	Volume	0.5 L
Chloromethane	5.6 ppb	Chloromethane	8.4 ppb	Chloromethane	2.3 ppb
Acetone	46 ppb	Acetone	25 ppb	Acetone	7.3 ppb
MTBE	2.3 ppb	2-Butanone	3.1 ppb	2-Butanone	2.1 ppb
2-Butanone	3.0 ppb	Benzene	23 ppb	Benzene	19 ppb
Benzene	18 ppb	Toluene	7.9 ppb	Toluene	6.4 ppb
Toluene	8.7 ppb	Ethylbenzene	4.8 ppb	Ethylbenzene	3.9 ppb
Ethylbenzene	4.7 ppb	Styrene	6.2 ppb	Styrene	4.4 ppb
Styrene	7.8 ppb				

File name	NYC054	File name		File name	
Sample Location	WTC Plaza	Sample Location		Sample Location	
Sample Number	1325 Dup.	Sample Number		Sample Number	
Volume	0.5 L	Volume		Volume	
Acetone	13 ppb				
Benzene	10 ppb				
Toluene	4.0 ppb				
Ethylbenzene	2.0 ppb				
Styrene	2.5 ppb				

Results are reported in ppbv

9/19/01  
 9:45 AM

(File

**DRAFT****Final Preliminary Results****New York City/ World Trade Center Sampling Activities**  
**Drinking Water Sampling 09/15/01**EPA Personnel: Richard Coleates  
Robert Morrell

Sampling Date: 09/15/01

Sample Matrix: Drinking Water

**Preliminary Results Summary:** Microbiological contamination was absent. Asbestos was also not detected. Two (2) THMs were detected below the federal Maximum Contaminant Level (MCL). No other regulated organic contaminants were detected. Metals were detected, but at concentrations below federal MCLs. Chlorination and system pressure appear adequate, and turbidity was normal.

PCBs (Aroclors) and pesticides were below the detection limit and the federal MCL in all samples. One sample (37950) was lost due to breakage and therefore was not analyzed for PCBs or pesticides. Several haloacetic acids (HAAs), by-products of chlorine disinfection, were detected, but the sum was well below the federal MCL of 60ug/L. Radioactivity (alpha and beta) were below the federal MCL for these parameters.

**Locations:** 13 locations in southern Manhattan. The locations are 31350, 35550, 30150, 37950, 32350, 30350, 30250, 30450, 30550, 30950, 30050, 31850, 31050.

**Sampling Activities:** Grab samples were collected at 13 stations in the NYC drinking water distribution systems. All locations are part of the City's routine monitoring program, but have not been sampled since the WTC disaster because NYCDEP samplers were not permitted access to lower Manhattan.

**EPA Region 2****Laboratory**

**parameters:** Metals  
Pesticides/PCBs  
BNAs  
VOCs/THMs  
Haloacetic Acids (HAAs)  
Total coliforms and *E. coli*  
Heterotrophic plate count  
Hardness

**Contract****Laboratory**

**Parameters**  
(Raj Singhvi  
coordinating): Asbestos

**NYSDOH**  
**Laboratory**  
**Parameters:** Gross alpha and beta radioactivity

**Field parameters:** pH  
conductance  
salinity  
free chlorine

**Preliminary Results:**

**System Pressure:** Sampling personnel reported that pressure appeared normal.

**Asbestos:** Asbestos was analyzed in all of the samples by a certified drinking water laboratory. Asbestos was reported as non detect (less than the detection limit of 1.5 million fibers per liter (MFL)). The federal drinking water MCL for asbestos is 7 MFL greater than 10 microns in length.

**Microbiology:** Drinking water microbiological parameters were analyzed in the EPA Region 2 laboratory. Testing indicated the absence of total coliforms and *E. coli*. The Heterotrophic Plate Count, an indicator of total bacteria (pathogenic and non-pathogenic) was also negative.

**Metals:** Metals parameters, including mercury, were analyzed by the EPA Region 2 laboratory. All detected metals were at concentrations below the federal MCL. Mercury was not detected in any sample.

**VOCs/THMs:** Two THMs were detected in each of the thirteen (13) samples. Chloroform was consistently detected at a concentration of about 40 ug/L. Bromodichloromethane was also consistently detected at a concentration around 6 ug/L. The federal MCL for total THMs is 100 ug/L. No sample exceeded the federal MCL. No other VOCs were detected in any sample.

**Base Neutral/Acid Extractables (BNAs):** Six (6) BNAs regulated under the federal Safe Drinking Water Act were analyzed in the EPA Region 2 Laboratory. BNAs were not detected in any sample. Hexanedioic acid ester, a non-target compound, was tentatively identified at 120 and 38 ppb in samples collected at locations 30150 and 30250, respectively. There is no MCL for this compound.

**Pesticides/PCBs:** Samples were analyzed by the EPA Region 2 laboratory. Pesticides and PCBs (Aroclors) were below the detection limit and the federal MCLs in all samples. One sample (37950) was lost due to breakage and therefore was not analyzed for pesticides and PCBs.

**Haloacetic Acids (HAAs):** Samples were analyzed by the EPA Region 2 laboratory. EPA analyzed for nine (9) haloacetic acids, though only five are regulated. Several haloacetic acids (HAAs), by-products of chlorine disinfection, were detected, but the sum, including the unregulated HAAs, was well below the federal MCL of 60ug/L in all samples.

**Radionuclides (Gross Alpha particle activity and beta particle and photon activity):** Samples were analyzed at NYSDOH - Wadsworth Laboratories in Albany. Radioactivity (alpha and beta) were below the federal MCL for these parameters.

**Free Chlorine:** Free chlorine was detected at concentrations between 0.15 to 0.73 mg/L. All samples other than that where the concentration was 0.15 mg/L were above 0.3 mg/L. NYCDEP's result at this location was 0.22 mg/L. Overall, data suggests that the supply is adequately disinfected.

**Turbidity:** Turbidity must be kept below 5 NTU, and was at about one tenth of that value in all samples, which is within the normal range for NYC water.

**Conventional Parameters:** All of the conventional parameters (hardness, phosphate, fluoride, pH), which do not have primary MCLs, were within normal limits.

<b>Metals</b>	<b>VOCs. cont.</b>
Mercury	1,3-Dichloropropane
Silver	Dibromochloromethane
Aluminum	1,2-Dibromoethane
Arsenic	2-Hexanone
Barium	Chlorobenzene
Beryllium	1,1,1,2-Tetrachloroethane
Calcium	Ethylbenzene
Cadmium	m/p - Xylene
Chromium	o-Xylene
Copper	Styrene
Iron	Bromoform
Manganese	Isopropylbenzene
Sodium	Bromobenzene
Nickel	1,2,3-Trichloropropane
Lead	1,1,2,2-Tetrachloroethane
Selenium	N-Propylbenzene
Antimony	2-Chlorotoluene
Thallium	4-Chlorotoluene
Zinc	1,3,5-Trimethylbenzene
	terti-Butylbenzene
<b>VOCs</b>	1,3-Dichlorobenzene
Chloromethane	1,2,4-Trimethylbenzene
Vinyl Chloride	sec-Butylbenzene
Bromomethane	1,3-Dichlorobenzene
Chloroethane	1,4-Dichlorobenzene
Trichlorofluoromethane	1,2-Dichlorobenzene
1,1-Dichloroethene	4-Isopropyltoluene
Carbon Disulfide	n-Butylbenzene
Acetone	1,2-Dibromo-3-chloropropane
Methylene Chloride	1,2,4-Trichlorobenzene
Trans-1,2-Dichloroethene	Hexachlorobutadiene
Acrylonitrile	Naphthalene
1,1-Dichloroethane	1,2,3-Trichlorobenzene
cis-1,2-Dichloroethene	Methylmethacrylate
2,2-Dichloropropane	
2-Butanone	<b>BNAs</b>
Bromochloromethane	Hexachlorocyclopentadiene
Chloroform	Hexachlorobenzene
1,1,1-Trichloroethane	bis-(2-ethylhexyl)phthalate
Carbon Tetrachloride	Benzo(a)Pyrene
1,1-Dichloropropene	2,6-Dinitrotoluene
Benzene	2,4-Dinitrotoluene
1,2-Dichloroethane	
Trichloroethene	
1,2-Dichloropropane	
Dibromomethane	
Bromodichloromethane	
cis-1,3-Dichloropropene	
4-Methyl-2-Pentanone	
Toluene	
trans-1,3-Dichloropropene	
1,1,2-Trichloroethane	
Tetrachloroethene	



U.S. EPA Region 2 Laboratory  
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Survey Name: WTC - NYC Water Supply

Project Number: 01090013

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\* Sorted by Analysis

Analysis Type: HALOACETIC ACIDS GC AQUEOUS

AC03449 Field Station ID: 31350 Coll. Ending Date/Time: 9/15/01 09:10

Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Code
79-11-8	MONOCHLOROACETIC ACID	1.4	ug/L	
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U
79-43-6	DICHLOROACETIC ACID	14	ug/L	
76-03-9	TRICHLOROACETIC ACID	20	ug/L	
5589-96-8	BROMOCHLOROACETIC ACID	1.3	ug/L	
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U

AC03450 Field Station ID: 35550 Coll. Ending Date/Time: 9/15/01 09:45

Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Code
79-11-8	MONOCHLOROACETIC ACID	1.5	ug/L	
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U
79-43-6	DICHLOROACETIC ACID	15	ug/L	
76-03-9	TRICHLOROACETIC ACID	23	ug/L	
5589-96-8	BROMOCHLOROACETIC ACID	1.5	ug/L	
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U

AC03451 Field Station ID: 30150 Coll. Ending Date/Time: 9/15/01 10:15

Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Code
79-11-8	MONOCHLOROACETIC ACID	1.0	ug/L	
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U
79-43-6	DICHLOROACETIC ACID	12	ug/L	
76-03-9	TRICHLOROACETIC ACID	22	ug/L	
5589-96-8	BROMOCHLOROACETIC ACID	1.1	ug/L	
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U

AC03452 Field Station ID: 37950 Coll. Ending Date/Time: 9/15/01 10:50

Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Code
79-11-8	MONOCHLOROACETIC ACID	0.94	ug/L	



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\* Sorted by Analysis

AC03452 Field Station ID: 37950 Coll. Ending Date/Time: 9/15/01 10:50  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Co.
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U
79-43-6	DICHLOROACETIC ACID	2.13	ug/L	U
76-03-9	TRICHLOROACETIC ACID	24	ug/L	U
5589-96-8	BROMOCHLOROACETIC ACID	0.50	ug/L	U
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U

AC03453 Field Station ID: 32350 Coll. Ending Date/Time: 9/15/01 11:28  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Code
79-11-8	MONOCHLOROACETIC ACID	0.75	ug/L	U QR
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U QR
79-43-6	DICHLOROACETIC ACID	4.1	ug/L	QR
76-03-9	TRICHLOROACETIC ACID	15	ug/L	QR
5589-96-8	BROMOCHLOROACETIC ACID	0.50	ug/L	U QR
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U QR
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U QR
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U QR
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U QR

AC03454 Field Station ID: 30350 Coll. Ending Date/Time: 9/15/01 12:05  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Code
79-11-8	MONOCHLOROACETIC ACID	1.5	ug/L	U
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U
79-43-6	DICHLOROACETIC ACID	16	ug/L	U
76-03-9	TRICHLOROACETIC ACID	23	ug/L	U
5589-96-8	BROMOCHLOROACETIC ACID	1.5	ug/L	U
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U

AC03455 Field Station ID: 30250 Coll. Ending Date/Time: 9/15/01 12:45  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Code
79-11-8	MONOCHLOROACETIC ACID	1.5	ug/L	U
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U
79-43-6	DICHLOROACETIC ACID	15	ug/L	U
76-03-9	TRICHLOROACETIC ACID	22	ug/L	U

NV = Not Validated; Inc = Result not entered





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Survey Name: WTC - NYC Water Supply  
Project Number: 01090013

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AC03455 Field Station ID: 30250 Coll. Ending Date/Time: 9/15/01 12:45  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Code
5589-96-8	BROMOCHLOROACETIC ACID	1.5	ug/L	
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U

AC03456 Field Station ID: 30450 Coll. Ending Date/Time: 9/15/01 13:20  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Code
79-11-8	MONOCHLOROACETIC ACID	1.2	ug/L	
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U
79-43-6	DICHLOROACETIC ACID	15	ug/L	
76-03-9	TRICHLOROACETIC ACID	23	ug/L	
5589-96-8	BROMOCHLOROACETIC ACID	1.5	ug/L	
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U

AC03457 Field Station ID: 30550 Coll. Ending Date/Time: 9/15/01 13:45  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Code
79-11-8	MONOCHLOROACETIC ACID	1.3	ug/L	
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U
79-43-6	DICHLOROACETIC ACID	15	ug/L	
76-03-9	TRICHLOROACETIC ACID	22	ug/L	
5589-96-8	BROMOCHLOROACETIC ACID	1.4	ug/L	
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U

AC03458 Field Station ID: 30950 Coll. Ending Date/Time: 9/15/01 14:30  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Code
79-11-8	MONOCHLOROACETIC ACID	1.7	ug/L	
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U
79-43-6	DICHLOROACETIC ACID	15	ug/L	
76-03-9	TRICHLOROACETIC ACID	22	ug/L	
5589-96-8	BROMOCHLOROACETIC ACID	1.4	ug/L	
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U



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CAS Number	Analyte Name	Result	Units	Rmk Code
AC03458 Field Station ID: 30950 Coll. Ending Date/Time: 9/15/01 14:30				
Matrix: Aqueous				
Sample Description:				
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U
AC03459 Field Station ID: 30050 Coll. Ending Date/Time: 9/15/01 15:25				
Matrix: Aqueous				
Sample Description:				
79-11-8	MONOCHLOROACETIC ACID	1.3	ug/L	QR
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U QR
79-43-6	DICHLOROACETIC ACID	8.1	ug/L	QR
76-03-9	TRICHLOROACETIC ACID	8.4	ug/L	QR
5589-96-8	BROMOCHLOROACETIC ACID	0.68	ug/L	QR
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U QR
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U QR
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U QR
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U QR
AC03460 Field Station ID: 31850 Coll. Ending Date/Time: 9/15/01 16:20				
Matrix: Aqueous				
Sample Description:				
79-11-8	MONOCHLOROACETIC ACID	1.3	ug/L	
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U
79-43-6	DICHLOROACETIC ACID	14	ug/L	
76-03-9	TRICHLOROACETIC ACID	23	ug/L	
5589-96-8	BROMOCHLOROACETIC ACID	1.4	ug/L	
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U
AC03461 Field Station ID: 31050 Coll. Ending Date/Time: 9/15/01 17:10				
Matrix: Aqueous				
Sample Description:				
79-11-8	MONOCHLOROACETIC ACID	1.4	ug/L	QR
79-08-8	MONOBROMOACETIC ACID	0.50	ug/L	U QR
79-43-6	DICHLOROACETIC ACID	10	ug/L	QR
76-03-9	TRICHLOROACETIC ACID	13	ug/L	QR
5589-96-8	BROMOCHLOROACETIC ACID	0.86	ug/L	QR
71133-14-7	BROMODICHLOROACETIC ACID	0.50	ug/L	U QR
631-64-1	DIBROMOACETIC ACID	0.25	ug/L	U QR
76-03-9	CHLORODIBROMOACETIC ACID	1.3	ug/L	U QR
75-96-7	TRIBROMOACETIC ACID	2.5	ug/L	U QR

NY = Not Validated; Inc = Result not entered

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Report Date: 9/18/01



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Survey Name: WTC - NYC Water Supply  
Project Number: 01090013

*PCBS*

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**AC03459** Field Station ID: 30050 Coll. Ending Date/Time: 9/15/01 15:25  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Co.
000117817	BIS(2-ETHYLHEXYL)PHTHALATE	5.5	ug/L	U
000050328	BENZO(A)PYRENE	5.5	ug/L	U
000606202	2,6-DINITROTOLUENE	5.5	ug/L	U
000121142	2,4-DINITROTOLUENE	5.5	ug/L	U

**AC03466** Field Station ID: 31850 Coll. Ending Date/Time: 9/15/01 16:20  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Co.
000077474	HEXACHLOROCCYCLOPENTADIENE	5.6	ug/L	U
000118741	HEXACHLOROBENZENE	5.6	ug/L	U
000117817	BIS(2-ETHYLHEXYL)PHTHALATE	5.6	ug/L	U
000050328	BENZO(A)PYRENE	5.6	ug/L	U
000606202	2,6-DINITROTOLUENE	5.6	ug/L	U
000121142	2,4-DINITROTOLUENE	5.6	ug/L	U

**AC03461** Field Station ID: 31050 Coll. Ending Date/Time: 9/15/01 17:10  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Co.
000077474	HEXACHLOROCCYCLOPENTADIENE	5.6	ug/L	U QG
000118741	HEXACHLOROBENZENE	5.6	ug/L	U
000117817	BIS(2-ETHYLHEXYL)PHTHALATE	5.6	ug/L	U
000050328	BENZO(A)PYRENE	5.6	ug/L	U
000606202	2,6-DINITROTOLUENE	5.6	ug/L	U
000121142	2,4-DINITROTOLUENE	5.6	ug/L	U

Analysis Type: PCBS TCL GC AQUEOUS

**AC03449** Field Station ID: 31350 Coll. Ending Date/Time: 9/15/01 09:10  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Co.
12674-11-2	AROCLOR 1016	0.16	ug/L	U
11104-28-2	AROCLOR 1221	0.33	ug/L	U
11141-16-5	AROCLOR 1232	0.16	ug/L	U
53469-21-9	AROCLOR 1242	0.16	ug/L	U
12672-29-6	AROCLOR 1248	0.16	ug/L	U
11097-69-1	AROCLOR 1254	0.16	ug/L	U
11096-82-5	AROCLOR 1260	0.16	ug/L	U
37324-23-5	AROCLOR 1262	0.16	ug/L	U

**AC03450** Field Station ID: 35550 Coll. Ending Date/Time: 9/15/01 09:45  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Co.
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NV = Not Validated; Inc = Result not entered



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Field Station ID	Matrix	Sample Description	CAS Number	Analyte Name	Result	Units	Rmk. Cod.
AC03450	Aqueous						
Coll. Ending Date/Time: 9/15/01 09:45							
			12674-11-2	AROCLOR 1016	0.18	ug/L	U QE
			11104-28-2	AROCLOR 1221	0.37	ug/L	U QE
			11141-16-5	AROCLOR 1232	0.15	ug/L	U QE
			53469-21-9	AROCLOR 1242	0.18	ug/L	U QE
			12672-29-6	AROCLOR 1248	0.18	ug/L	U QE
			11097-69-1	AROCLOR 1254	0.18	ug/L	U QE
			11096-82-5	AROCLOR 1260	0.18	ug/L	U QE
			37324-23-5	AROCLOR 1262	0.18	ug/L	U QE
AC03451	Aqueous						
Coll. Ending Date/Time: 9/15/01 10:15							
			12674-11-2	AROCLOR 1016	0.17	ug/L	U QE
			11104-28-2	AROCLOR 1221	0.33	ug/L	U QE
			11141-16-5	AROCLOR 1232	0.17	ug/L	U QE
			53469-21-9	AROCLOR 1242	0.17	ug/L	U QE
			12672-29-6	AROCLOR 1248	0.17	ug/L	U QE
			11097-69-1	AROCLOR 1254	0.17	ug/L	U QE
			11096-82-5	AROCLOR 1260	0.17	ug/L	U QE
			37324-23-5	AROCLOR 1262	0.17	ug/L	U QE
AC03452	Aqueous						
Coll. Ending Date/Time: 9/15/01 10:50							
			12674-11-2	AROCLOR 1016	0	ug/L	O
			11104-28-2	AROCLOR 1221	0	ug/L	O
			11141-16-5	AROCLOR 1232	0	ug/L	O
			53469-21-9	AROCLOR 1242	0	ug/L	O
			12672-29-6	AROCLOR 1248	0	ug/L	O
			11097-69-1	AROCLOR 1254	0	ug/L	O
			11096-82-5	AROCLOR 1260	0	ug/L	O
			37324-23-5	AROCLOR 1262	0	ug/L	O
AC03453	Aqueous						
Coll. Ending Date/Time: 9/15/01 11:28							
			12674-11-2	AROCLOR 1016	0.18	ug/L	U QE
			11104-28-2	AROCLOR 1221	0.35	ug/L	U QE
			11141-16-5	AROCLOR 1232	0.18	ug/L	U QE
			53469-21-9	AROCLOR 1242	0.18	ug/L	U QE
			12672-29-6	AROCLOR 1248	0.18	ug/L	U QE
			11097-69-1	AROCLOR 1254	0.18	ug/L	U QE

NV = Not Validated; Inc = Result not entered



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AC03453 Field Station ID: 32350 Coll. Ending Date/Time: 9/15/01 11:28  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Co.
11096-82-5	AROCLOR 1260	0.18	ug/L	U QE
37324-23-5	AROCLOR 1262	0.18	ug/L	U QE

AC03454 Field Station ID: 30350 Coll. Ending Date/Time: 9/15/01 12:05  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Co.
12674-11-2	AROCLOR 1016	0.18	ug/L	U QR
11104-28-2	AROCLOR 1221	0.36	ug/L	U QR
11141-16-5	AROCLOR 1232	0.18	ug/L	U QR
53469-21-9	AROCLOR 1242	0.18	ug/L	U QR
12672-29-6	AROCLOR 1248	0.18	ug/L	U QR
11097-69-1	AROCLOR 1254	0.18	ug/L	U QR
11096-82-5	AROCLOR 1260	0.18	ug/L	U QR
37324-23-5	AROCLOR 1262	0.18	ug/L	U QR

AC03455 Field Station ID: 30250 Coll. Ending Date/Time: 9/15/01 12:45  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Cod
12674-11-2	AROCLOR 1016	0.17	ug/L	U QE
11104-28-2	AROCLOR 1221	0.35	ug/L	U QE
11141-16-5	AROCLOR 1232	0.17	ug/L	U QE
53469-21-9	AROCLOR 1242	0.17	ug/L	U QE
12672-29-6	AROCLOR 1248	0.17	ug/L	U QE
11097-69-1	AROCLOR 1254	0.17	ug/L	U QE
11096-82-5	AROCLOR 1260	0.17	ug/L	U QE
37324-23-5	AROCLOR 1262	0.17	ug/L	U QE

AC03456 Field Station ID: 30450 Coll. Ending Date/Time: 9/15/01 13:20  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Cod
12674-11-2	AROCLOR 1016	0.19	ug/L	U QE
11104-28-2	AROCLOR 1221	0.37	ug/L	U QE
11141-16-5	AROCLOR 1232	0.19	ug/L	U QE
53469-21-9	AROCLOR 1242	0.19	ug/L	U QE
12672-29-6	AROCLOR 1248	0.19	ug/L	U QE
11097-69-1	AROCLOR 1254	0.19	ug/L	U QE
11096-82-5	AROCLOR 1260	0.19	ug/L	U QE
37324-23-5	AROCLOR 1262	0.19	ug/L	U QE

AC03457 Field Station ID: 30550 Coll. Ending Date/Time: 9/15/01 13:45  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Cod
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NV = Not Validated; Inc = Result not entered



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Survey Name: WTC - NYC Water Supply

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CAS Number	Analyte Name	Result	Units	Rmk. Cod.
<b>AC03457</b> Field Station ID: 30550 Coll. Ending Date/Time: 9/15/01 13:45				
Matrix: Aqueous Sample Description:				
12674-11-2	AROCLOR 1016	0.17	ug/L	U QE
11104-28-2	AROCLOR 1221	0.34	ug/L	U QE
11141-16-5	AROCLOR 1232	0.17	ug/L	U QE
53469-21-9	AROCLOR 1242	0.17	ug/L	U QE
12672-29-6	AROCLOR 1248	0.17	ug/L	U QE
11097-69-1	AROCLOR 1254	0.17	ug/L	U QE
11096-82-5	AROCLOR 1260	0.17	ug/L	U QE
37324-23-5	AROCLOR 1262	0.17	ug/L	U QE
<b>AC03458</b> Field Station ID: 30950 Coll. Ending Date/Time: 9/15/01 14:30				
Matrix: Aqueous Sample Description:				
11104-28-2	AROCLOR 1221	0.33	ug/L	U QE
11141-16-5	AROCLOR 1232	0.17	ug/L	U QE
53469-21-9	AROCLOR 1242	0.17	ug/L	U QE
12672-29-6	AROCLOR 1248	0.17	ug/L	U QE
11097-69-1	AROCLOR 1254	0.17	ug/L	U QE
11096-82-5	AROCLOR 1260	0.17	ug/L	U QE
37324-23-5	AROCLOR 1262	0.17	ug/L	U QE
12674-11-2	AROCLOR 1016	0.17	ug/L	U QE
<b>AC03459</b> Field Station ID: 30050 Coll. Ending Date/Time: 9/15/01 15:25				
Matrix: Aqueous Sample Description:				
12674-11-2	AROCLOR 1016	0.16	ug/L	U QE
11104-28-2	AROCLOR 1221	0.33	ug/L	U QE
11141-16-5	AROCLOR 1232	0.16	ug/L	U QE
53469-21-9	AROCLOR 1242	0.16	ug/L	U QE
12672-29-6	AROCLOR 1248	0.16	ug/L	U QE
11097-69-1	AROCLOR 1254	0.16	ug/L	U QE
11096-82-5	AROCLOR 1260	0.16	ug/L	U QE
37324-23-5	AROCLOR 1262	0.16	ug/L	U QE
<b>AC03460</b> Field Station ID: 31850 Coll. Ending Date/Time: 9/15/01 16:20				
Matrix: Aqueous Sample Description:				
12674-11-2	AROCLOR 1016	0.16	ug/L	U QE
11104-28-2	AROCLOR 1221	0.33	ug/L	U QE
11141-16-5	AROCLOR 1232	0.16	ug/L	U QE
53469-21-9	AROCLOR 1242	0.16	ug/L	U QE
12672-29-6	AROCLOR 1248	0.16	ug/L	U QE
11097-69-1	AROCLOR 1254	0.16	ug/L	U QE

NV = Not Validated; Inc = Result not entered

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Report Date: 9/18



U.S. EPA Region 2 Laboratory  
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Survey Name: WTC - NYC Water Supply

Project Number: 01090013

\* Sorted by Analysis

AC03460 Field Station ID: 31850 Coll. Ending Date/Time: 9/15/01 16:20  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Cod
11096-82-5	AROCLOR 1260	0.16	ug/L	U QE
37324-23-5	AROCLOR 1262	0.16	ug/L	U QE

AC03461 Field Station ID: 31050 Coll. Ending Date/Time: 9/15/01 17:10  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Cod
12674-11-2	AROCLOR 1016	0.19	ug/L	U QE
11104-28-2	AROCLOR 1221	0.38	ug/L	U QE
11141-16-5	AROCLOR 1232	0.19	ug/L	U QE
53469-21-9	AROCLOR 1242	0.19	ug/L	U QE
12672-29-6	AROCLOR 1248	0.19	ug/L	U QE
11097-69-1	AROCLOR 1254	0.19	ug/L	U QE
11096-82-5	AROCLOR 1260	0.19	ug/L	U QE
37324-23-5	AROCLOR 1262	0.19	ug/L	U QE

Analysis Type: PESTICIDES GC DRINKING WATER

AC03449 Field Station ID: 31350 Coll. Ending Date/Time: 9/15/01 09:10  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Cod
1918-16-7	PROPACHLOR	0.026	ug/L	U
1582-09-8	TRIFLURALIN	0.026	ug/L	U
000060571	DIELDRIN	0.026	ug/L	U
000072208	ENDRIN	0.026	ug/L	U
000072435	METHOXYCHLOR	0.13	ug/L	U
000118741	HEXACHLOROBENZENE	0.013	ug/L	U
000058899	G-BHC	0.013	ug/L	U
000076448	HEPTACHLOR	0.013	ug/L	U
000309002	ALDRIN	0.013	ug/L	U
001024573	HEPTACHLOR EPOXIDE	0.013	ug/L	U
005103742	T-CHLORDANE	0.33	ug/L	U
008001352	TOXAPHENE	0.33	ug/L	U

AC03450 Field Station ID: 35550 Coll. Ending Date/Time: 9/15/01 09:45  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Cod
1918-16-7	PROPACHLOR	0.029	ug/L	U
1582-09-8	TRIFLURALIN	0.029	ug/L	U
000060571	DIELDRIN	0.029	ug/L	U
000072208	ENDRIN	0.029	ug/L	U
000072435	METHOXYCHLOR	0.15	ug/L	U
000118741	HEXACHLOROBENZENE	0.015	ug/L	U QE

NV = Not Validated; Inc = Result not entered



U.S. EPA Region 2 Laboratory  
Data Report

Survey Name: WTC - NYC Water Supply

Project Number: 01090013

\* Sorted by Analysis \*

AC03450 Field Station ID: 35550 Coll. Ending Date/Time: 9/15/01 09:45

Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Code
000058899	G-BHC	0.015	ug/L	U
000076448	HEPTACHLOR	0.015	ug/L	U QE
000309002	ALDRIN	0.015	ug/L	U QE
001024573	HEPTACHLOR EPOXIDE	0.015	ug/L	U
005103742	T-CHLORDANE	0.37	ug/L	U
008001352	TOXAPHENE	0.37	ug/L	U

AC03451 Field Station ID: 30150 Coll. Ending Date/Time: 9/15/01 10:15

Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Code
1918-16-7	PROPACHLOR	0.027	ug/L	U
1582-09-8	TRIFLURALIN	0.027	ug/L	U
000060571	DIELDRIN	0.027	ug/L	U
000072208	ENDRIN	0.027	ug/L	U
000072435	METHOXYCHLOR	0.13	ug/L	U
000118741	HEXACHLOROBENZENE	0.013	ug/L	U QE
000058899	G-BHC	0.013	ug/L	U
000076448	HEPTACHLOR	0.013	ug/L	U QE
000309002	ALDRIN	0.013	ug/L	U QE
001024573	HEPTACHLOR EPOXIDE	0.013	ug/L	U
005103742	T-CHLORDANE	0.33	ug/L	U
008001352	TOXAPHENE	0.33	ug/L	U

AC03452 Field Station ID: 37950 Coll. Ending Date/Time: 9/15/01 10:50

Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Code
1918-16-7	PROPACHLOR	0	ug/L	0
1582-09-8	TRIFLURALIN	0	ug/L	0
000060571	DIELDRIN	0	ug/L	0
000072208	ENDRIN	0	ug/L	0
000072435	METHOXYCHLOR	0	ug/L	0
000118741	HEXACHLOROBENZENE	0	ug/L	0
000058899	G-BHC	0	ug/L	0
000076448	HEPTACHLOR	0	ug/L	0
000309002	ALDRIN	0	ug/L	0
001024573	HEPTACHLOR EPOXIDE	0	ug/L	0
005103742	T-CHLORDANE	0	ug/L	0
008001352	TOXAPHENE	0	ug/L	0

AC03453 Field Station ID: 32350 Coll. Ending Date/Time: 9/15/01 11:28

Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Code
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NY = Not Validated; Inc = Result not entered





U.S. EPA Region 2 Laboratory  
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Survey Name: WTC - NYC Water Supply

Project Number: 01090013

\* Sorted by Analysis

CAS Number	Analyte Name	Result	Units	Rmk Co
1918-16-7	PROPACHLOR	0.028	ug/L	U
1582-09-8	TRIFLURALIN	0.028	ug/L	U
000060571	DIELDRIN	0.028	ug/L	U
000072208	ENDRIN	0.028	ug/L	U
000072435	METHOXYCHLOR	0.14	ug/L	U
000118741	HEXACHLOROBENZENE	0.014	ug/L	U QE
000058899	G-BHC	0.014	ug/L	U
000076448	HEPTACHLOR	0.014	ug/L	U QE
000309002	ALDRIN	0.014	ug/L	U QE
001024573	HEPTACHLOR EPOXIDE	0.014	ug/L	U
005103742	T-CHLORDANE	0.35	ug/L	U
008001352	TOXAPHENE	0.35	ug/L	U

CAS Number	Analyte Name	Result	Units	Rmk Co
1918-16-7	PROPACHLOR	0.028	ug/L	U QR
1582-09-8	TRIFLURALIN	0.028	ug/L	U QR
000060571	DIELDRIN	0.028	ug/L	U QR
000072208	ENDRIN	0.028	ug/L	U QR
000072435	METHOXYCHLOR	0.14	ug/L	U QR
000118741	HEXACHLOROBENZENE	0.014	ug/L	U QR
000058899	G-BHC	0.014	ug/L	U QR
000076448	HEPTACHLOR	0.014	ug/L	U QR
000309002	ALDRIN	0.014	ug/L	U QR
001024573	HEPTACHLOR EPOXIDE	0.014	ug/L	U QR
005103742	T-CHLORDANE	0.36	ug/L	U QR
008001352	TOXAPHENE	0.36	ug/L	U QR

CAS Number	Analyte Name	Result	Units	Rmk Co
1918-16-7	PROPACHLOR	0.028	ug/L	U
1582-09-8	TRIFLURALIN	0.028	ug/L	U
000060571	DIELDRIN	0.028	ug/L	U
000072208	ENDRIN	0.028	ug/L	U
000072435	METHOXYCHLOR	0.14	ug/L	U
000118741	HEXACHLOROBENZENE	0.014	ug/L	U QE
000058899	G-BHC	0.014	ug/L	U
000076448	HEPTACHLOR	0.014	ug/L	U QE
000309002	ALDRIN	0.014	ug/L	U QE
001024573	HEPTACHLOR EPOXIDE	0.014	ug/L	U
005103742	T-CHLORDANE	0.35	ug/L	U

NV = Not Validated; Inc = Result not entered



U.S. EPA Region 2 Laboratory  
Data Report

Survey Name: WTC - NYC Water Supply

Project Number: 01090013

\* Sorted by Analysis

Field Station ID	Sample Description	Matrix	Col. Ending Date/Time	CAS Number	Analyte Name	Result	Units	Rmk. Co.
AC03455	Field Station ID: 30250	Aqueous	9/15/01 12:45	008001352	TOXAPHENE	0.35	ug/L	U
AC03456	Field Station ID: 30450	Aqueous	9/15/01 13:20	1918-16-7	PROPACHLOR	0.030	ug/L	U
				1582-09-8	TRIFLURALIN	0.030	ug/L	U
				000060571	DIELDRIN	0.030	ug/L	U
				000072208	ENDRIN	0.030	ug/L	U
				000072435	METHOXYCHLOR	0.15	ug/L	U
				000118741	HEXACHLOROBENZENE	0.015	ug/L	U QE
				000058899	G-BHC	0.015	ug/L	U
				000076448	HEPTACHLOR	0.015	ug/L	U QE
				000309002	ALDRIN	0.015	ug/L	U QE
				001024573	HEPTACHLOR EPOXIDE	0.015	ug/L	U
				005103742	T-CHLORDANE	0.37	ug/L	U
				008001352	TOXAPHENE	0.37	ug/L	U
AC03457	Field Station ID: 30550	Aqueous	9/15/01 13:45	1918-16-7	PROPACHLOR	0.027	ug/L	U
				1582-09-8	TRIFLURALIN	0.027	ug/L	U
				000060571	DIELDRIN	0.027	ug/L	U
				000072208	ENDRIN	0.027	ug/L	U
				000072435	METHOXYCHLOR	0.13	ug/L	U
				000118741	HEXACHLOROBENZENE	0.013	ug/L	U QE
				000058899	G-BHC	0.013	ug/L	U
				000076448	HEPTACHLOR	0.013	ug/L	U QE
				000309002	ALDRIN	0.013	ug/L	U QE
				001024573	HEPTACHLOR EPOXIDE	0.013	ug/L	U
				005103742	T-CHLORDANE	0.34	ug/L	U
				008001352	TOXAPHENE	0.34	ug/L	U
AC03458	Field Station ID: 30950	Aqueous	9/15/01 14:30	1918-16-7	PROPACHLOR	0.028	ug/L	U
				1582-09-8	TRIFLURALIN	0.028	ug/L	U
				000060571	DIELDRIN	0.028	ug/L	U
				000072208	ENDRIN	0.028	ug/L	U
				000072435	METHOXYCHLOR	0.14	ug/L	U

NV = Not Validated; Inc = Result not entered

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U.S. EPA Region 2 Laboratory  
Data Report

Survey Name: WTC - NYC Water Supply

Project Number: 01090013

\* Sorted by Analysis

AC03458 Field Station ID: 30950 Coll. Ending Date/Time: 9/15/01 14:30  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Cc
000118741	HEXACHLOROBENZENE	0.020	ug/L	QE
000058899	G-BHC	0.014	ug/L	U
000076448	HEPTACHLOR	0.014	ug/L	U QE
000309002	ALDRIN	0.014	ug/L	U QE
001024573	HEPTACHLOR EPOXIDE	0.014	ug/L	U
005103742	T-CHLORDANE	0.35	ug/L	U
008001352	TOXAPHENE	0.35	ug/L	U

AC03459 Field Station ID: 30050 Coll. Ending Date/Time: 9/15/01 15:25  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Cc
1918-16-7	PROPACHLOR	0.026	ug/L	U
1582-09-8	TRIFLURALIN	0.026	ug/L	U
000060571	DIELDRIN	0.026	ug/L	U
000072208	ENDRIN	0.026	ug/L	U
000072435	METHOXYCHLOR	0.13	ug/L	U
000118741	HEXACHLOROBENZENE	0.013	ug/L	U QE
000058899	G-BHC	0.013	ug/L	U
000076448	HEPTACHLOR	0.013	ug/L	U QE
000309002	ALDRIN	0.013	ug/L	U QE
001024573	HEPTACHLOR EPOXIDE	0.013	ug/L	U
005103742	T-CHLORDANE	0.33	ug/L	U
008001352	TOXAPHENE	0.33	ug/L	U

AC03460 Field Station ID: 31850 Coll. Ending Date/Time: 9/15/01 16:20  
Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk Cc
000060571	DIELDRIN	0.026	ug/L	U
000072208	ENDRIN	0.026	ug/L	U
000072435	METHOXYCHLOR	0.13	ug/L	U
000118741	HEXACHLOROBENZENE	0.013	ug/L	U QE
000058899	G-BHC	0.013	ug/L	U
000076448	HEPTACHLOR	0.013	ug/L	U QE
000309002	ALDRIN	0.013	ug/L	U QE
001024573	HEPTACHLOR EPOXIDE	0.013	ug/L	U
005103742	T-CHLORDANE	0.33	ug/L	U
008001352	TOXAPHENE	0.33	ug/L	U
1918-16-7	PROPACHLOR	0.026	ug/L	U
1582-09-8	TRIFLURALIN	0.026	ug/L	U

AC03461 Field Station ID: 31050 Coll. Ending Date/Time: 9/15/01 17:10  
Matrix: Aqueous  
Sample Description:

NV = Not Validated; Inc = Result not entered



U.S. EPA Region 2 Laboratory  
Data Report

Survey Name: WTC - NYC Water Supply

Project Number: 01090013

CAS Number	Analyte Name	Result	Units	Remarks
1918-16-7	PROPACHLOR	0.030	ug/L	U
1582-09-8	TRIFLURALIN	0.030	ug/L	U
000060571	DIELDRIN	0.030	ug/L	U
000072208	ENDRIN	0.030	ug/L	U
000072435	METHOXYCHLOR	0.15	ug/L	U
000118741	HEXACHLOROBENZENE	0.015	ug/L	U QE
000058899	G-BHC	0.015	ug/L	U
000076448	HEPTACHLOR	0.015	ug/L	U QE
000309002	ALDRIN	0.015	ug/L	U QE
001024573	HEPTACHLOR EPOXIDE	0.015	ug/L	U
005103742	T-CHLORDANE	0.58	ug/L	U
008001352	TOXAPHENE	0.38	ug/L	U

\* Sorted by Analysis 7

Analysis Type: VOA 524.2 GCMS DRINKING WATER

AC03449 Field Station ID: 31350

Coll. Ending Date Time: 9/15/01 09:10

Matrix: Aqueous  
Sample Description:

CAS Number	Analyte Name	Result	Units	Remarks
000074873	CHLOROMETHANE	1.0	ug/L	U
000075014	VINYL CHLORIDE	1.0	ug/L	U
000074839	BROMOMETHANE	1.0	ug/L	U
000075003	CHLOROETHANE	1.0	ug/L	U
000075694	TRICHLOROFLUOROMETHANE	2.0	ug/L	U
000075354	1,1-DICHLOROETHENE	1.0	ug/L	U
000075150	CARBON DISULFIDE	1.0	ug/L	U
000067641	ACETONE	1.0	ug/L	U
000075092	METHYLENE CHLORIDE	1.0	ug/L	U
000156605	TRANS-1,2-DICHLOROETHENE	1.0	ug/L	U
000107131	ACRYLONITRILE	2.0	ug/L	U
000075343	1,1-DICHLOROETHANE	1.0	ug/L	U
000156592	CIS-1,2-DICHLOROETHENE	1.0	ug/L	U
000594207	2,2-DICHLOROPROPANE	1.0	ug/L	U
000078933	2-BUTANONE	1.0	ug/L	U
000074975	BROMOCHLOROMETHANE	1.0	ug/L	U
000067663	CHLOROFORM	48	ug/L	U
000071556	1,1,1-TRICHLOROETHANE	1.0	ug/L	U
000056235	CARBON TETRACHLORIDE	1.0	ug/L	U
000563586	1,1-DICHLOROPROPENE	1.0	ug/L	U
000071432	BENZENE	1.0	ug/L	U
000107062	1,2-DICHLOROETHANE	1.0	ug/L	U
025323891	TRICHLOROETHENE	1.0	ug/L	U
000078875	1,2-DICHLOROPROPANE	1.0	ug/L	U
000074953	DIBROMOMETHANE	1.0	ug/L	U
000075274	BROMODICHLOROMETHANE	5.4	ug/L	U
010061015	CIS-1,3-DICHLOROPROPENE	1.0	ug/L	U
000108101	4-METHYL-2-PENTANONE	1.0	ug/L	U
000108883	TOLUENE	1.0	ug/L	U

NV = Not Validated; Inc = Result not entered

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Report Date: 9/18/01

# FAX COVER SHEET

WADSWORTH CENTER  
NEW YORK STATE DEPARTMENT OF HEALTH  
EMPIRE STATE PLAZA, P.O. BOX 509, ALBANY, NY 12201-0509  
PHONE: (518) 473-1493; FAX: (518) 473-2895

Date:	9/19/01
Sender:	Pravin Parekh
Subject:	GAIGB Analysis of NY drinking water

Number of pages (INCLUDE COVER SHEET AS 1 PAGE): 2

Recipient's Name:	Dore LaPosta
Company:	U.S. EPA
Telephone Number:	
FAX Number:	732-321-6616
Comments:	This chart now reflects all samples submitted for analysis

If you experience a problem with the (518) 473-2895 FAX number, you can use the alternate FAX number (518) 474-8590.

SEP-19-2001 WED 09:51 AM

FAX NO.

P. 02

NYSDOH Sample Number	US EPA REGION 2 LOG NUMBER	Collection Date	GROSS ALPHA pCi/L		GROSS BETA pCi/L	
200120610043	31350	09/15/01	2.5 ±	0.5	2.7 ±	1.1
200120610044	35550	09/15/01	1.5 ±	0.5	5.1 ±	1.1
200120610045	30150	09/15/01	1.3 ±	0.4	<	1.1
200120610046	37950	09/15/01	<	0.4	<	1.1
200120610047	32350	09/15/01	2.5 ±	0.5	<	1.8
200120610048	30350	09/15/01	1.0 ±	0.5	2.2 ±	1.8
200120610049	30250	09/15/01	1.8 ±	0.5	2.5 ±	1.8
200120610050	30450	09/15/01	<	0.5	<	1.8
200120610051	30550	09/15/01	0.9 ±	0.5	<	2.4
200120610052	30950	09/15/01	2.3 ±	0.5	<	2.4
200120610053	30050	09/15/01	<	0.5	<	2.4
200120610054	31850	09/15/01	<	0.5	<	2.4
200120610055	31050	09/15/01	<	0.5	<	2.4

File

September 19, 2001 (10:42am)Preliminary DataNew York City/ World Trade Center Sampling Activities  
Newtown Creek STP/ Manhattan Pumping StationEPA Personnel: Randy Braun  
Stephen Hale  
Richard Coleates

Sampling Date: September 15 - 16, 2001

Sampling Time: 24-hour composites beginning at approximately 1:00pm on 9/15/01

Location: Three sampling locations: 1) Newtown Creek STP final treated discharge, 2) Influent to Newtown Creek STP from Brooklyn and Queens, and 3) 13<sup>th</sup> Street pump station (contains all waste water from southern Manhattan, including WTC area).

Sample Matrix: Water

## Analytes (Laboratory):

PCBs (Region 2)  
PAHs (Region 2)  
Metals (Region 2)  
BOD (Region 2)  
TSS (Region 2)  
Dioxins/Furans (contract lab)  
Asbestos (contract lab)

## Preliminary Results:

## Mercury:

Pumping Station Not Detected  
Influent: Not Detected  
Effluent: Not Detected

## Non-Filterable Residue (mg/L):

Pumping Station 85  
Influent 120  
Effluent 33 (Permit 30 day average 35%)  
% Removal 73%

Metals: No metals were detected above permit discharge limits.



U.S. EPA Region 2 Laboratory  
Data Report

Survey Name: WTC - Newtown Creek STP

Project Number: 01090015

*Metals*

\* Sorted by Analysis \*

Analysis Type: METALS TAL ICP AQUEOUS

AC03463 Field Station ID: Chlor. Final Effluent  
Matrix: Aqueous (chlor.)  
Sample Description:

Coll. Ending Date/Time: 9/15/01 20:02  
Collection Begin Date/Time: 09/15/01 14:00

CAS Number	Analyte Name	Result	Units	Rmk Code
007440224	SILVER	6.0	ug/L	U
007429905	ALUMINUM	200	ug/L	U
007440382	ARSENIC	8.0	ug/L	U
007440393	BARIUM	27	ug/L	U
007440417	BERYLLIUM	5.0	ug/L	U
007440702	CALCIUM	35,000	ug/L	U
007440439	CADMIUM	4.0	ug/L	U
007440484	COBALT	8.0	ug/L	U
007440473	CHROMIUM	6.0	ug/L	U
007440508	COPPER	41	ug/L	U
007439896	IRON	540	ug/L	U
007440097	POTASSIUM	25,000	ug/L	U
007439954	MAGNESIUM	61,000	ug/L	U
007439965	MANGANESE	74	ug/L	U
007440235	SODIUM	530,000	ug/L	U
007440020	NICKEL	5.0	ug/L	U
007439921	LEAD	7.0	ug/L	U
007782492	SELENIUM	7.0	ug/L	U
007440360	ANTIMONY	14	ug/L	U
007440280	THALLIUM	20	ug/L	U
007440622	VANADIUM	10	ug/L	U
007440666	ZINC	80	ug/L	QB

AC03464 Field Station ID: Influent  
Matrix: Aqueous  
Sample Description:

Coll. Ending Date/Time: 9/16/01 14:27  
Collection Begin Date/Time: 09/16/01 14:42

CAS Number	Analyte Name	Result	Units	Rmk Code
007440224	SILVER	6.0	ug/L	U
007429905	ALUMINUM	650	ug/L	U
007440382	ARSENIC	8.0	ug/L	U
007440393	BARIUM	38	ug/L	U
007440417	BERYLLIUM	5.0	ug/L	U
007440702	CALCIUM	31,000	ug/L	U
007440439	CADMIUM	4.0	ug/L	U
007440484	COBALT	8.0	ug/L	U
007440473	CHROMIUM	9.2	ug/L	U
007440508	COPPER	57	ug/L	U
007439896	IRON	930	ug/L	U
007440097	POTASSIUM	22,000	ug/L	U
007439954	MAGNESIUM	52,000	ug/L	U
007439965	MANGANESE	77	ug/L	U
007440235	SODIUM	450,000	ug/L	U

NV = Not Validated; Inc = Result not entered





U.S. EPA Region 2 Laboratory  
Data Report

Survey Name: WTC - Newtown Creek STP  
Project Number: 01090015

*Miles*

\* Sorted by Analysis T

AC03464 Field Station ID: Influent Coll. Ending Date/Time: 9/16/01 14:27  
Matrix: Aqueous Collection Begin Date/Time: 09/16/01 14:41  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Cod.
007440020	NICKEL	7.8	ug/L	
007439921	LEAD	14	ug/L	
007782492	SELENIUM	7.0	ug/L	U
007440360	ANTIMONY	14	ug/L	U
007440280	THALLIUM	20	ug/L	U
007440622	VANADIUM	10	ug/L	U
007440666	ZINC	100	ug/L	

AC03465 Field Station ID: MPS Coll. Ending Date/Time: 9/16/01 15:59  
Matrix: Aqueous Collection Begin Date/Time: 09/15/01 16:14  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Cod.
007440224	SILVER	7.2	ug/L	
007429905	ALUMINUM	300	ug/L	
007440382	ARSENIC	8.0	ug/L	U
007440393	BARIUM	38	ug/L	
007440417	BERYLLIUM	5.0	ug/L	U
007440702	CALCIUM	64,000	ug/L	
007440439	CADMIUM	4.0	ug/L	U
007440484	COBALT	8.0	ug/L	U
007440473	CHROMIUM	6.0	ug/L	U
007440508	COPPER	46	ug/L	
007439896	IRON	730	ug/L	
007440097	POTASSIUM	47,000	ug/L	
007439954	MAGNESIUM	130,000	ug/L	
007439965	MANGANESE	100	ug/L	
007440235	SODIUM	1,100,000	ug/L	
007440020	NICKEL	5.0	ug/L	U
007439921	LEAD	7.9	ug/L	
007782492	SELENIUM	7.0	ug/L	U
007440360	ANTIMONY	14	ug/L	U
007440280	THALLIUM	20	ug/L	U
007440622	VANADIUM	10	ug/L	U
007440666	ZINC	94	ug/L	QB

Analysis Type: BOD 5DAY

AC03463 Field Station ID: Chlor. Final Effluent Coll. Ending Date/Time: 9/15/01 20:02  
Matrix: Aqueous (Chlor.) Collection Begin Date/Time: 09/15/01 14:02  
Sample Description:

CAS Number	Analyte Name	Result	Units	Rmk. Code
	BOD 5DAY	Inc	mg/L	

NV = Not Validated; Inc = Result not entered



U.S. EPA Region 2 Laboratory  
Data Report

Survey Name: WTC - Newtown Creek STP  
Project Number: 01090015

*Hg + TSS*

\* Sorted by Analysis \*

CAS Number	Analyte Name	Result	Units	Rmk Code
AC03464	Field Station ID: Influent Matrix: Aqueous Sample Description: BOD 5DAY	Coll. Ending Date/Time: 9/16/01 14:27 Collection Begin Date/Time: 09/16/01 14:41	Inc	
AC03465	Field Station ID: MPS Matrix: Aqueous Sample Description: BOD 5DAY	Coll. Ending Date/Time: 9/16/01 15:59 Collection Begin Date/Time: 09/15/01 16:14	Inc	

Analysis Type: MERCURY

CAS Number	Analyte Name	Result	Units	Rmk Code
AC03463	Field Station ID: Chlor. Final Effluent Matrix: Aqueous(chlor.) Sample Description:	Coll. Ending Date/Time: 9/15/01 20:02 Collection Begin Date/Time: 09/15/01 14:07	0.20	U
AC03464	Field Station ID: Influent Matrix: Aqueous Sample Description:	Coll. Ending Date/Time: 9/16/01 14:27 Collection Begin Date/Time: 09/16/01 14:42	0.20	U
AC03465	Field Station ID: MPS Matrix: Aqueous Sample Description:	Coll. Ending Date/Time: 9/16/01 15:59 Collection Begin Date/Time: 09/15/01 16:14	0.20	U QR

Analysis Type: RESIDUE, NON-FILTERABLE

CAS Number	Analyte Name	Result	Units	Rmk Code
AC03463	Field Station ID: Chlor. Final Effluent Matrix: Aqueous(chlor.) Sample Description:	Coll. Ending Date/Time: 9/15/01 20:02 Collection Begin Date/Time: 09/15/01 14:07	33	
AC03464	Field Station ID: Influent Matrix: Aqueous Sample Description:	Coll. Ending Date/Time: 9/16/01 14:27 Collection Begin Date/Time: 09/16/01 14:42	120	
AC03465	Field Station ID: MPS Matrix: Aqueous Sample Description:	Coll. Ending Date/Time: 9/16/01 15:59 Collection Begin Date/Time: 09/15/01 16:14	95	

NV = Not Validated; Inc = Result not entered

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Thursday, September 20, 2001**

**Most Recent Results (as of 4:30 p.m., 9/20):**

**Air: Fixed Monitors in New York City and New Jersey**

The majority of EPA's most recent rounds of air samples from 11 fixed monitoring sites in and around the "hot zone" were below the EPA limit for asbestos. Out of 25 samples analyzed yesterday, one sample did indicate a slightly elevated level of asbestos from a monitoring station located one block from ground zero. Samples taken at four stations in New Jersey indicated no detectable levels of asbestos. This brings the total number of samples taken from fixed monitors to date in NY and NJ to 97.

**Air: Non-Fixed in New York City**

Air samples were also taken near ground zero and analyzed for lead and polycyclic aromatic hydrocarbons (PAHs). Levels of PAHs were all below EPA limits. One sample indicated a lead level slightly above the EPA air standard for lead. EPA will continue taking samples in the area.

On September 19, EPA also took readings of outdoor air around ground zero for chemicals including hydrogen cyanide, hydrogen sulfide, volatile organic compounds (VOCs), carbon monoxide and sulfur dioxide. All readings indicated that levels were normal and posed no public health concern. EPA will continue to monitor the situation.

**Air: Fresh Kills Landfill**

EPA has also been monitoring the air around the Fresh Kills Landfill, where debris from the World Trade Center collapse is being sent for disposal. The Agency now has eight monitors operating. The most recent samples taken show all asbestos levels are below OSHA standards. As a precaution, response workers at the landfill are being asked to wear protective gear. The agency will continue to monitor the landfill for asbestos and for particulate matter in the coming days. To date, a total of 18 samples from the landfill have been analyzed.

**Dust Samples**

Eleven dust samples were analyzed yesterday. Five of the eleven showed asbestos levels below the EPA level of concern. Six samples, taken within 2 blocks of the WTC, were slightly elevated. This brings the total of samples analyzed to 85.

**Drinking Water**

Results from EPA's analysis of lower Manhattan drinking water samples showed no violations of any drinking water standards.

Results from EPA analysis of samples taken by New York City at several water tanks located on the top of buildings indicated no detectable asbestos or PCBs. The city has directed buildings with water tanks to flush tanks that had water at the time of the terrorist attack on the WTC.

**Runoff Samples**

EPA got results in from runoff samples taken last Friday during a rain event. Levels of PCBs were very high, as were levels of metals. PAH levels were similar to levels found in "average"

combined sewer flow in New York City. Today, September 19, EPA is collecting water samples from the Hudson and East Rivers where storm sewers and surface water in lower Manhattan is discharged. Samples will be tested for asbestos, PCBs, PAHs, metals and total suspended solids. Due to elevated PCB levels in the runoff from the 9/14 storm event, EPA will take more street dust samples in the area.

**TAGA Unit**

Five samples were taken using the mobile TAGA (Trace Atmospheric Gas Analyzer) unit, including three around the debris pile. Low levels of VOCs were detected, but posed no threat to human health. Two samples did indicate borderline levels of benzene - right at the OSHA standard of .1 part per million. More sampling will be conducted today.

**Ongoing activity**

EPA continued to use its HEPA filter SUPERVAC vacuum trucks today, and cleaned the streets of Battery Park City. Cleaning will continue late into the evening. The trucks were used to vacuum the lobbies of federal buildings and to clean the financial district earlier. Dust and other materials are vacuumed, kept in air tight containers and disposed of properly. Vacuum trucks will be available to address other areas, as needed.

The agency has set up two wash stations and will set up as many as 10 wash stations for rescue and recovery workers at ground zero, and three for trucks. At the wash stations, workers' clothing, boots, protective gear and tools will be collected for proper and thorough washing, and the workers will be able to wash off and change into clean clothing before going home. Emergency wash down and rapid wash down (for worker breaks of short duration for eating, breaks, meetings) will also be available. Any heavy equipment departing the zone will be washed down prior to departure as well. Signs informing rescuers of the need for protective gear will be posted throughout the wash areas. EPA will also continue to distribute respirator masks to emergency personnel working in the hot zone. More than 4,000 masks were given to the National Guard on 9/19.

EPA will explore putting netting on outfalls in the lower Manhattan area to cut down on the amount of debris running off from the site into the rivers.

EPA and the Coast Guard's National Strike Force continued to lead key corporate personnel into buildings in the "hot zone" to retrieve important information and check computer systems. Buildings are cleared for contaminants and adequate oxygen prior to entry. Today, EPA and the Coast Guard led eight workers into one corporate location around ground zero. To date, EPA and the Coast Guard have received 42 requests from corporations for such assistance, and has completed 35 entries. More are to follow in the coming days.

**Press Information**  
**Thursday, September 20**

**Most Recent Results (as of 4:30 pm 9/20):**

**Air - Fixed Monitors (NYC and NJ)**

The majority of EPA's most recent rounds of air samples from 11 fixed monitoring sites in and around the "hot zone" were below the EPA limit for asbestos. Out of 25 samples analyzed yesterday, one sample did indicate a slightly elevated level of asbestos from a monitoring station located one block from ground zero. Samples taken at four stations in New Jersey indicated no detectable levels of asbestos. This brings the total number of samples taken from fixed monitors in NY and NJ to 97.

**Air - Non-Fixed (NYC)**

Air samples were also taken near ground zero and analyzed for lead and PAHs. Levels of PAHs were all fine. One sample indicated a lead level slightly above the EPA air standard for lead. EPA will continue taking samples in the area.

On September 19, EPA also took readings of outdoor air around ground zero for chemicals including phosgene, hydrogen cyanide, hydrogen sulfide, VOCs, carbon monoxide and sulfur dioxide. All readings indicated that levels were normal and posed no public health concern. Low levels of Phosgene and hydrogen cyanide were detected, but well below levels of concern. EPA will continue to monitor the situation.

**Air - Landfill**

EPA has also been monitoring the air around the Fresh Kills Landfill, where debris from the World Trade Center collapse is being sent for disposal. The Agency now has 9 monitors operating. The most recent samples taken show all asbestos levels are below OSHA standards. As a precaution, response workers at the landfill are being asked to wear protective gear. The agency will continue to monitor the landfill for asbestos and for particulate matter in the coming days. To date, a total of 18 samples have been analyzed.

**Dust**

Eleven dust samples were analyzed yesterday, including from window sills of residences in Battery Park City. Five of the eleven showed asbestos levels below the EPA level of concern. Six samples, taken within 2 blocks of the WTC, were slightly elevated. This brings the total of samples analyzed to 85.

**Drinking Water**

Results from EPA's analysis of lower Manhattan drinking water samples showed no violations of any drinking water standards.

Results from EPA's analysis of samples taken by NYC DEP at several water tanks located on the top of buildings indicated no detectable asbestos or PCBs. The city has directed buildings with water tanks to flush tanks that had water at the time of the terrorist attack on the WTC.

**Sediment**

EPA took samples of sediment to be dredged from the Hudson where barges will come in and carry away debris. Samples will be tested for toxicity, metals, pesticides, PCBs, PAHs, BTX and dioxins. However, dredging at the lower Manhattan site and disposal at the Newark Bay Pit will be allowed immediately because the Pit is for material that fails ocean dumping criteria and cannot go to land facilities without treatment. Preliminary chemical analyses show levels of PCB's at between 0.630 and 1.2 parts per million. PCB levels in the harbor are normally in the 1 ppm level. We are awaiting the toxicity results.

**STP**

On September 16, EPA took samples at three locations at Newtown Creek Wastewater Treatment Plant, which is the recipient of wastewater from lower Manhattan. Results for metals and mercury were all below the permit discharge limits. We await results for asbestos, PCBs, PAHs and dioxins. The samples were also analyzed for total suspended solids and biochemical oxygen demand, which are common indicators of how well a waste water treatment plant is operating. Based on these results, the plant is operating within its permit limits.

**Runoff**

EPA got results in from samples taken last Friday during a rain event. Levels of PCBs were very high, as well as levels of metals. PAH levels were similar to levels found in "average" combined sewer flow in NYC. Today, September 19, EPA is collecting water samples from the Hudson and East Rivers where storm sewers and surface water in lower Manhattan is discharged. Samples will be tested for asbestos, PCBs, PAHs, metals and total suspended solids. Due to elevated PCB levels in the runoff from the 9/14 storm event, EPA will take more street dust samples in the area.

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**Ongoing activity:**

EPA continued to use its HEPA filter SUPERVAC vacuum trucks today, and cleaned the streets of Battery Park City. Cleaning will continue late into the evening. The trucks were used to vacuum the lobbies of federal buildings and to clean the financial district earlier. Dust and other materials are vacuumed, kept in air tight containers and disposed of properly. Vacuum trucks will be available to address other areas, as needed.

The agency has set up two wash stations and will set up as many as 10 wash stations for rescue and recovery workers at ground zero, and three for trucks. At the wash stations, workers' clothing, boots, protective gear and tools will be collected for proper and thorough washing, and the workers will be able to wash off and change into clean clothing before going home. Emergency wash down and rapid wash down (for worker breaks of short duration for eating, breaks, meetings) will also be available. Any heavy equipment departing the zone will be

washed down prior to departure as well. Signs informing rescuers of the need for protective gear will be posted throughout the wash areas. EPA will also continue to distribute respirator masks to emergency personnel working in the hot zone. More than 4,000 masks were given to the National Guard on 9/19.

EPA will explore putting netting on outfalls in the lower Manhattan area to cut down on the amount of debris running off from the site into the rivers.

EPA and the Coast Guard's National Strike Force continued to lead key corporate personnel into buildings in the "hot zone" to retrieve important information and check computer systems. Buildings are cleared for contaminants and adequate oxygen prior to entry. Today, EPA and the Coast Guard led (need new number) 8 workers into 1 corporate locations in and around ground zero. To date, EPA and the Coast Guard have received (need new number) 42 requests from corporations for such assistance, and has completed (need new number) 35 entries. More are to follow in the coming days.

**EPA Emergency Response to WTC Disaster  
Sample Update, September 20, 2001**

EPA Region 2 samples taken since September 11, 2001:

**Samples From Fixed Air Monitors in and Around "Ground Zero"**

- 97 samples taken. **71 were analyzed** (26 could not be analyzed because the filters became clogged)
- Out of **71 analyzed** - 7 were marginally above the 70 structures per millimeter squared that we use to clear schools after asbestos removal under AHERA.
- Four samples taken from monitors in NJ indicated no detectable levels of asbestos.
- Four samples taken for mercury. All non-detects.

**Other Air Samples:**

- Real-time readings of outdoor air taken at locations around ground zero for chemicals including hydrogen sulfide, VOCs, carbon monoxide and sulfur dioxide. Low levels of phosgene and hydrogen cyanide were detected. All readings indicated that levels were normal and posed no public health concern.

**Samples of Dust:**

- Out of a total of 85 dust samples analyzed to date, 25 were over the 1% limit for EPA's definition of asbestos containing material. EPA continues to sample dust in the area.

**Drinking Water Samples:**

- 13 samples of drinking water were taken throughout the lower Manhattan distribution system (in the water mains). Samples met drinking water standards for biological and chemical contaminants, as well as radionuclides and asbestos.

**Hudson River:**

- 1 sample, taken near storm drain draining from ground zero. Results show high levels of PCBs. More testing to take place today during rain.

**Sediments:**

- 3 samples collected from surface of sediment that was dredged to allow access for barges. Results pending. Preliminary results show PCB levels at between .630 and 1.2 ppm. This compares with about 1ppm in the NY harbor area.
- EPA and the Coast Guard's National Strike Force continue to lead key corporate personnel into buildings in the "hot zone" to retrieve important information and check computer systems.** Buildings are cleared for contaminants and adequate oxygen prior to entry. To date, EPA and the Coast Guard have received **42** requests from



... corporations for such assistance, and has completed 35 entries.

**Air / Bulk Sampling Situation Report**  
**Thursday, September 20, 2001 ( 12:00pm)**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER
  - Round 8 (Sept 18) - Most sample marginally high on the PCM analysis, but confirmation with TEM analysis shows ONE sample (Location E - Liberty / South End Ave) slightly above the TEM level. (TEM detects "actual" asbestos fibers, PCM includes "all" fibers, i.e. fiberglass, wool, etc.)
  - Round 9 (Sept 18-19) - Most PCM show marginally higher results, but confirmation with TEM analysis shows ALL samples BELOW the TEM level.
- New Jersey
  - Round 8 (Sept 18) - All less than Detectable Levels

NYC Bulk Samples

- 6 out of 11 with 1-2%, most within 1-2 blocks of WTC

Ambient Air Sampling Locations (Metals)

- Four samples collected within vicinity of ER operations
  - Lead - marginal exceedance for lead at ONE location (Location B - Dey / Church)
 

Actual Value	- 1.9 ug/m3
National Ambient Standard	- 1.5 ug/m3 (24 hour)

Bulk Metals Analysis

- NYC / ER - All Samples OK

Landfill Air Sampling locations (Asbestos)

- Sept 18 / Sept 19
  - 18 Samples total, 9 samples per day
  - All below OSHA
  - 2 Slightly above AHERA levels, one each day - **BOTH AT SCREENING OPS**

ACTION ITEMS - Notify Landfill Team and FBI Industrial Hygienist of High Results

NYC PAHs - All OK

FILE

TAGA ER VOC Sampling

- Five Total Samples
  - 3 around the debris pile - very low levels detected for few VOCs, no immediate health concerns.
  - 2 samples collected in the plume - BENZENE is borderline (100 ppbv), OSHA PEL 0.1 ppm (100 ppb) for 8 hr sample)

ACTION ITEMS - Notify Field Ops (Dave Wright)

Direct Reading Instruments

- No immediate public/occupational health threat
  - Low levels of phosgene and HCN
    - Includes sampling/monitoring for: Phosgene, Hydrogen Cyanide, Hydrogen Sulfide, VOCs, O<sub>2</sub>/LEL, Carbon Monoxide, Nitric Oxide (NO), Sulfur Dioxide (SO<sub>2</sub>)

ACTION ITEMS - Notify Field Ops (Dave Wright)

September 20, 2001 (11:56am)

Preliminary ResultsNew York City/ World Trade Center Sampling Activities  
Drinking Water Sampling 09/15/01

Sampling Personnel: B. Fernandez, NYCDOH

Sampling Date: 09/18/01 - 09/19/01

Sample Matrix: Drinking Water

Preliminary Results Summary: All analysis for PCBs are non-detect. Asbestos is reported below the federal MCL.

NYSDOH (Wadsworth)

Laboratory

Parameters: PCBs (Aroclors), Asbestos

Locations:

<u>Date</u>	<u>Address</u>	<u>Location</u>	<u>Bottle ID</u>	<u>Analysis</u>
9/18/01	55 Exchange Place	Outlet of Rooftop Tank	PHE100S*	PCB's
9/18/01	55 Exchange Place	Outlet of Rooftop Tank	PHE103S*	Asbest
9/19/01	111 Trinity Place	Outlet of Rooftop Tank	PHE200S	PCB's
9/19/01	111 Trinity Place	Outlet of Rooftop Tank	PHE201S	Asbest
9/19/01	7 Hanover Square	Dip into Rooftop Tank	PHE202S	PCB's
9/19/01	7 Hanover Square	Dip into Rooftop Tank	PHE203S	Asbest
9/19/01	45 Wall Street	Dip into Rooftop Tank	PHE204S	PCB's
9/19/01	45 Wall Street	Dip into Rooftop Tank	PHE205S	Asbest

\*Samples individually Numbered: PHE100S, PHE101S, PHE102S for PCB's

\*Samples individually Numbered: PHE103S, PHE104S, PHE105S for Asbestos

NYC Response  
Asbestos Air Sampling Results at Fixed Locations ( Round 8)

Date	Sample No.	S.L.	Matrix	Sample Volume	NIOSH 7400 (PCM)		NIOSH 7402 (TEM)		Comments
					f/m <sup>3</sup>	f/cc	Fibers	f/cc	
9/18/01	O1521	G	Air	467	7.01	<0.009	0	NA	
9/18/01	O1522	A	Air	468	8.92	0.007	0	NA	
9/18/01	O1523	B	Air	469	16.56	0.014	0	<0.006	
9/18/01	O1524	C	Air	472	43.31	0.035	0	<0.006	
9/18/01	O1525	H	Air	268	12.74	0.018	0	<0.01	
9/18/01	O1526	I	Air	471	50.66	0.042	0	<0.006	
9/18/01	O1527	D	Air	467	57.32	0.047	0	<0.006	
9/18/01	O1528	K	Air	475	45.66	0.037	0	<0.006	
9/18/01	O1529	E	Air	478	50.96	0.041	1 (1@)	0.021	Checking with the lab
9/18/01	O1530	F	Air	476	42.04	0.034	1 (3@)	0.009	Checking with the lab
9/18/01	O1531	F**	Air	476	35.67	0.029	0	<0.006	
9/18/01	O1532	J	Air	480	31.85	0.025	0	<0.006	
9/18/01	O1533	N	Air	480	<7	<0.009	NA	NA	

NA: not analyzed

NIOSH method 7402 only reports fibers >= 5um in length and >=0.25um in width. @=non asbestos fiber

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L.: Sampling Locations

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fibers/cc (PCM), 705imm<sup>2</sup>, volume 1200L, for 25MIN filter (TEM)

- A: Intersection of Barclay+West Broadway
- B: Intersection of Church+Dey St
- C: Intersection of Liberty+Trinity
- D: Intersection of Greenwich+Albany,
- E: Intersection of Liberty+South End Ave.
- F: Intersection of Vesey+West St, F\*\* Duplicate
- G: Intersection of Church and Duane
- H: One Chase Plaza
- I: Wall Street+Broadway
- J: Corner of West and Warren
- K: Corner of Albany and West

Round 8: 8:00AM ( 9/18/01)-8:00PM (9/18/01)

ERT 9/20/01 9:30AM

NYC Response  
 Astiscus Air Sampling Results at Fixed Locations (Round 9)

Date	Sample No.	S.L.	Volume	Matrix	PCMI NIOSH 7400 f/1000µg	f/cc	TEM (AHERA) S (#)	S-f/cc
9/18/01	561	G	460	Air	0.02	0.007		<0.0084
9/18/01	563	A	460	Air	18.47	0.019		0.0215
9/18/01	565	B	390	Air	10.85	0.009	0.01	<0.0084
9/18/01	567	C	445	Air	10.85	0.009		<0.0084
9/18/01	563	D	460	Air	10.85	0.009		<0.0084
9/18/01	567	E	460	Air	6.20	0.007		<0.0084
9/18/01	559	H	460	Air	<7	<0.008		<0.0084
9/18/01	561	I	460	Air	18.56	<0.013	0.01	0.0084
9/18/01	570	J	285	Air	<7	<0.008		<0.0084
9/18/01	569	J Dup	460	Air	<7	<0.008		<0.0084
9/18/01	565	K	460	Air	15.29	0.012		<0.0084
9/18/01	572	N	168	Air	<7	<0.018		<0.0183

NA: not analyzed due to overloading of particulates

PCMI: NIOSH 7400

Astiscus Filter Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA), S.L. Sampling Locations

Sample volume is below recommended limit of the method. ~460 Liters

\*Structure (S) roughly equivalent to Fiber (F)

Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fiber/cc (PCMI), 705/min2, volume 1200L, for 20MM filter (TEM)

A: Intersection of Broadway and Broadway

B: Intersection of Broadway and Broadway

C: Intersection of Liberty + Trinity

D: Intersection of Greenwich Albany

E: Intersection of Liberty+West St.

F: Intersection of Varney+West St.

G: Intersection of Church and Duane

H: One Chase Plaza

I: Wall Street+Broadway

J: Corner of West and Warren

K: Corner of Albany and West

N: West Side Highway/ near community college

Round 9 : 9:30 AM through 5:30PM.

NYC Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date	Sample No.	Sampling Location	Matrix	PCM	TEM*	Comments
9/18/01	28542	Liberty park	Fiberglass	<0.004	<0.0048	
9/18/01	28543	EMG Center	Air	<0.004	<0.0048	
9/18/01	28544	CITGO Union	Air	<0.004	<0.0048	
9/18/01	28545	SHELL Station	Air	<0.004	<0.0048	

PCM: NIOSH 7400 Revision 3 Issue 2 \*\* Filter failed only 10 liters of sample collected  
 Asbestos Filter Analyzed by Transnuclear Electron Microscopy (TEM) EPA 40CFR Part 763 (MHERA), S.L. Sampling Locations  
 Sample volume is below recommended limit for MHERA - 720 Liters  
 \*Structure (S) Roughly equivalent to Fiber (F)  
 Standard criteria: EPA 40CFR Part 763 (MHERA): 0.01fiber/cc (PCM), 70S/mm<sup>2</sup>, volume 1200L, for 26MM filter (TEM)  
 ERT 9/19/01 9:50 AM

NYC Response  
Asbestos Bulk Sample Analysis Results

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/18/2001	06337	West & Murray	Dust	1.7 Chrysotile	
9/18/2001	06338	West & Vessey	Dust	1.5 Chrysotile	
9/18/2001	06339	West & N. Bridge	Dust	<1 Chrysotile	
9/18/2001	06370	West & Liberty	Dust	ND	
9/18/2001	06371	Washington & Albany	Dust	1.5 Chrysotile	
9/18/2001	06372	Greenwich & Liberty	Dust	<1 Chrysotile	
9/18/2001	06373	Henry & Trinity	Dust	<1 Chrysotile	
9/18/2001	06374	Trinity & Canal	Dust	1.2 Chrysotile	
9/18/2001	06375	Church & Fulton	Dust	<1 Chrysotile	
9/18/2001	06376	Vessey & Church	Dust	<1 Chrysotile	
9/18/2001	06377	W. Broadway & Park	Dust	1.9 Chrysotile	

PLM Polarized Light Microscope by Method NY State ELAP 198.1

ELT 10:50 Am 9/20/01



Done

NYC Response

Air sampling analysis results for metals: WTC  
Sample collection date: 9/16/01

Four air samples were collected on 0.8µ Mixed Cellulose Ester for metal using modified NIOSH 7300 method at WTC-Financial Center site. All samples were analyzed for metals by ICP (Model TJA ICAP-61E), method SW-846/6010B; except arsenic, selenium, and thallium by AA-Furnace SW-846/7000.

Attached please find the results table, and chain of custody.

ERTC 9/19/01 9:50AM

Table 1. Results of the Analysis for Metals in Air  
NYC ER site

Ident ID Location	01174 Dey & Church 720	01180 Liberty & Trinity 720	01184 Greenwich & Albany 720	01191 Vesey & West 720					
Parameter	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	
Aluminum	ICAP	2.9	1.7	3.6	1.7	4.2	1.7	4.2	1.7
Antimony	AA-Fur	U	0.17	U	0.17	U	0.17	U	0.17
Arsenic	AA-Fur	U	0.069	U	0.069	U	0.069	U	0.069
Barium	ICAP	U	0.17	U	0.17	U	0.17	U	0.17
Beryllium	ICAP	U	0.069	U	0.069	U	0.069	U	0.069
Cadmium	ICAP	U	0.17	U	0.17	U	0.17	U	0.17
Calcium	ICAP	32	3.5	40	3.5	54	3.5	46	3.5
Chromium	ICAP	U	0.17	U	0.17	U	0.17	U	0.17
Cobalt	ICAP	U	0.35	U	0.35	U	0.35	U	0.35
Copper	ICAP	0.88	0.35	0.67	0.35	U	0.35	0.42	0.35
Iron	ICAP	5.1	0.87	4.6	0.87	4.6	0.87	17	0.87
Lead	AA-Fur	1.9	0.069	1.4	0.069	0.23	0.069	0.49	0.069
Magnesium	ICAP	U	17	U	17	U	17	U	17
Manganese	ICAP	U	0.17	U	0.17	U	0.17	0.35	0.17
Nickel	ICAP	U	0.35	U	0.35	U	0.35	U	0.35
Potassium	ICAP	U	69	U	69	U	69	U	69
Selenium	AA-Fur	U	0.17	U	0.17	U	0.17	U	0.17
Silver	ICAP	U	0.17	U	0.17	U	0.17	U	0.17
Sodium	ICAP	U	17	U	17	U	17	U	17
Tellurium	AA-Fur	U	0.069	U	0.069	U	0.069	U	0.069
Strontium	ICAP	U	0.35	U	0.35	U	0.35	U	0.35
Zinc	ICAP	3.6	0.35	2.8	0.35	0.56	0.35	1.8	0.35

U denotes Method Detection Limit

U denotes less than the MDL (not detected)

e Micro Blank concentration (µ=MDL) subtracted from all sample results

RUDAC, Edison, NJ  
 (732) 314-4200  
 EPA Contract 68-C99-221

CHAIN OF CUSTODY RECORD

Project Name: NYC  
 Project Number: 22-01  
 LM Contact: BOB JOHNSON Phone: (332) 321-1205

No: 19896  
 Sheet 01 of 01 (Do not copy)  
 (for addn. samples use new form)

Sample Identification			Date Collected		Matrix	Class. of Sample	Analyses Requested
Sample No.	Sampling Location	Matrix	Date Collected	Class. of Sample	Analyses Requested	Vol. (L)	
740	01174	DEY, CAROL	09/16/01	CASSETTE / N/A	✓	720	
741	01180	LIBBY, JIMMY			✓	720	
742	01184	CASSANUT, BOB			✓	720	
743	01191	WISSE, JIM			✓	0	
744	01200	FIELD, BOB			✓	0	
745	01201	LOT, BOB			✓	0	
		BS/BSD					

Special Inquiries:  
 SVC LOT # 2182  
 ANALYZE FOR METALS USING NIOSH 7300.  
 QA 4/03

Matrix:  
 A: Air  
 B: Blood  
 C: Breath  
 D: Dust  
 E: Feces  
 F: Fluid  
 G: Gas  
 H: Hair  
 I: Ingested  
 J: Inhaled  
 K: Other  
 L: Skin  
 M: Soil  
 N: Sweat  
 O: Urine  
 P: Water  
 Q: Wipe  
 R: XRF  
 S: Other

Chain of Custody #:  
 ANALYZED BY: [Signature]  
 Date: 9/27/01  
 Rechecked by: [Signature]  
 Date: 9/27/01  
 Rechecked by: [Signature]  
 Date: 9/27/01

Done

NYC Response

Dust sampling analysis results for metals: WTC Financial center

Sample collection date: 9/16/01

Four dust samples were collected and were analyzed for metals by ICP using EPA method SW-846/6010B; and arsenic, selenium, thallium by AA-Furnace and mercury by cold vapor technique using EPA methods SW-846/7000 .

Attached please find the results table, and chain of custody.

ERTC 9/19/01 9:50AM

Table 1. Results of the Analysis for Metals in Dust/Solid  
New York ER site  
Results Based on Dry Weight

Client ID Location % Solids	Analysis Method	A06351 Battery Pt & 2nd Pt 95.72		A03653 West St & Albany 55.06		A06354 Park & W Broadway 66.01		A06355 Park & North EUD 95.20	
		Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg
Aluminum	ICAP	23000	17	16000	27	18000	18	26000	17
Antimony	ICAP	9.0	5.8	U	9.1	18	5.9	16	5.8
Arsenic	AA-Fur	2.9	2.4	U	3.5	3.1	2.5	3.0	2.3
Barium	ICAP	280	0.96	180	1.5	220	0.99	330	0.96
Beryllium	ICAP	2.6	0.48	1.8	0.76	1.5	0.49	3.0	0.48
Cadmium	ICAP	4.9	0.48	3.2	0.76	2.0	0.49	3.8	0.48
Calcium	ICAP	2E+05	240	180000	350	130000	250	190000	240
Chromium	ICAP	100	0.48	82	0.76	57	0.49	100	0.48
Cobalt	ICAP	7.3	0.96	5.4	1.5	6.6	0.96	7.4	0.96
Copper	ICAP	93	0.96	92	1.5	330	0.99	220	0.96
Iron	ICAP	9600	9.6	12000	15	13000	9.9	12000	9.6
Lead	ICAP	150	3.6	230	6.1	370	4.0	210	19
Magnesium	ICAP	27000	48	19000	76	16000	45	29000	48
Manganese	ICAP	1000	0.96	750	1.5	720	0.99	1300	0.96
Mercury	Cold Vapor	0.32	0.04	0.24	0.06	0.06	0.04	0.31	0.04
Nickel	ICAP	22	0.96	17	1.5	16	0.99	27	4.8
Potassium	ICAP	3700	190	2400	300	2900	200	3600	190
Selenium	AA-Fur	U	2.4	U	3.5	U	2.5	U	2.3
Silver	ICAP	U	0.48	U	0.76	54	0.49	U	0.48
Sodium	ICAP	2100	48	1300	76	1600	49	2400	48
Thallium	AA-Fur	U	0.95	U	1.4	U	1.0	U	0.93
Vanadium	ICAP	24	1.9	18	3.0	17	2.0	26	1.9
Zinc	ICAP	1200	1.9	950	3.0	1400	2.0	1900	1.9

.DL denotes Method Detection Limit  
U denotes less than the MDL (not detected)

EAC, Edison, NJ  
371-321-4200  
PA Contract 68-C99-223

Project Name: **WTC-FINANCIAL CENTER**  
Project Number:  
LM Contact: Phone:

No. **09701**  
Sheet 01 of 01 (Do not copy)  
(For add'l samples use new form)

Sample Identification		Analyses Requested				
BEAC#	Sample No.	Matrix	Date Collected	# of Points	Container/Preservation	Analyses Requested
235	004039	WATER	09-16-01	1	ZIP LOCK BAG	AMAZON
236	A06351	SOLID	09-16-01	18	Glass (side mouth)	SOIL
237	B06351	SOLID	09-16-01	1 x 80g	80g wide mouth (glass)	SOIL
238	A06352					
239	B06352					
240	A06353	SOLID	09-16-01	1	80g wide mouth (glass)	
241	B06353	SOLID	09-16-01	1	80g wide mouth (glass)	
242	A06354	SOLID	09-16-01	1	80g wide mouth (glass)	
243	B06354	SOLID	09-16-01	1	80g wide mouth (glass)	
244	A06355	SOLID	09-16-01	1	80g wide mouth (glass)	
245	B06355	SOLID	09-16-01	1	80g wide mouth (glass)	

Matrix:  
 AW: Animal Waste  
 AL: Animal Tissue  
 DL: Drain Liquids  
 DS: Drains Solids  
 GW: Groundwater  
 O: Oil  
 P: Paint  
 PF: Plant Tissue  
 S: Soil  
 SW: Surface Water  
 W: Water  
 X: Other

Special Instructions:  
 \* Sample have given to RPTC as group for permission to analyze container in, ENST

SAMPLES TRANSFERRED FROM:  
 CHAIN OF CUSTODY #:

Received by	Date	Time	Relinquished by	Date	Time
RECHANDZ	09-16-01	11:00	RECHANDZ	09-16-01	11:00

NYC Response  
Asbestos Air Sampling Results at Fresh Kill

Date	Sample No.	S.L.	Matrix	Sample Volume	PCM: NIOSH 7400		TEM (AHERA)		Comments
					F/mm <sup>2</sup>	f/cc	<5µm (>5µm)	S-f/cc	
9/19/01	00710	Location 1	Air	720 Liters	<7	<0.002	<0.0043		
9/19/01	00703	Location 2	Air	720 Liters	<7	<0.002	<0.0043		
9/19/01	00704	Location 3	Air	720 Liters	<7	<0.002	<0.0043		
9/19/01	00705	Location 4	Air	720 Liters	<7	<0.002	<0.0043		
9/19/01	00706	Location 5	Air	720 Liters	<7	<0.002	<0.0043		
9/19/01	00707	Location 6	Air	720 Liters	17.83	0.005	1 (0)	0.0043	Chrysotile
9/19/01	00708	Location 7	Air	720 Liters	<7	<0.002	<0.0043		
9/19/01	00709	Location 8	Air	720 Liters	<7	<0.002	<0.0043		
9/19/01	00711	Location 9	Air	720 Liters	36.94	0.010	6 (1)	0.0299	Chrysotile

9/19/01  
9:00 AM to 9:15 PM

Date	Sample No.	S.L.	Matrix	Sample Volume	PCM: NIOSH 7400		TEM (AHERA)		Comments
					F/mm <sup>2</sup>	f/cc	<5µm (>5µm)	S-f/cc	
9/18/2001	00681	Location 1	Air	1060 Liters	<7	<0.003	<0.0048		
9/18/2001	00682	Location 2	Air	964 Liters	<7	<0.003	<0.0046		
9/18/2001	00683	Location 3	Air	1006 Liters	<7	<0.003	<0.0044		
9/18/2001	00684	Location 4	Air	986 Liters	7.64	0.003	<0.0045		
9/18/2001	00685	Location 5	Air	989 Liters	<7	<0.003	<0.0045		
9/18/2001	00686	Location 6	Air	988 Liters	7.01	<0.003	<0.0045		
9/18/2001	00687	Location 7	Air	988 Liters	<7	<0.003	<0.0044		
9/18/2001	00688	Location 8	Air	882 Liters	8.28	0.004	1 (0)	0.0049	Chrysotile
9/18/2001	00689	Location 9	Air	886 Liters	66.24	0.029	5 (0)	0.0248	Chrysotile

9/18/01  
9:00 AM - 7:00 PM

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L.: Sampling Locations  
 \*PCM NIOSH method 7400 Revision 3, Issue 2  
 \*Structure (S) Roughly equivalent to Fiber (F)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70s/mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)

NYC Response

ir sampling analysis results for Polynuclear Aromatic Hydrocarbons:: WTC Financial center  
Sample collection date: 9/16/01

Three air samples were collected on XAD-2 using modified NIOSH method 5515, and were analyzed using Gas Chromatography/Mass Spectrometry for Polynuclear Aromatic Hydrocarbons (23 compounds), and were not detected.

Attached please find the results table, and chain of custody.

ERTC 9/19/01 9:50AM



Table 1.1 (cont.) Results of the Analysis for PAH in Air  
WA # R1A52001: NYC ER Site

Sample No. Sampling Location Volume (L)	01199 Lot Blank 0		01179 Liberty + Trinity 240		01188 Greenwich + Albany 264		01192 Vesey + West 216		01198 Field Blank 0	
	Conc. µg	MDL µg	Conc. ppbv	MDL ppbv	Conc. ppbv	MDL ppbv	Conc. ppbv	MDL ppbv	Conc. µg	MDL µg
aphthalene	U	9.7	U	7.7	U	7	U	8.6	U	9.7
Methylnaphthalene	U	9.9	U	7.1	U	6.4	U	7.9	U	9.9
Methylnaphthalene	U	9.7	U	7	U	6.3	U	7.7	U	9.7
phenyl	U	9.8	U	6.5	U	5.9	U	7.2	U	9.8
5-Dimethylnaphthalene	U	10	U	6.5	U	5.9	U	7.2	U	10
xenaphthylene	U	10	U	6.8	U	6.1	U	7.5	U	10
xenaphthene	U	9.8	U	6.5	U	5.9	U	7.2	U	9.8
benzofuran	U	9.9	U	6	U	5.5	U	6.7	U	9.9
xorane	U	9.9	U	6.1	U	5.5	U	6.5	U	9.9
enanthrene	U	9.9	U	5.7	U	5.1	U	6.3	U	9.9
fluorene	U	9.9	U	5.7	U	5.2	U	6.3	U	9.9
fluorene	U	10	U	6.1	U	5.6	U	6.8	U	10
fluorene	U	9.8	U	4.9	U	4.5	U	5.5	U	9.8
fluorene	U	9.8	U	5	U	4.5	U	5.5	U	9.8
benzo(a)anthracene	U	9.7	U	4.4	U	4.0	U	4.8	U	9.7
pyrene	U	9.1	U	4.1	U	3.7	U	4.5	U	9.1
benzo(b)fluoranthene	U	9.5	U	3.9	U	3.5	U	4.3	U	9.5
benzo(k)fluoranthene	U	9.1	U	3.7	U	3.4	U	4.1	U	9.1
benzo(e)pyrene	U	9.5	U	3.9	U	3.5	U	4.3	U	9.5
benzo(a)pyrene	U	9.5	U	4.0	U	3.6	U	4.4	U	9.5
benzo(1,2,3-cd)pyrene	U	10	U	3.7	U	3.4	U	4.1	U	10.0
benzo(a,h)anthracene	U	9.9	U	3.6	U	3.3	U	4.0	U	9.9
benzo(g,h)perylene	U	10	U	3.8	U	3.4	U	4.2	U	10.0

SAC, Edison, NJ  
 (201) 321-4200  
 \*A Contract 68-C99-223

Project Name: WTC-EMERGENCY CENTER  
 Project Number:  
 LM Contact: Phone:

No. 11, 11, 11  
 Sheet 01 of 01 (Do not copy)  
 (for addn. samples use new form)

Sample Identification

REC'D	Sample No.	Sample Description	Misc.	Date Collected	# of Bottles	Container/Remarks	Analyses Requested
735	00439	WATER PK. 200 ML	SOLID	09-16-01	18 Bgs	ZIP LOCK BAG	AMERICAN ZINC
736	A06351	SAFETY PK. 200 ML	SOLID	09-16-01	1 X Bg	Glass (wide mouth)	AMERICAN ZINC
737	B06351	"	SOLID	09-16-01	1 X Bg	Big-bottle empty glass	AMERICAN ZINC
738	A06352	"					
739	B06352	"					
740	A06353	WEST. B. ALUMY	SOLID	09-16-01	1	Bg WIDE MOUTH (GLASS)	AMERICAN ZINC
741	B06353	"	SOLID	09-16-01	1	Bg WIDE MOUTH (GLASS)	AMERICAN ZINC
742	A06354	PARK B.W. 200 ML	SOLID	09-16-01	1	Bg WIDE MOUTH (GLASS)	AMERICAN ZINC
743	B06354	"	SOLID	09-16-01	1	Bg WIDE MOUTH (GLASS)	AMERICAN ZINC
744	A06355	PARK B.W. 200 ML	SOLID	09-16-01	1	Bg WIDE MOUTH (GLASS)	AMERICAN ZINC
745	B06355	"	SOLID	09-16-01	1	Bg WIDE MOUTH (GLASS)	AMERICAN ZINC

Special Instructions:  
 \*\* samples are given to RPPC in group for transmission to  
 RESISTOR ANALYST (A) FIRST

SAMPLES TRANSFERRED FROM:  
 CHAIN OF CUSTODY #:

Received by	Date	Received by	Date	Received by	Date	Received by	Date
<i>[Signature]</i>	09/16/01	<i>[Signature]</i>	09/16/01	<i>[Signature]</i>	09/16/01	<i>[Signature]</i>	09/16/01

Volatile organic Compound  
Air Sampling analysis Results

Air samples  
Close to edge  
of pile/pit

Filename:	NYC066
Sample Location:	SW corner location #1
Sample Number:	
Volume:	250ml
Compound	Concentration
Carbon dioxide	485.95
Unknown	30.92
Acetone	30.91
Unknown	7.48
Benzene	31.90
Unknown	4.91
Filename:	NYC067
Sample Location:	location #2 w/25 ml I.S.
Sample Number:	
Volume:	250ml
Compound	Concentration
Carbon dioxide	483.9
Cyclopropane	49
Acetone	33.8
Benzene	80.5
Toluene	53.2
Styrene	146.3
Filename:	NYC068
Sample Location:	Location #3 plaza
Sample Number:	
Volume:	250ml
Compound	Concentration
Carbon dioxide	475.4
Acetone	10.9
Unknown	82

10/2/01

10/2/01

200  
30000

ERT 9/20/01 9:40 AM

*Volatiles organic compound: Air Samples Collected  
 Air Sampling analysis results by GELPS. in Plume. NY*

File Name: NYC062		File Name: NYC063	
Sample Location: Sampled @ 1410 09/19/01 in plume		Sample Location: Sampled @ 1410 09/19/ in plume	
Sample Number: 250 ml sample #1 w/ 25nl I.S.		Sample Number: 250ml sample #2 w/ 25 ml I.S.	
Compound	Concentration	Compound	Concentration
Carbon Dioxide	427.5	Carbon Dioxide	641.9
Propene	1385.1	Propene	3647.3
Methane, chloro-	525.1	Methane, chloro-	1631.2
1-Pentene	60.0	Ethanol	126.2
Acetone	1203.5	1-Pentene	285.3
Acetonitrile	392.6	Acetone	2764.9
Acetic acid, methyl ester	327.1	Acetonitrile	964.8
Unknown	133.8	Acetic acid, methyl ester	894.8
Cyclobutane, 1,2-diethyl-cis	87.3	2-Propenenitrile	322.2
Furan, 2-methyl-	1012.7	1-Pentene, 2-methyl-	157.9
Benzene	100.0	Furan, 2-methyl-	2311.8
Toluene	466.9	Benzene	100.0
Unknown	51.9	Pyridine and bleed	233.5
Cyclopentane	108.5	Toluene	733.3
Ethylbenzene	238.5	Unknown	70.4
Styrene	536.6	Unknown	92.8
		Cyclopentane	176.3
		Ethylbenzene	368.8
		Styrene	743.3

File

Location	Date	Time	WD	Tape Meters										Multi-Gas P11D-5										Multi		TVA-100			
				CO/12		H2SO4		HNO3		HCl		H2S		SO2		LEL		O2		CO		NO		Gas		FID		PID	
				ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
A	09/19	12:20	Var/Still	0	NA	NA	NA	NA	NA	0	0	0	0	0	0	20.9	20.9	0	0	0	0	0	0	1.00	1.81	0.58	0.48	1.00	0.65
C	09/19	12:41	North	0	NA	NA	NA	NA	0	0	0	0	0	0	20.9	20.9	0	0	0	0	0	0	0	0.58	0.48	1.00	0.65	0.3	0.12
K	09/19	12:54	North to South	0	NA	NA	NA	NA	0	0	0	0	0	0	20.9	20.9	0	0	0	0	0	0	0	1.00	0.65	0.3	0.12	0.01	0.03
F	09/19	01:15	East	0	NA	NA	NA	NA	0	0	0	0	0	0	20.9	20.9	0	0	0	0	0	0	0	0.22	0.00	0.26	0.00	0.4	0.58
ASE	09/19	3:30	South	0	NA	NA	NA	NA	0	0	0	0	0	0	20.9	20.9	0	0	0	0	0	0	0	0.22	0.00	0.26	0.00	0.4	0.58
F	09/19	3:59	Out of East	0	NA	NA	NA	NA	0	0	0	0	0	0	20.9	20.9	0	0	0	0	0	0	0	0.22	0.00	0.26	0.00	0.4	0.58
B	09/19	4:21	Still	0	NA	NA	NA	NA	0	0	0	0	0	0	20.9	20.9	0	0	0	0	0	0	0	0.22	0.00	0.26	0.00	0.4	0.58
*D	09/19	4:39	To SW	13	NA	NA	NA	NA	13	NA	NA	NA	NA	13	NA	NA	NA	NA	NA	NA	NA	NA	4.80	2.28	4.56	1.47	1.31	0.58	
DI	09/19			13	NA	NA	NA	NA	13	NA	NA	NA	NA	13	NA	NA	NA	NA	NA	NA	NA	NA	4.56	1.47	1.31	0.58			
E	09/19	4:53	Down Wind	0	NA	NA	NA	NA	0	0	0	0	0	0	20.5	20.5	0	0	0	0	0	0	0	1.31	0.58				

Active Smoke Plume - got as close to edge as possible  
90 ft West more directly in the path of plume

September 20, 2001 (11:31am)

Preliminary Data

New York City/ World Trade Center Sampling Activities  
Street Runoff Results

**Preliminary Results Summary:**

All analyzed dioxins and furans were detected. The Toxic Equivalency (TEQ) for the sample was 122 pg/L which is high. Toxic PCBs congeners were also detected at very high concentrations, with a TEQ of 151. PAHs were detected at concentrations similar to those in "average" NYC CSO effluent. Metals and Asbestos were detected at high concentrations. The low flow and rapid dilution of the sampled discharge suggests that the water quality impact is minimal. Additional runoff (if observed) and ambient water sampling is being conducted by EPA during the storms on 09/19/01. Additional sampling of street dust is recommended.

**EPA Personnel:**

Dennis McChesney  
Stephen Hale

**Sampling Date:** EPA Whaler/NYCFD Fire boat (tied)

**Location:** Foot of Rector at Hudson River. Samples were collected from approximately one (1) foot diameter direct runoff pipe

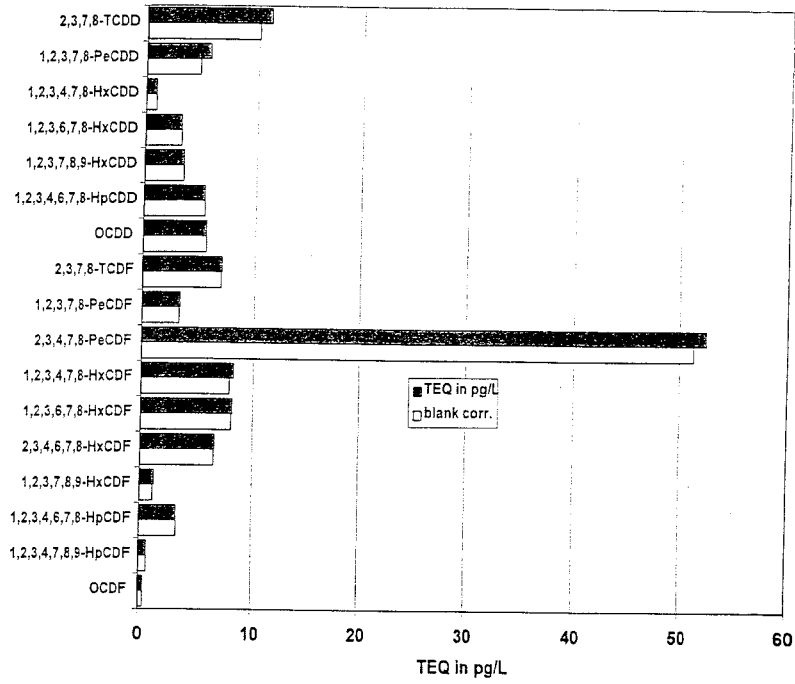
**Sample Matrix:** Water

**Analytes (Laboratory):** Metals (Region 2)  
PCBs/PBFs (Axys)  
PAHs (Axys)  
Dioxins/Furans (Axys)  
Asbestos (NYSDOH)

**Sampling:** Discrete grab samples of wash down water discharging to the Hudson River were collected as it flowed out of the pipe, before entering the River. Sanitation workers were hosing the street in the vicinity. Samples were generally turbid and contained high solids concentrations. Dilution was observed to occur (non observable milky color) within 25 feet of the discharge.

**Dioxins/Furans:** All of the target dioxins and furans were detected in the runoff sample. The highest concentration detected was for the chlorinated octachlorodibenzo dioxin (OCDD) at 5.5 ng/L. Evaluation using NATO toxic equivalency factors (TEF) show toxicity dominated by the dibenzo furan 2,3,4,7,8-PeCDF with a TEQ over 50 pg/L. The total TEQ for the sample is 122 pg/L (blank corrected). In previous harbor work performed by NYSDEC for the CARP, the highest observed dioxin TEQ was 22 pg/L. That occurred in the mid-tidal Passaic.

Figure 1 shows the contributions of the 17 individual congeners to the total TEQ.



**PCBs:** Numerous PCB congeners including co-planer (dioxin-like) PCBs were detected at high concentrations. The Toxic Equivalency (TEQ) calculated for the toxic PCBs is 151 pg/L. In previous harbor work performed by NYSDEC for the CARP, the highest observed PCB TEQ was 0.002 pg/L.

**PAHs:** All PAHs were detected at high concentrations.  
nanomoles/L

WTC Street Runoff      "Typical" CSO Effluent      Typical STP Effluent      Landfill Leachate

488                      550                      60 - 70                      100

**Metals:** A sample was analyzed for metals including mercury by the EPA Region 2 laboratory. Concentrations were elevated to several orders of magnitude above ambient water quality criteria for most metals.

Analyte	Concentration (ug/L)	Marine Acute Criteria	Marine Chronic Criteria
Silver	30	2.3	0.92
Cadmium	180	4.3	9.3
Chromium (total)	3000	1100 (Cr VI) 10,300 (Cr III)	50 (Cr VI) —
Copper	4,000	2.9	—
Nickel	910	75	8.3
Lead	5,200	220	8.5
Selenium	300	300	0.71
Antimony	470	1500	500
Thallium	100	2,130	---
Zinc	49,000	95	86
Mercury	8.7	2.1	0.025

The flow into the Hudson River was relatively small. Dilution was observed to occur (no observable milky color) within 25 feet of the discharge. There is no expected water quality impact from the observed discharge, and no other direct discharge to the Hudson River.

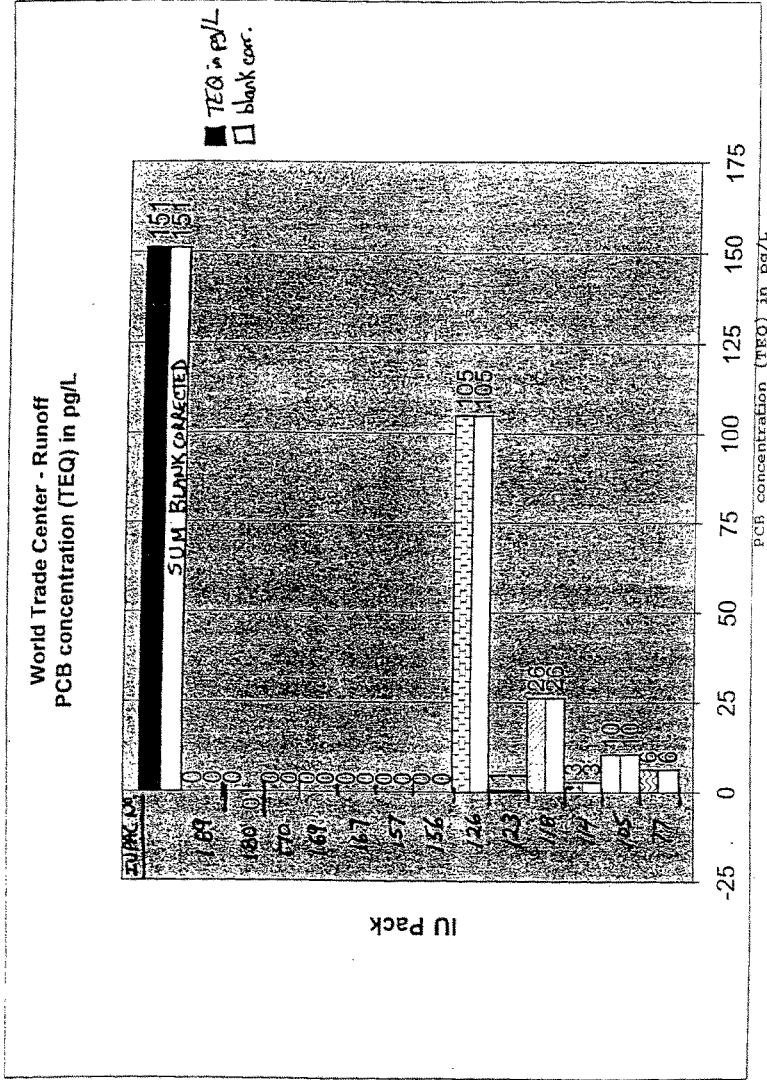
**Asbestos:** Samples were analyzed at the NYSDOH - Wadsworth Laboratories in Albany.

Chrysotile Asbestos	0.61%
	9.6 Billion Fibers/L
	0.045 g/L
Amphibole Asbestos	ND
Particulates:	7.4 g/L
Blank Sample Bottle	ND



>1% is regulated in building material, MCL 7 MFL, 10-4 cancer risk is 700 MFL.

PARAM	conc. pg/L	NATO TEF
2,3,7,8-TCDD	11.167	1
1,2,3,7,8-PeCDD	11.214	0.5
1,2,3,4,7,8-HxCDD	8.416	0.1
1,2,3,6,7,8-HxCDD	29.642	0.1
1,2,3,7,8,9-HxCDD	32.453	0.1
1,2,3,4,6,7,8-HpCDD	531.509	0.01
OCDD	5550.716	0.001
2,3,7,8-TCDF	70.2	0.1
1,2,3,7,8-PeCDF	62.538	0.05
2,3,4,7,8-PeCDF	105.139	0.5
1,2,3,4,7,8-HxCDF	82.32	0.1
1,2,3,6,7,8-HxCDF	81.351	0.1
2,3,4,6,7,8-HxCDF	65.524	0.1
1,2,3,7,8,9-HxCDF	12.519	0.1
1,2,3,4,6,7,8-HpCDF	306.22	0.01
1,2,3,4,7,8,9-HpCDF	69.177	0.01
OCDF	410.139	0.001



U.S. Environmental Protection Agency  
Air/Bulk Sampling Situation Report  
**Errata Sheet**  
(Friday, September 21, 2001)

Fixed Ambient Air Sampling Locations for Asbestos

Round 9 (September 18-19) sample collection time should read as follows: 6:00PM through 2:00AM. Sampling was initiated on September 18 @ 6:00PM and completed on September 19 @ 2:00AM.

**FILE**

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Friday, September 21, 2001**

**Most Recent Results (as of 6:00 p.m., 9/21):**

**Air: Fixed Monitors in New York City and New Jersey**

None of the 29 samples analyzed for asbestos over the last two days showed detectable levels of this chemical. Samples taken at four stations in New Jersey also indicated no detectable levels of asbestos. This brings the total number of samples taken from fixed monitors in New York and New Jersey to 134.

**Air: Non-Fixed in New York City**

On September 20, EPA took readings of outdoor air around ground zero for chemicals including hydrogen cyanide, hydrogen sulfide, volatile organic compounds (VOCs), carbon monoxide and sulfur dioxide. All readings indicated that levels were normal and posed no public health concern. However, results may have been impacted by rainfall on that day. EPA will continue to monitor the situation.

**Air: Fresh Kills Landfill**

The most recent samples taken from EPA's eight air monitors at the landfill show all asbestos levels are below OSHA standards. As a precaution, response workers at the landfill are being asked to wear protective gear. The Agency monitored for particulate matter and found no cause for dust suppression measures.

**Dust Samples**

Twenty-four dust samples were analyzed between Sept. 19 and 20, which included samples taken from the general area of Stuyvesant High School and Battery Park. Twelve of the 24 samples showed asbestos levels slightly above the EPA level of concern. These areas have since been cleaned by EPA and the city. The total number of dust samples taken to date is 109.

**Ambient Water Sampling**

We await results from September 20 samples taken from the Hudson and East Rivers, which receive runoff carried by storm sewers and the streets in lower Manhattan. Samples are being tested for asbestos, PCBs, polycyclic aromatic hydrocarbons (PAHs), metals and total suspended solids. Due to elevated PCB and dioxin levels in the runoff from the 9/14 storm event, EPA will take more street dust samples in the area.

**Search for Freon Tanks**

New York State has reported that the World Trade Center chiller system was found. The Port Authority's maintenance contractor assessed the system and reported that it was intact – including its freon containers.

**Ongoing activity**

EPA will continue to use its HEPA filter SUPERVAC vacuum trucks late into this evening to clean the Riverwalk of Battery Park City and the Rector Park playground and garden areas. Dust and other materials are vacuumed, kept in air tight containers and disposed of properly. Vacuum trucks will be available to address other areas, as needed.

EPA now has five wash stations set up, with five more (for a total of 10) scheduled to be set up

this weekend. Wash stations will be used for rescue and recovery workers and trucks used at ground zero before exiting the site.

EPA and the city are evaluating an interim plan to collect any debris that might run off the site into the rivers. In the meantime, the Army Corps of Engineers is capturing debris found in the rivers with its skimmer vessels.

**Sandy Hook Beach Wash-Ups:**

It was reported that grease balls had washed up on the beaches at Sandy Hook in NJ. EPA samplers inspected the beach and found material that did not contain grease but appeared to be sheet rock-like material. This material is being analyzed by the EPA laboratory to determine its content.

**Jacob Javits Convention Center**

Wipe samples of dust were collected from inside the Jacob Javits Convention Center and analyzed for metals. Results of all the samples were reported at non-detectable levels.

**Newtown Creek Sewage Treatment Plant**

The Newtown Creek STP will be segregating the wastewater flows from the lower Manhattan area. As a precaution, sludge resulting from these flows will not go to beneficial use.

**EPA Emergency Response to WTC Disaster  
Sampling Update, September 21, 2001  
- Internal Use -**

**Samples From Fixed Air Monitors in and around "Ground Zero"**

- 29 new samples analyzed from the 11 fixed air monitors in lower Manhattan. All samples were non-detect for asbestos.
- Eight most recent samples taken from monitors in NJ indicated no detectable levels of asbestos.
- Total number of samples is 134: 7 of which – all in lower Manhattan – were marginally above the 70 structures per millimeter squared that we use to clear schools after asbestos removal under AHERA (Note: 26 samples could not be analyzed because the filters became clogged).

**Other Air Samples:**

- Real-time readings of outdoor air taken at locations around ground zero for chemicals including hydrogen sulfide, VOCs, carbon monoxide and sulfur dioxide. All readings indicated that levels were normal and posed no public health concern.

**Samples of Bulk Dust:**

- 24 dust samples were analyzed between Sept. 19 and 20, including samples taken from the general area of Stuyvesant High School and Battery Park. 12 of the 24 showed asbestos levels slightly over the 1% definition of asbestos-containing material. These areas have since been cleaned by EPA and the city.

**Ambient Water Samples:**

- Awaiting analysis from the Hudson and East Rivers, which receive runoff from storm sewers and the streets in lower Manhattan. Samples being analyzed for asbestos, dioxin, PCBs, PAHs, metals and total suspended solids.
- EPA and the city are evaluating an interim plan to collect debris that might run off the site into the rivers. In the meantime, the Army Corps of Engineers is capturing debris with its skimmer vessels.

**Ongoing Activities:**

- EPA will use its HEPA filter SUPERVAC vacuum trucks late into this evening to clean the Riverwalk of Battery Park City and the Rector Park playground and garden areas.
- EPA now has 5 wash stations set up, with five more (for a total of 10) scheduled to be set up this weekend. Wash stations will be used for rescue and recovery workers and trucks used at ground zero before exiting the site.
- EPA and the Coast Guard continued today to lead corporate personnel into buildings in the "hot zone," providing clearance for contaminants and adequate oxygen prior to entry. We are awaiting from EPA staff the new number of total entries we have lead. As of

\*\*\* yesterday, we reported 35 completed of 42 requests received from corporations.

**U.S. Environmental Protection Agency  
Air / Bulk / Wipe Sampling Situation Report  
Friday, September 21, 2001 ( 12:00pm)**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER
  - Round 10 (Sept 19, 2am - 10 am) - One sample marginally high with PCM analysis (Location J - West St / Warren St.). Confirmed non-detect with TEM.
  - Round ?? (not listed) (Sept 19 - Sept20, 5pm - 2am) - One marginally high with PCM analysis (Location G - Liberty St / South End Ave). Confirmed non-detect with TEM.
  - Round ?? (Sept 20, 2am - 10am) - One PCM analysis at criteria of 0.01 F/cc (Location F - West St. / Vessey St.). Confirmed non-detect with TEM
- New Jersey
  - Sept 18 (addition samples) and Sept 19 - All less than Detectable Levels

NYC Bulk Samples

- Sept 19 - 12 out of 16 with results 1 - 2.1 %, with most samples collected in the general area(s) of Stuyvesant HS and Battery Park.
- Sept 20 - All samples were Non-Detects with most samples collected within 2-3 blocks of the WTC

Landfill Air Sampling locations (Asbestos)

- Sept 19 / Sept 20
  - 3 Rounds of data
  - 25 of 27 were reported as less than detectable levels
  - All samples below OSHA PEL of 0.1 fibers/cc
- Particulate Monitoring Sept 18 - 20
  - Using 3x background for implementation of Dust Suppression Measures
  - All data collected, with exception of screening area, was well below the 3x Number.

Wipe Samples (metals) Analysis

- 6 samples collected at Jacob Javits Center (no EPA criteria Available)
- Lead Results are well below the HUD criteria (50 ug/ft<sup>2</sup>)
- While no specific standards are available, the most toxic other metals (i.e. As, Be, Cd, Cr, etc.) were either Non Detects or trace.

Direct Reading Instruments

- Nothing of significance identified
- All data considered suspect due to moisture on that day

**FILE**



TEL

MVC Response  
Asbestos Air Sampling Results at Fixed Locations (Round 1)

Date	Sample No.	S.L.	Sample Volume	Matrix	PCMI NIOSH 7400 f/100m <sup>2</sup>	TEM (AHERA) f/cc	TEM (AHERA) S/fm <sup>3</sup>	SI-MMZ (S-f/cc)
8/19/01	552	G	480	Air	<7	<0.008	<0.008	<0.008
8/19/01	554	A	480	Air	<7	<0.008	<0.008	<0.008
8/19/01	556	B	480	Air	11.46	0.008	<0.008	<0.008
8/19/01	558	C	480	Air	<7	<0.008	<0.008	<0.008
8/19/01	564	D	480	Air	6.92	0.008	<0.008	<0.008
8/19/01	568	E	480	Air	<7	<0.008	<0.008	<0.008
8/19/01	580	H	480	Air	11.46	0.008	<0.008	<0.008
8/19/01	582	I	480	Air	16.20	0.012	<0.008	<0.008
8/19/01	571	J	480	Air	10.19	0.008	<0.008	<0.008
8/19/01	589	K	480	Air	<7	<0.008	<0.008	<0.008
8/19/01	573	N	480	Air	<7	<0.008	<0.008	<0.008

NA: not analyzed due to overloading of particulates  
 PCMI: NIOSH 7400  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L. Sampling Locations  
 \*Sample volume is below recommended limit of the method: \*\*480 Liters  
 \*Structure (S) Roughly equivalent to Fiber (F)  
 Standard criteria: BPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 705/mm<sup>2</sup>, volume 120EL, for 28MM filter (TEM)  
 A: Intersection of Barclay+West Broadway  
 B: Intersection of Church+Day St.  
 C: Intersection of Barclay+West Broadway  
 D: Intersection of Church+Day St.  
 E: Intersection of Liberty+South End Ave. E\*\* Duplicate  
 F: Intersection of West+West St.  
 G: Intersection of Church and Duane  
 H: One Chase Plaza  
 I: Wall Street+Broadway  
 J: Corner of West and Warren  
 K: Corner of Albany and West  
 N: West Side Highway/ near community college

9/21/01

ERT 02401

NYC

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Time: 5:00 PM 9/19/01 to 2:00 AM 9/20/01

*Flow to West*

Date	Sample No.	S.L.	Sample		Matrix	PCM NIOSH 7400		TEM (AHERA)	
			Volume	f/imm <sup>2</sup>		f/cc	<5µ (>5µ) S (#)	S/imm <sup>2</sup> (S-f/cc)	
9/20/01	01443	A	480	<7.0	Air	<0.006	<8.0 (<0.0064)		
9/20/01	01445	B	480	<7.0	Air	<0.006	<8.0 (<0.0064)		
9/20/01	01447	C	345	9.55	Air	0.001	<8.0 (<0.0089)		
9/20/01	01449	D	480	<7.0	Air	<0.006	<8.0 (<0.0064)		
9/20/01	01421	E	480	7.64	Air	0.006	<8.0 (<0.0064)		
9/20/01	01423	F	480	<7.0	Air	<0.006	<8.0 (<0.0064)		
9/20/01	01424	G	480	21.88	Air	0.017	<8.0 (<0.0064)		
9/20/01	01442	H	115	<7.0	Air	<0.023	<8.0 (<0.0288)		
9/20/01	01441	I	480	<7.0	Air	<0.006	<8.0 (<0.0064)		
9/20/01	01427	J	480	<7.0	Air	<0.006	<8.0 (<0.0064)		

cc:64627

NA: not analyzed due to overloading of particulates

PCM: NIOSH 7400

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L: Sampling Locations

Sample volume is below recommended limit of the method: ~~NA~~

\*Structure (S) Roughly equivalent to Fiber (F)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70S/imm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)

A: Barclay+West Broad

B: Church+Dey St.

C: Liberty+Broad

D: Chase Plaza

E: Albany + Greenwich

F: Albany + West

G: Liberty + Southend

H: West + Vessey

I: West + Warren

J: Harrison tree

ERT 9/21/01

FILE

New York City Emergency Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Time: 2:00 AM 9/20/01 to 10:00 AM 9/20/01

Date	Sample No.	S.L.	Sample Volume	Matrix	PCM NIOSH 7400		TEM (AHERA)	
					f/Min <sup>3</sup>	f/cc	<5µ (>5µ) S (#)	S/Min <sup>3</sup> (S-f/cc)
9/20/01	01444	A	424	Air	7.64	0.007	<8.00 (<0.0073)	<8.00 (<0.0073)
9/20/01	01446	B	408	Air	<7.0	<0.007	<8.00 (<0.0075)	<8.00 (<0.0075)
9/20/01	01448	C	480	Air	<7.0	<0.006	<8.00 (<0.0064)	<8.00 (<0.0064)
9/20/01	01450	D	417	Air	<7.0	<0.006	<8.00 (<0.0074)	<8.00 (<0.0074)
9/20/01	01422	E	215	Air	<7.0	<0.013	<8.00 (<0.0143)	<8.00 (<0.0143)
9/20/01	01425	F	421	Air	10.83	0.010	<8.00 (<0.0073)	<8.00 (<0.0073)
9/20/01	01426	G	401	Air	<7.0	<0.007	<8.00 (<0.0077)	<8.00 (<0.0077)
9/20/01	01428	H	422	Air	<7.0	<0.006	<8.00 (<0.0073)	<8.00 (<0.0073)

OS-9/20/01

NA: not analyzed due to overloading of particulates

PCM: NIOSH 7400

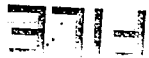
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L.: Sampling Locations

Sample volume is below recommended limit of the method: ~~480~~

\*Structure (S) Roughly equivalent to Fiber (F)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)

- A: Barclay+Broad
- B: Church+Dey St.
- C: Liberty+Broad
- D: Broad + Wall
- E: Albany + Greenwich
- F: West + Vessey
- G: West + Warren
- H: Harrison Tree



NYC Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date	Sample No.	S.L.	Sample Volume	Matrix	PCM NIOSH 7400		TEM (AHERA)	
					f/MM <sup>2</sup>	f/cc	<5µ (>5µ) S (#)	S/MM <sup>2</sup> (S-f/cc)
9/18/2001	28604	A	720	Air	<7	<0.004	<8.89 (<0.0048)	<8.89 (<0.0048)
9/18/2001	28605	B	720	Air	<7	<0.004	<8.89 (<0.0048)	<8.89 (<0.0048)
9/18/2001	28606	C	720	Air	7.64	<0.004	<8.89 (<0.0048)	<8.89 (<0.0048)
9/18/2001	28607	D	720	Air	<7	<0.004	<8.89 (<0.0048)	<8.89 (<0.0048)

COAD1641

PCM: NIOSH 7400  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L.: Sampling Locations  
Sample volume is below recommended limit of the method: \*\*\*480 Liters  
\*Structure (S) Roughly equivalent to Fiber (F)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)

- A: Liberty Park
- B: CITGO Terminal
- C: FMC Terminal
- D: Shell Terminal

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NYC Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date	Sample No.	S.I.	Sample Volume	Matrix	PCM NIOSH 7400 f/1MM <sup>2</sup>	f/cc	TEM (AHERA) S (#)	TEM (AHERA) S/1MM <sup>2</sup> (S-f/cc)
9/19/2001	2990	A	720	Air	<7	<0.004	<8.89(<0.0048)	<8.89(<0.0048)
9/19/2001	2991	B	720	Air	<7	<0.004	<8.89(<0.0048)	<8.89(<0.0048)
9/19/2001	2992	D	720	Air	<7	<0.004	<8.89(<0.0048)	<8.89(<0.0048)
9/19/2001	2993	C	720	Air	<7	<0.004	<8.89(<0.0048)	<8.89(<0.0048)

continued

PCM: NIOSH 7400

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L.: Sampling Locations

Sample volume is below recommended limit of the method. \*\*\*480 Liters

\*Structure (S) Roughly equivalent to Fiber (F)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/fcc (PCM), 70S/mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)

- A: Liberty Park
- B: CITGO Terminal
- C: FMC Terminal
- D: Shell Terminal

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NYC Response  
Asbestos Bulk Sample Analysis Results

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/19/01	06378	Stuyvesant HS East	Dust	1.4 Chrysotile	
9/19/01	06379	Stuyvesant HS Entrance	Dust	1.5 Chrysotile	
9/19/01	06380	Stuyvesant HS South	Dust	2.1 Chrysotile	
9/19/01	06381	455 North End Ave.	Dust	1.8 Chrysotile	
9/19/01	06382	400 Chambers Court Yard	Dust	1.4 Chrysotile	
9/19/01	06383	22 River Terrace	Dust	1.6 Chrysotile	
9/19/01	06384	400 Gateway Plaza	Dust	1.7 Chrysotile	
9/19/01	06385	Gateway Plaza West	Dust	1.7 Chrysotile	
9/19/01	06386	300 Albany Street	Dust	<1 Chrysotile	
9/19/01	06387	350 Hudson Tower	Dust	1.2 Chrysotile	
9/19/01	06388	225 Rector	Dust	1.3 Chrysotile	
9/19/01	06389	200 Rector	Dust	1.2 Chrysotile	
9/19/01	06390	70 Battery Place	Dust	1.8 Chrysotile	
9/19/01	06391	Washington Carlisle	Dust	<1 Chrysotile	
9/19/01	06392	Trinity and Day	Dust	<1 Chrysotile	
9/19/01	06393	Church and Barclay	Dust	ND	

PLM Polarized Light Microscope by Method NY State ELAP 188.1

ERT 9:30 AM  
9/21/01

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NYC Response  
Asbestos Bulk Sample Analysis Results

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/20/01	08151	100 Church	Dust	ND	
9/20/01	08152	Barclay CW & Broadway	Dust	ND	
9/20/01	08153	Greenwich & Park	Dust	ND	
9/20/01	08154	7 Bay Street	Dust	ND	
9/20/01	08175	Cedar & Broadway	Dust	ND	
9/20/01	08155	West S Bridge	Dust	ND	
9/20/01	08156	Thames & West	Dust	ND	
PLM - Polarized Light Microscope by Method NY State ELAP 138.1					
ND: Not Detected					

ERT 9/21/01 9:50 AM

NYC

NYC Response  
 Asbestos Air Sampling Results at Fresh Kill  
 Sampling Time: 7pm 9/18/01- 7am 9/19/01

Date Sampled	Sample No.	S.L.	Matrix	Sample Volume	PCM: NIOSH 7400		TEM (AHERA)		Comments
					Fimnt <sup>2</sup>	f/cc	<5µm (>5µm) S(#)	S-f/cc	
9/19/2001	06693	Location 1	Air	1440 Liters	<7.0	<0.002	<0.0043	<0.0043	
9/19/2001	06694	Location 2	Air	1440 Liters	<7.0	<0.002	<0.0043	<0.0043	
9/19/2001	06695	Location 3	Air	1440 Liters	<7.0	<0.002	<0.0043	<0.0043	
9/19/2001	06696	Location 4	Air	1440 Liters	<7.0	<0.002	<0.0043	<0.0043	
9/19/2001	06697	Location 5	Air	1440 Liters	<7.0	<0.002	<0.0043	<0.0043	
9/19/2001	06698	Location 6	Air	1440 Liters	<7.0	<0.002	<0.0043	<0.0043	
9/19/2001	06699	Location 7	Air	1440 Liters	<7.0	<0.002	<0.0043	<0.0043	
9/19/2001	00700	Location 8	Air	1440 Liters	11.16	0.003	<0.0043	<0.0043	

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L.: Sampling Location  
 \*PCM NIOSH method 7400 Revision 3, Issue 2  
 \*\*Structure (S) Roughly equivalent to Fiber (F)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)



NYC

NYC Response  
 Asbestos Air Sampling Results at Fresh Kill  
 Sampling Time: 7am 9/19/01-7pm 9/19/01

Date Sampled	Sample No.	S.L.	Matrix	Sample Volume	PCM: NIOSH 7400 Fim <sup>1</sup>	f/cc	TEM (AHERA) <5µm (>5µm) S(#)	S-f/cc	Comments
9/19/2001	00710	Location 1	Air	1440 Liters	<7.0	<0.002		<0.0043	
9/19/2001	00703	Location 2	Air	1440 Liters	<7.0	<0.002		<0.0043	
9/19/2001	00704	Location 3	Air	1440 Liters	<7.0	<0.002		<0.0043	
9/19/2001	00705	Location 4	Air	1440 Liters	<7.0	<0.002		<0.0043	
9/19/2001	00706	Location 5	Air	1440 Liters	<7.0	<0.002		<0.0043	
9/19/2001	00707	Location 6	Air	1440 Liters	17.83	0.005	1 (0)	0.0043	
9/19/2001	00708	Location 7	Air	1440 Liters	<7.0	<0.002		<0.0043	
9/19/2001	00709	Location 8	Air	1440 Liters	<7.0	<0.002		<0.0043	
9/19/2001	00711	Location 9	Air	1440 Liters	36.94	0.010	6 (1)	0.0299	

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L.: Sampling Local  
 \*PCM NIOSH method 7400 Revision 3, Issue 2  
 \*Structure (S) Roughly equivalent to Fiber (F)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm2, volume 1200L, for 25MM filter (TEM)

FILE

NYC Response  
 Asbestos Air Sampling Results at Fresh Kill  
 Sampling Time: 7pm 9/19/01- 7am 9/20/01

Date Sampled	Sample No.	S.L.	Matrix	Sample Volume	PCM: NIOSH 7400		TEM (AHERA)		Comments
					F/imm <sup>2</sup>	f/cc	<5µm (>5µm) S(#)	S-f/cc	
9/20/2001	00715	Location 1	Air	458 Liters	<7.0	<0.006		<0.0067	
9/20/2001	00720	Location 2	Air	720 Liters	<7.0	<0.004		<0.0048	
9/20/2001	00716	Location 3	Air	720 Liters	<7.0	<0.004		<0.0048	
9/20/2001	01601	Location 4	Air	720 Liters	7.01	<0.004		<0.0048	
9/20/2001	01602	Location 5	Air	720 Liters	<7.0	<0.004		<0.0048	
9/20/2001	00717	Location 6	Air	502 Liters	<7.0	<0.005		<0.0061	
9/20/2001	01603	Location 7	Air	720 Liters	<7.0	<0.004		<0.0048	
9/20/2001	01604	Location 8	Air	720 Liters	<7.0	<0.004		<0.0048	
9/20/2001	00719	Screening 2	Air	720 Liters	11.46	0.006	0(2)	0.0095	Chrysotile
9/20/2001	00718	Screening 3	Air	720 Liters	<7.0	<0.004		<0.0048	

0004018

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L.: Sampling Local  
 \*PCM: NIOSH method 7400 Revision 3, Issue 2  
 \*Structure (S) Roughly equivalent to Fiber (F)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)



**Daily DataRam Summary Sheet**  
**Fresh Kills Landfill**  
**September 18, 2001**

Weather Info: No MET station data available, however winds primary out of the NNNE

Location	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	MingCon c ug/m3	AvgConc ug/m3	MaxConc ug/m3
1											
2											
3	2084	1	5041	21:00:15	10	00:00:15	100	0.0	0.0	48.0	1719.8
4	2012	1	27	06:45:00	10	00:15:00	100	0.0	0.0	36.0	980.5
5	2227	1	5442	22:40:30	10	00:00:15	100	0.0	0.0	34.6	191.8
6	2381	1	55	13:45:00	10	00:15:00	100	0.0	0.0	49.0	876.6
7	2226	1	5421	22:35:15	10	00:00:15	100	0.0	0.0	41.6	642.5
8	2224	1	5392	22:28:00	10	00:00:15	100	0.0	0.0	40.0	236.4
9a	2481	1	29		10	00:15:00	100	0.0	1.5	137.0	29289.7

- Location 1 - -74.199795 40.565139
- Location 2 - -74.198262 40.566883
- Location 3 - -74.198685 40.570054
- Location 4 - -74.201380 40.569790
- Location 5 - -74.205873 40.568892
- Location 6 - -74.207406 40.563818
- Location 7 - -74.203019 40.561915
- Location 8 - -74.201433 40.564822 (1-3 locations with in the screening area)
- Location 9 -

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Daily DataRam Summary Sheet  
 Fresh Kills Landfill  
 September 19, 2001

Weather Info: No MET station data available, however winds primary out of the N-NNE

Location	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	AvgConc ug/m3	MaxConc ug/m3
1	2152	1	30	07:30:00	10	00:15:00	100	0.0	2.2	57.2
2	2226	1	33	08:15:00	10	00:15:00	100	0.0	0.0	129.4
3	2142	1	32	08:00:00	10	00:15:00	100	0.0	0.0	117.5
4	2227	1	16	04:00:00	10	00:15:00	100	0.0	6.7	121.8
5	2381	1	32	08:00:00	10	00:15:00	100	0.0	0.0	209.7
6	2224	1	34	08:30:00	10	00:15:00	100	0.0	5.3	2807.3
7	2481	1	29	07:15:00	10	00:15:00	100	0.0	8.4	148.1
8	2012	1	29	07:15:00	10	00:15:00	100	0.0	2.2	303.6
9a	2480	1	33	08:15:00	10	00:15:00	100	0.0	12.8	3250.2

- Location 1 - -74.199795 40.565139
- Location 2 - -74.198262 40.566883
- Location 3 - -74.198685 40.570054
- Location 4 - -74.201380 40.569790
- Location 5 - -74.205873 40.568892
- Location 6 - -74.207406 40.563818
- Location 7 - -74.207406 40.563818
- Location 8 - -74.203019 40.561915
- Location 9 - -74.201433 40.564822 (1-3 locations with in the screening area)

FILE

Daily DataRam Summary Sheet  
 Fresh Kills Landfill  
 September 20, 2001

Weather Info: No MET station data available, however winds primary out of the N-NNE

Location	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	MingConc ug/m3	AvgConc ug/m3	MaxConc ug/m3
1	2381	1	40	10:00:00	10	00:15:00	100	0.0	20.0	48.5	100.3
2	2481	1	31	07:45:00	10	00:15:00	100	0.0	28.5	49.1	84.2
3	2480	1	31	07:45:00	10	00:15:00	100	0.0	32.2	58.3	114.0
4											
5	2227	1	31	07:45:00	10	00:15:00	100	0.0	38.5	71.0	153.8
6	2012	1	31	07:45:00	10	00:15:00	100	0.0	1.9	51.6	221.2
7	2224	1	31	07:45:00	10	00:15:00	100	0.0	28.9	58.6	151.0
8	2152	1	31	07:45:00	10	00:15:00	100	0.0	20.7	44.6	74.3
9a	2480	1	33	08:15:00	10	00:15:00	100	0.0	12.8	75.6	3250.2
9b	2226	1	50	12:30:00	10	00:15:00	100	0.0	12.9	74.6	1598.2

- Location 1 - -74.199795 40.565139
- Location 2 - -74.198262 40.566883
- Location 3 - -74.198685 40.570054
- Location 4 - -74.201380 40.569790
- Location 5 - -74.205873 40.568892
- Location 6 - -74.207406 40.563818
- Location 7 - -74. 40.
- Location 8 - -74.203019 40.561915
- Location 9 - -74.201433 40.564822 (1-3 locations with in the screening area)

352

wipe are  
10x10"

NYC Response  
Wipe sampling analysis results for Metals  
Sample collection date - 9/17/01

Six wipe samples were collected for Metals analysis. Attached please find the results table.

Blank Spike and Blank Spike Duplicate(BS/BSD) recoveries were acceptable except arsenic and selenium low recovery(61 - 73 %); and silver BS low recovery(67%). The Relative Percent Difference (RPD) for calcium, silver and sodium exceeded, the recommendation QC limits(20%).

The initial calibration and continuing calibration checks all met QC criteria.

ERT 9/20/01 9:50AM

**FILE**

Table 1. Results of the Analysis for Metals in Wipes  
New York ER site

Client ID Location	06079 Location 3 JJC		06080 #4 JJC		06083 #5 JJC		06084 #6 JJC		06086 #7 JJC		06088 #8 JJC		
Parameter	Analysis Method	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe
Aluminum	ICAP	82	2.5	42	2.5	12	2.5	4.6	2.5	87	2.5	220	2.5
Antimony	AA-Fur	0.49	0.25	0.37	0.25	U	0.25	U	0.25	0.58	0.25	1.0	0.25
Arsenic	AA-Fur	0.12	0.10	U	0.10	U	0.10	U	0.10	0.14	0.10	0.24	0.10
Barium	ICAP	2.7	0.25	1.4	0.25	1.2	0.25	0.63	0.25	4.5	0.25	9.3	0.25
Beryllium	ICAP	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10
Caesium	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	0.47	0.25
Calcium	ICAP	890	5.0	520	5.0	340	5.0	99	5.0	930	5.0	1900	5.0
Cadmium	ICAP	0.88	0.25	0.28	0.25	U	0.25	U	0.25	0.96	0.25	2.1	0.25
Cobalt	ICAP	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50
Copper	ICAP	2.5	0.50	0.95	0.50	0.50	0.50	U	0.5	2.9	0.50	7.3	0.50
Iron	ICAP	170	1.3	33	1.3	9.9	1.3	2.9	1.3	270	1.3	590	1.3
Lead	AA-Fur	2.4	0.10	1.7	0.10	0.44	0.10	0.27	0.10	3.0	0.10	6.3	0.10
Magnesium	ICAP	160	25	61	25	40	25	27	25	130	25	240	25
Manganese	ICAP	4.6	0.25	1.4	0.25	0.48	0.25	U	0.25	4.6	0.25	8.9	0.25
Nickel	ICAP	U	0.50	U	0.50	U	0.50	U	0.50	0.81	0.50	1.9	0.50
Potassium	ICAP	U	100	U	100	U	100	U	100	210	100	360	100
Selenium	AA-Fur	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10
Silver	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	0.26	0.25
Sodium	ICAP	920	25	630	25	1300	25	210	25	610	25	900	25
Thallium	AA-Fur	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10
Vanadium	ICAP	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50
Zinc	ICAP	34	0.50	56	0.50	12	0.50	3.7	0.50	41	0.50	93	0.50

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)

FILE

REAC, Edison, NJ  
 (732) 321-4700  
 EPA Contract 68 C99-223

CHAIN OF CUSTODY RECORD  
 Project Name: PTC - E2  
 Project Number: RAA 52001  
 LM Contact: \_\_\_\_\_ Phone: \_\_\_\_\_

No: 03981  
 Sheet 01 of 01 (Do not copy)  
 (for addnl. sample use new form)

091701-

Sample Identification			Analyses Requested		
Sample No.	Matrix	Date Collected	# of Bottles	Container/Preservative	Analyses Requested
759 06079	Wipe	9/17/01	1	40 mL Van. acid/n.a. Taz.	
759 06080	Wipe		1		
760 06083	Wipe		1		
761 06084	Wipe		1		
762 06086	Wipe		1		
763 06088	Wipe		1		

Matrix: A - Air AT - Ambient Tissue B - Bulk S - Soil DS - Ditch Sediment GS - Ground Sediment GW - Groundwater G - Oil P - Paint W - Water PW - Paint Tissue PT - Paint Tissue

Special Instructions: \_\_\_\_\_

Prepared by: Wipe

Item/Matrix	Prepared by	Date	Received by	Date	Released by	Date
6/Asbestos	Wipe	9/17/01	Wipe	9/17/01	Wipe	9/17/01

SAMPLES TRANSFERRED FROM  
 CHAIN OF CUSTODY #:



Location	Date	Time	WD	Tape Meters			Multi-Gas PHD-5					TVA-100					
				CO12 ppbv	H2SO4 ppbv	HNO3 ppbv	HCl ppbv	H2S ppm	SO2 ppm	LEL %	O2 %	CO ppm	HCN ppb	NO ppm	FID # ppm	PID # ppm	
L	9/20	9:05		0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	0
A	9/20	9:24	Up	0	N/A	N/A	N/A	0	0	0	20.9	1	0	0	0	0	0
Plaza	9/20	9:32	Up	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	0
B	9/20	9:35	Up	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	0
C	9/20	9:39	Up	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	0
C1**	9/20	9:41	Up	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	0
H	9/20	9:50	Up	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	0
I	9/20	9:56	Up	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	0
D	9/20	10:03	Still	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	1.3	0
Banker Trust	9/20	10:07	Cross Dw	0	N/A	N/A	N/A	0	0	0	20.9	3	0	0	0	0.47	0
Banker Trust I	9/20	10:13	Cross Dw	0	N/A	N/A	N/A	0	0	0	20.9	8	0.8	0	4.05	0	0
K	9/20	10:19	Crosswind	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	0
Liberty+ West	9/20	10:26	Dw	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	0
E	9/20	10:34	Dw	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	0
F	9/20	10:44	Dw	0	N/A	N/A	N/A	0	0	0	20.9	*0/4	0	0	0	0	0
J	9/20	10:52	Dw	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	0

Comments: 9/20 General wind direction out of the southeast. High humidity  
 Plaza ~150 ft from edge upwind fairly still; J - active truck washing; I - Heavy pedestrian traffic; Bankers Trust - Greenwich+Liberty  
 Banker Trust I at edge of Pit w/active removal and minor plumes; Liberty+West at the edge of pile; F - \*CO varies w/wind  
 \*M not sampled due to rain

- \* Total volatile organic compounds
- \*\* CI - Liberty + Broadway; moved one block due to demolition activities
- Correction: M, N - not sampled due to rain
- M: Westland Harrison
- N: 10:45 - 10:55

A: Intersection of Barclay+West Broadway  
 B: Intersection of Church+City St.  
 C: Intersection of Greenwich+Liberty  
 D: Intersection of Liberty+South End Ave.  
 E: Intersection of West+West St.  
 F: Corner of Church and China  
 G: Wall Street+Broadway  
 H: Corner of West and West  
 I: Corner of West and West  
 J: Corner of Liberty and West

9/21/03  
 9:50 AM

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Saturday, September 22, 2001**

**Most Recent Results (as of 4:00 p.m. 9/22):**

**Air: Fixed Monitors in New York City and New Jersey**

With the addition of two new stations, EPA now has 13 fixed air monitors in and around ground zero. Three more are expected to begin functioning shortly. In the most recent sampling rounds, EPA analyzed 13 samples for asbestos. Five of the 13 samples were above the 70 structures per square millimeter standard that EPA uses to clear schools for re-occupation after asbestos removal. All were taken in or in very close proximity to the excluded area around the World Trade Center. This brings the total number of samples collected and analyzed to 147.

**Air: Non-Fixed in New York City**

Using special instruments right at the World Trade Center debris pile, EPA is collecting real-time data that provides immediate information on a range of potential contaminants to workers. No levels of significance have been found.

EPA continues to monitor for freon at ground zero daily. No freon was detected in two rounds of sampling.

**Dust Samples**

**Asbestos:** All of the eleven new dust samples had asbestos levels that were not detectable or below the 1% standard used to indicate that a material is asbestos-containing. All dust samples were taken in and around the World Trade Center, with the exception of one sample taken at the 59<sup>th</sup> Street debris transfer station.

Four samples were taken at or near ground zero on September 16 for:

**Polycyclic Aromatic Hydrocarbons (PAHs):** The analysis indicated the presence of PAHs, but all were below EPA's level of concern.

**PCBs and pesticides:** Pesticide levels were well below levels of concern.

**Air: Fresh Kills Landfill**

EPA continues to monitor the air around the Fresh Kills Landfill, which is receiving debris from the World Trade Center collapse, at eight monitoring stations. All of the new samples were below the standard for asbestos in schools. As a precaution, workers at the landfill are being asked to wear protective gear.

**Ambient Water Sampling**

The Agency conducted additional water quality sampling during the heavy rains on Thursday, September 20. No asbestos was detected in the five samples taken.

**Ongoing activity**

EPA now has about 15 wash stations set up for personnel and vehicles. Signs have been posted at the wash stations instructing rescue workers to wear respirators and to take proper safety precautions.

EPA is continuing to use its HEPA filter SUPERVAC vacuum trucks to clean the sidewalks and

promenade around Battery Park City.

EPA and the Coast Guard continue to lead key corporate personnel into buildings in the "hot zone" to retrieve important information and check computer systems. Thirty-six entries have been completed. As of Monday, EPA anticipates turning most of this activity over to New York City.

**U.S. Environmental Protection Agency (EPA)  
EPA Sampling and Response Actions  
Brief Summary  
September 22, 2001  
- Internal Use -**

**Samples From Fixed Air Monitors in and around "Ground Zero"**

- 13 new asbestos samples analyzed from the 13 (two new) fixed air monitors in lower Manhattan. Five of the 13 had levels above the EPA school standard.
- Total number of air samples from permanent stations is 147.

**Other Air Samples:**

- Real-time readings from special instruments at the World Trade Center debris pile found no levels of significance for potential contaminants that might impact response workers.

**Samples of Bulk Dust (in and around the World Trade Center site:**

- 11 dust samples were analyzed for asbestos. Levels were not detectable or below the 1% definition of asbestos-containing material.
- 4 samples analyzed for PAHs indicated their presence, but all were below EPA's level of concern.
- 4 samples of PCBs and pesticides were well below levels of concern.

**Ambient Water Samples:**

- No asbestos was found in water quality samples taken from the Hudson River during heavy rains last Thursday.

**Ongoing Activities:**

- EPA now has 15 stations set up to wash down rescue workers and trucks as they exit the site. Signs have been posted advising workers to wear respiratory protection.
- EPA and the Coast Guard continued today to lead corporate personnel into buildings in the "hot zone," completing 36 of 42 requests received from corporations.

U.S. Environmental Protection Agency  
Air / Bulk / Wipe Sampling Situation Report  
Saturday, September 22, 2001 ( 3:00 pm)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Sept 21, 10 AM - 3PM)
  - All samples below the OSHA standard (0.1 f/cc) for PCM.
  - 10 of 13 samples are above the NYC standard for reentry (0.01 f/cc). The highest PCM hit was 0.05 f/cc.
  - Sample volumes collected were low (i.e., 240 liters). When normalized to 1200 liter volume, 5 of 10 exceed the AHERA standard (70S/mm<sup>3</sup>).
- New Jersey
  - Sept 18 through Sept 20 (sampling dates reconfigured) - all less than detectable levels as cited previously.

NYC Bulk/Dust Samples

- Asbestos (Sept 21) - all samples ND or less than 1 %.
- Semivolatile organics (Sept 16) - PAH concentrations were only compounds with elevated results. Individual compounds were all below EPA removal action guidance. Using TEFs for the individual PAHs (normalized to BaP) the levels appear to approximate the EPA removal action guidance (10 ppm). This concentration is below levels of concern.
- PCB/Pesticide (Sept 16) - Pesticides detected well below levels of concern. PCBs are below EPA removal action guidance levels and below levels of concern.

Landfill Air Sampling Locations (Asbestos)

- Sept 20 (7AM - 4:30PM) - All samples below AHERA standards.

NYC - Hudson River

- Asbestos (Sept 20) - none detected.

NYC - Air (TAGA)

- Volatile organics (Sept. 21) - Contamination present in background sample. Results lower than previously reported.

Direct Reading Instruments

- Nothing of significance identified.

**FILE**

4111

(3.14)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 09/21/01 at 10:00 AM to 3:00 PM

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)	
					f/pcf	f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#)	S/mm <sup>2</sup>
9/21/01	01742	A	240	Air	12.74	0.02	NR	NR	<8.00	<0.0128
9/21/01	01743	B	240	Air	8.28	0.013	NR	NR	<8.00	<0.0128
9/21/01	NS	C	240	Air			NR	NR		
9/21/01	01747	D	240	Air	15.29	0.025	NR	NR		0.077
9/21/01	01749	E	240	Air	31.85	0.051	NR	NR		<del>0.066</del> 0.077
9/21/01	01750	F	240	Air	7.64	0.012	NR	NR	<8.00	<0.0128
9/21/01	01731	F DUP	240	Air	11.46	0.018	NR	NR	<8.00	<0.0128
9/21/01	NS	G	240	Air			NR	NR		
9/21/01	01745	H	240	Air	7.01	0.011	NR	NR	16**	0.0128**
9/21/01	01746	I	240	Air	8.92	0.014	NR	NR	16	0.0287
9/21/01	01741	J	240	Air	<7.0	<0.011	NR	NR		
9/21/01	01748	K	240	Air	23.57	0.038	NR	NR		
9/21/01	NS	L	240	Air			NR	NR		
9/21/01	NS	N	240	Air			NR	NR		
9/21/01	01744	M	241	Air	10.19	0.016	NR	NR		
9/21/01	01733	O	240	Air	<7.0	<0.011	NR	NR	<8.00	<0.0128
9/21/01	01732	P	240	Air	<7.0	<0.011	NR	NR		

\*\* mixture of Amosite and Crocidolite

NS: Not sampled  
AF/NAF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
-Structure (S) Roughly equivalent to Fiber (F)  
NA: not analyzed due to overloading of particulates  
NR: Analysis not requested

Sampling Locations:  
A: Intersection of Barclay+West Broadway  
B: Intersection of Church+Dey St.  
C: Intersection of Liberty+Trinity  
D: Intersection of Greenwich+Albany  
E: Intersection of Liberty+South End Ave  
F: Intersection of Vesey+West St. F DUP  
G: Intersection of Church and Duane  
H: One Chase Plaza  
I: Wall Street+Broadway  
J: Corner of West and Warren  
K: Corner of Albany and West  
L: West Side Highway/ near community college  
M: Intersection of Liberty + Broad  
O: Pier 25  
P: Intersection of Harrison + West

NIOSH 7400: Fiber Analysis of Air samples Via NIOSH 7400, Revision 3, Issue 2, 8/15/04  
NIOSH 7402: Asbestos Analysis of air samples by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA), 0.01fibers/cc (PCM), 70S/mm<sup>2</sup>, volume 1200L, for 2500m filter (TEM)

ERT: 09/22/01 9:50 AM

FILE

NYC Emergency Response  
Asbestos Air Sampling Results NYC ERMU DEP

Date	Sample No.	S.L.	Sample Volume	Matrix	PCM NIOSH 7400 (f/cc)	TEM (AHERA) S (f/f)	TEM (AHERA) S (f/cc)
8/18/01	26504	A	720	Air	<7	<0.004	<8.89f (<0.0048)
8/18/01	26505	B	720	Air	<7	<0.004	<8.89f (<0.0048)
8/18/01	26506	C	720	Air	7.64	<0.004	<8.89f (<0.0048)
8/18/01	26507	D	720	Air	<7	<0.004	<8.89f (<0.0048)

PCM: NIOSH 7400  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L. Sampling Locations  
Sample volume is below recommended limit of the method. \*\*\*480 Liters  
Structure (S) Roughly equivalent to Fiber (F)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70f/min<sup>2</sup>, volume 1200L, for 26MM filter (TEM)

Sampling Locations

- A: Liberty Park 11:05 (8/18/01) 12:05 (8/18/01)
- B: CITGO terminal 00:05 (8/18/01) 12:05 (8/18/01) 9/19/01 (N.Y.)
- C: FMC Terminal 12:50 (8/18/01) - 03:50 (8/19/01)
- D: Shell Terminal 13:30 (8/18/01) - 01:30 (8/19/01)

NYC Emergency Response  
Asbestos Air Sampling Results NYC ERMU DEP

Date	Sample No.	S.L.	Sample Volume	Matrix	PCM NIOSH 7400 (f/cc)	TEM (AHERA) S (f/f)	TEM (AHERA) S (f/cc)
8/18/01	26508	A	720	Air	<7	<0.004	<8.89f (<0.0048)
8/18/01	26509	B	720	Air	<7	<0.004	<8.89f (<0.0048)
8/20/01	26510	C	720	Air	<7	<0.004	<8.89f (<0.0048)

PCM: NIOSH 7400  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA), S.L. Sampling Locations  
Sample volume is below recommended limit of the method. \*\*\*480 Liters  
Structure (S) Roughly equivalent to Fiber (F)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70f/min<sup>2</sup>, volume 1200L, for 26MM filter (TEM)

Sampling Locations

- A: Liberty Park 11:20 (8/18/01) 12:05 (8/19/01)
- B: CITGO terminal 12:20 (8/18/01) 00:05 (8/20/01)
- C: FMC Terminal 16:10 (8/20/01) - 04:10 (8/20/01)
- D: Shell Terminal 15:40 (8/20/01) - 03:40 (8/20/01)

ERT 9/22/01 10:00am

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NYC Response  
Asbestos Bulk Sample Analysis Results

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/21/01	06201	59th Transfer Sta.	Dust	<1% Chrysotile	
9/21/01	06202	West & Vasey	Dust	ND	
9/21/01	06203	Church & Vasey	Dust	ND	
9/21/01	06204	Church & Fulton	Dust	ND	
9/21/01	06205	Cortland & Church	Dust	ND	
9/21/01	06206	Greenwich & Cedar	Dust	ND	
9/21/01	06207	Greenwich & Albany	Dust	ND	
9/21/01	06208	Washington & Cedar	Dust	ND	
9/21/01	06209	Washington & Albany	Dust	ND	
9/21/01	06210	West & Cedar	Dust	ND	
9/21/01	06211	West & Carlisle	Dust	ND	
PLM Polarized Light Microscope by Method NY State ELAP 198.1					
ND: Not Detected					



NYC Response

Dust sampling and analysis for Semivolatile organic compounds (Base neutral acid extractable)  
Sample collection date - 16 September 2001

Four dust samples were collected and analyzed for base neutral acid extractable analysis (65 compounds). All the samples showed the presence of Polynuclear aromatic hydrocarbons (PAHs). Alcohals, hydrocarbons, acids, PAH isomers and unknowns were detected as non-target compounds.

Matrix spike, matrix spike duplicate did not meet the criteria for phenol, acenaphthene and pentachlorophenol.

The initial calibration, daily calibration checks and DFTPP all met QC criteria.

ERT 9/22/01 9:50 AM

FILE

Table 1.x Results of the Analysis for BNA in Soil  
 WA # 5-2001 WTC - FINANCIAL CENTER Site  
 (Results are Based on Dry Weight)

Sample No Sample Location GC/MS File Name Matrix Dilution Factor % Solid	B06351 Battery PK & 2nd Pl WTC015 Soil 5 96		B06353 West St & Albany WTC016 Soil 5 85		B06354 Park & W Broadway WTC017 Soil 5 88		B06355 Park & North End WTC018 Soil 5 85	
	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg
Phenol	810 J	1700	3300	3000	1600 J	1900	1900	1800
bis(2-Chloroethyl)Ether	U	1700	U	3000	U	1900	U	1800
2-Chlorophenol	U	1700	U	3000	U	1900	U	1800
1,3-Dichlorobenzene	U	1700	U	3000	U	1900	U	1800
1,4-Dichlorobenzene	U	1700	U	3000	U	1900	U	1800
Benzyl alcohol	U	1700	U	3000	U	1900	U	1800
1,2-Dichlorobenzene	U	1700	U	3000	U	1900	U	1800
2-Methylphenol	U	1700	U	3000	U	1900	U	1800
bis(2-Chloroisopropyl)ether	U	1700	U	3000	U	1900	U	1800
4-Methylphenol	U	1700	U	3000	U	1900	U	1800
N-Nitroso-Di-n-propylamine	U	1700	U	3000	U	1900	U	1800
Hexachloromethane	U	1700	U	3000	U	1900	U	1800
Nitrobenzene	U	1700	U	3000	U	1900	U	1800
Isophorone	U	1700	U	3000	U	1900	U	1800
2-Nitrophenol	U	1700	U	3000	U	1900	U	1800
2,4-Dimethylphenol	U	1700	U	3000	U	1900	U	1800
bis(2-Chloroethoxy)methane	U	1700	U	3000	U	1900	U	1800
2,4-Dichlorophenol	U	1700	U	3000	U	1900	U	1800
1,2,4-Trichlorobenzene	U	1700	U	3000	U	1900	U	1800
Naphthalene	1000 J	1700	1500 J	3000	U	1900	1200 J	1800
4-Chloroaniline	U	1700	U	3000	U	1900	U	1800
Hexachlorobutadiene	U	1700	U	3000	U	1900	U	1800
4-Chloro-3-methylphenol	U	1700	U	3000	U	1900	U	1800
2-Methylnaphthalene	610 J	1700	1000 J	3000	U	1900	770 J	1800
Hexachlorocyclopentadiene	U	1700	U	3000	U	1900	U	1800
2,4,6-Trichlorophenol	U	1700	U	3000	U	1900	U	1800
2,4,5-Trichlorophenol	U	1700	U	3000	U	1900	U	1800
2-Chloronaphthalene	U	1700	U	3000	U	1900	U	1800
2-Nitroaniline	U	1700	U	3000	U	1900	U	1800
Dimethylphthalate	U	1700	U	3000	U	1900	U	1800
Acenaphthylene	U	1700	U	3000	U	1900	U	1800
2,6-Dinitrotoluene	U	1700	U	3000	U	1900	U	1800
3-Nitroaniline	U	1700	U	3000	U	1900	U	1800
Acenaphthene	1600	1700	1900 J	3000	U	1900	1600 J	1800
2,4-Dinitrophenol	U	1700	U	3000	U	1900	U	1800
4-Nitrophenol	U	1700	U	3000	U	1900	U	1800
Dibenzofuran	1300 J	1700	1500 J	3000	U	1900	1200 J	1800
2,4-Dinitrotoluene	U	1700	U	3000	U	1900	U	1800
Diethylphthalate	U	1700	U	3000	U	1900	U	1800
4-Chlorophenyl-phenylether	U	1700	U	3000	U	1900	U	1800
Fluorene	2000	1700	2100 J	3000	U	1900	1800	1800
4-Nitroaniline	U	1700	U	3000	U	1900	U	1800
4,6-Dinitro-2-methylphenol	U	1700	U	3000	U	1900	U	1800
N-Nitrosodiphenylamine	U	1700	U	3000	U	1900	U	1800
4-Bromophenyl-phenylether	U	1700	U	3000	U	1900	U	1800
Hexachlorobenzene	U	1700	U	3000	U	1900	U	1800
Pentachlorophenol	U	1700	U	3000	U	1900	U	1800
Phenanthrene	17000	1700	15000	3000	1100 J	1900	14000	1800
Anthracene	4000	1700	3800	3000	U	1900	3400	1800
Carbazole	2700	1700	2200 J	3000	U	1900	1900	1800
Di-n-butylphthalate	7500	1700	5400	3000	710 J	1900	5900	1800
Fluoranthene	19000	1700	15000	3000	800 J	1900	14000	1800
Pyrene	15000	1700	12000	3000	630 J	1900	11000	1800
Butylbenzylphthalate	13000	1700	19000	3000	1200 J	1900	18000	1800
Benzo(a)anthracene	7200	1700	5800	3000	U	1900	5200	1800
3,3'-Dichlorobenzidine	U	1700	U	3000	U	1900	U	1800
Chrysene	7300	1700	5700	3000	U	1900	5400	1800
Bis(2-Ethylhexyl)phthalate	15000	1700	8700	3000	5000	1900	10000	1800
Di-n-octylphthalate	2300	1700	2500 J	3000	U	1900	3700	1800
Benzo(b)fluoranthene	6700	1700	5200	3000	U	1900	5300	1800
Benzo(k)fluoranthene	6700	1700	5300	3000	U	1900	4800	1800
Benzo(a)pyrene	7900	1700	6200	3000	U	1900	6100	1800
Indeno(1,2,3-cd)pyrene	4200	1700	3400	3000	U	1900	3400	1800
Dibenzo(a,h)anthracene	U	1700	U	3000	U	1900	U	1800
Benzo(g,h,i)perylene	4700	1700	3800	3000	U	1900	3900	1800

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Table 1.2 (Cont) Results of TIC for BNA in Soil  
WA # 5-2001 WTC - FINANCIAL CENTER Site

Sample #	SBLK091701	Con. Factor	33		
LabFile#	WTC014				
	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Unkown acid		9.08	290
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

\* Estimated Concentration ( Response Factor = 1 )

Table 1.2 (Cont) Results of TIC for BNA in Soil  
 WA # 5-2001 WTC - FINANCIAL CENTER Site

Sample #	B06531			Con. Factor	174
LabFile#	WTC015				
	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		9.66	2400
2		Alkane		10.24	6700
3		Alkane		10.80	11000
4		Alkane		10.86	4700
5		Alkane + PAH isomer		11.02	2900
6		Alkane		11.32	13000
7		PAH isomer		11.94	3400
8		Alkane + PAH isomer		12.13	3800
9		Alkane + unknown		12.19	4500
10		Alkane		12.30	11000
11		Alkane		12.45	2400
12		Alkane		12.76	11000
13		Alkane		12.93	4700
14		Alkane		13.05	3300
15		Alkane		13.23	4000
16		Alkane		13.73	2300
17		Alkane		14.28	4800
18		Alkane + PAH isomer		18.91	12000
19		Alkane		22.13	3300
20		Alkane		23.62	2200

\* Estimated Concentration ( Response Factor = 1 )

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Table 1.2 (Cont) Results of TIC for BNA in Soil  
 WA # 5-2001 WTC - FINANCIAL CENTER Site

Sample #	B06353				303
LabFile#	WTC016		Con. Factor		
	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Alkane		10.24	4900
2		Alkane		10.79	6200
3		Alkane		10.85	3100
4		Alkane		11.32	7200
5		PAH isomer		11.95	2500
6		PAH isomer		12.12	3000
7		Alkane		12.30	7300
8		Alkane		12.76	6700
9		Alkane + PAH isomer		13.04	2500
10		Alkane		13.21	4300
11		Alkane		13.71	3600
12		Unkown + carboxylic acid isomer		14.16	2900
13		Alkane + carboxylic acid isomer		14.21	4100
14		Alkane		14.28	7400
15		Alkane + carboxylic acid isomer		14.32	3100
16		Alkane + carboxylic acid isomer		14.49	7500
17		Alkane		15.66	3800
18		Alkane		16.55	5500
19		Alkane		17.62	3200
20		PAH isomer		18.89	7200

\* Estimated Concentration ( Response Factor = 1 )

**FILE**

Table 1.2 (Cont) Results of TIC for BNA in Soil  
 WA # 5-2001 WTC - FINANCIAL CENTER Site

Sample #	B06354				159
LabFile#	WTC017		Con. Factor		
	CAS#	Compound	Q	RT	Conc.* µg/kg
1		Possible furancarboxaldehyde isomer		3.98	1000
2	000629-20-9	Styrene	87	4.53	1200
3		Unknown acid		9.11	6200
4	001081-75-0	Benzene, 1,1'-(1,3-propanediyl)-bis	95	10.24	3000
5		Possible benzene, ethenyl-, dimer		10.64	2600
6		Alkyl benzene + unknown		10.70	1200
7		Benzene, 1,1'-(3-methyl-1-propene-1,3-diyl)bis- +		11.07	1000
8		PAH isomer		12.12	2200
9		Alkane		12.30	1000
10		Alkane		12.75	1100
11		Alkane		14.27	800
12		Alkyl benzene + unknown		14.41	780
13		Alkyl benzene + unknown		14.49	5400
14		Unknown + alkyl benzene		15.18	2100
15		Possible quaterphenyl isomer		19.17	1300
16					
17					
18					
19					
20					

\* Estimated Concentration ( Response Factor = 1 )

Table 1.2 (Cont) Results of TIC for BNA in Soil  
 WA\_# 5-2001 WTC - FINANCIAL CENTER Site

Sample #	LabFile#	CAS#	Compound	Q	RT	Con. Factor	Conc. * µg/kg
							175
1			Alkane		9.66		4200
2			Alkane		10.48		2600
3			Alkane		10.79		18000
4			Alkane		10.85		8000
5			Unknown		10.96		2700
6			Alkane + PAH isomer + unknown		11.02		5300
7			Alkane		11.28		3000
8			Alkane		11.32		19000
9			Alkane		11.52		2000
10			Alkane		11.74		2300
11			Alkane		12.01		1800
12			Alkane + PAH isomer		12.12		5900
13			Alkane		12.19		6700
14			Alkane		12.30		19000
15			Alkane		12.45		3800
16			Alkane		12.76		17000
17			Alkane		12.93		8100
18			Alkane		13.04		4800
19			Alkane		13.22		5900
20			Alkane + carboxylic acid isomer		13.92		3700

\* Estimated Concentration ( Response Factor = 1 )

## Analytical Procedure for BNA in Soil

## Extraction Procedure

Prior to extraction each sample was spiked with a six component surrogate mixture consisting of nitrobenzene-d<sub>5</sub>, 2-fluorobiphenyl, terphenyl-d<sub>14</sub>, phenol-d<sub>5</sub>, 2-fluorophenol, and 2,4,6-tribromophenol. Thirty grams of sample was mixed with 30 g anhydrous sodium sulfate, and Soxhlet extracted for 16 hours with 300 mL of methylene chloride. The extract was concentrated to 1.0 mL, an internal standard mixture consisting of 1,4-dichlorobenzene-d<sub>4</sub>, naphthalene-d<sub>8</sub>, acenaphthene-d<sub>10</sub>, phenanthrene-d<sub>10</sub>, chrysene-d<sub>12</sub>, and perylene-d<sub>12</sub> was added, and analyzed.

## Analysis Procedure

An HP 6890/5972 Gas Chromatograph/Mass Spectrometer (GC/MS), equipped with a 6890 autosampler and controlled by a PC computer equipped with Enviroquant software was used to analyze the samples.

The instrument conditions were:

Column:	Restek Rtx-5 (crossbonded SE-54) 30 meter x 0.25 mm ID, 0.50 μm film thickness
Injection Temperature:	280°C
Transfer Temperature:	280°C
Source Temperature and Analyzer Temperature:	Controlled by thermal transfer of heat from transfer line
Temperature Program:	50°C for 5 minutes 20°C/min to 295°C; hold for 8.5 minutes 25°C/min to 310°C; hold for 8 minutes
Pulsed Split Injection:	Split time = 2.0 min @ 8:1 split ratio Pressure Pulse = 16 psi for 0.5 minute, then normal
Injection Volume:	1 μL Must use 4 mm ID single gooseneck liners packed with 10 mm plug of silanized and conditioned glass wool.

The GC/MS system was calibrated using 5 BNA standard mixtures at 20, 50, 80, 120, and 160 μg/mL. Before each analysis day, the system was tuned with 50 ng decafluorotriphenylphosphine (DFTPP) and passed a continuing calibration check when analyzing a 50 μg/mL standard mixture in which the responses were evaluated by comparison to the average response of the calibration curve.

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The BNA results, based on dry weight, are listed in Table 1.1; the tentatively identified compounds are listed in Table 1.2. The concentration of the detected compounds was calculated using the following equation:

$$C_t = \frac{(A_t)(I_{is})(V_i)(DF)}{(A_{is})(RF \text{ or } RF_{ave})(V_j)(W)(D)}$$

where;

$C_t$	= Concentration of target analyte ( $\mu\text{g}/\text{Kg}$ )
$A_t$	= Area of target analyte
$I_{is}$	= Mass of specific internal standard ( $\mu\text{g}$ )
$V_i$	= Volume of extract ( $\mu\text{L}$ )
DF	= Dilution Factor
$A_{is}$	= Area of specific internal standard
RF	= Response Factor (unitless)
$RF_{ave}$	= Average Response Factor
$V_j$	= Volume of extract injected ( $\mu\text{L}$ )
W	= Weight of sample (g)
D	= Decimal per cent solids

The  $RF_{ave}$  is used when a sample is associated with an initial calibration curve. The RF is used when a sample is associated with a continuing calibration.

Response Factor calculation:

The RF for each specific analyte is quantitated based on the area response from the continuing calibration check as follows:

$$RF = \frac{(A_c)(I_{is})}{(A_{is})(I_c)}$$

where;

RF	= Response factor for a specific analyte
$A_c$	= Area of the analyte in the standard
$I_{is}$	= Mass of the specific internal standard
$A_{is}$	= Area of the specific internal standard
$I_c$	= Mass of the analyte in the standard

$$RF_{ave} = \frac{RF_1 + \dots + RF_n}{n}$$

and

n = number of Samples

Revision of 3/9/00

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1) 321-4200  
Contract 68-CY9-223

Project Name: WTL - RADIOCAL CENTER  
Project Number: \_\_\_\_\_  
LM Contact: \_\_\_\_\_ Phone: \_\_\_\_\_

No. 03062  
Sheet 01 of 010 (see copy)  
(for addnl. samples use rev form)

Sample Identification				Analyses Requested			
Sample No.	Sampling Location	Date Collected	# of Bgs	Container/Preserve	Analysis	Requester	Date
00139	BAYVIEW PARK	09-16-01	1 Bg	2- PLACK BAG	ARSENIC	WILSON	9/17/01
A06351	PARC. PL. 204 PL.	09-16-01	1 Bg	Glass (wide mouth)	ARSENIC	WILSON	9/17/01
B06351	" "	09-16-01	1 X Bg	Bg. Wide mouth glass	ARSENIC	WILSON	9/17/01
A06352	" "	09-16-01	1				
A06353	WESTSH. B. ALBANY	09-16-01	1	Bg. WIDE MOUTH (GLASS)			
B06353	" "	09-16-01	1	Bg. WIDE MOUTH (GLASS)			
A06354	PARC. PL. W. BROWN	09-16-01	1	Bg. WIDE MOUTH (GLASS)			
B06354	" "	09-16-01	1	Bg. WIDE MOUTH (GLASS)			
A06355	PARC. PL. NORTH	09-16-01	1	Bg. WIDE MOUTH (GLASS)			
B06355	" "	09-16-01	1	Bg. WIDE MOUTH (GLASS)			

Special Instructions:  
 \* \* \* samples are given to BPC air group for transmission to  
 RESISTOR COMPANY IN F.M.S.L.

Refrigerated by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Analyzed by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Reported by: \_\_\_\_\_ Date: \_\_\_\_\_

24139  
 FOR TRANSPORT  
 LABOR REAC  
 SOC. INC. 1983-17

SAMPLES TRANSFERRED FROM  
CHAIN OF CUSTODY #:

NYC Response  
Dust sampling and analysis for PCB/Pesticide  
Sample collection date - 16 September 2001

Four dust samples were collected and analyzed for PCB/Pesticide. The samples were extracted using soxhlet method. Two samples B06354 and B06351 showed low concentration of dieldrin and DDT. All the samples showed presence of weathered Aroclor 1260.

A surrogate solution was added to all samples prior to extraction. DCBP was not recovered in sample B06353 and B06355 due to severe matrix interferences. Surrogate recoveries in the rest of the samples were within the QA/QC criteria.

Sample B06354 was spiked with pesticide spike solution. g-BHC in the MSD and dieldrin in the MS were slightly on the low side from QA/QC criteria. Heptachlor was also out of the QA/QC criteria on the high side in MS due to matrix interferences. Recoveries of the rest of the spike compounds were within the QA/QC criteria.

The initial calibration, the continuing calibrations, resolution check, and PEMs all met QC criteria.

ERT 9/22/01 9:50 AM

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Table 1.x Results of the Analysis for Pesticide/PCBs in Soil  
 WA# 52001 WTC-Finacial Center Site  
 Based on Dry Weight

Client ID Location Percent Solid Analyte	B06351 Battery Pk. & 2nd PL 95.72		B06353 West St. & Albany 55.06		B06354 Park & Westbroadway 88.01		B06355 Park & North End 95.2	
	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL
	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
a-BHC	U	3.5	U	6.1	U	3.8	U	3.5
g-BHC	U	3.5	U	6.1	U	3.8	U	3.5
b-BHC	U	3.5	U	6.1	U	3.8	U	3.5
Heptachlor	U	3.5	U	6.1	U	3.8	U	3.5
d-BHC	U	3.5	U	6.1	U	3.8	U	3.5
Aldrin	U	3.5	U	6.1	U	3.8	U	3.5
Heptachlor Epoxide	U	3.5	U	6.1	U	3.8	U	3.5
g-Chlordane	U	3.5	U	6.1	U	3.8	U	3.5
α-Chlordane	U	3.5	U	6.1	U	3.8	U	3.5
Endosulfan (I)	U	3.5	U	6.1	U	3.8	U	3.5
p,p'-D D E	U	3.5	U	6.1	U	3.8	U	3.5
Dieldrin	U	3.5	U	6.1	2.8	3.8	U	3.5
Endrin	U	3.5	U	6.1	U	3.8	U	3.5
p,p'-D D D	U	3.5	U	6.1	U	3.8	U	3.5
Endosulfan (II)	U	3.5	U	6.1	U	3.8	U	3.5
p,p'-D D T	46	3.5	U	6.1	U	3.8	U	3.5
Endrin Aldehyde	U	3.5	U	6.1	U	3.8	U	3.5
Endosulfan Sulfate	U	3.5	U	6.1	U	3.8	U	3.5
Methoxychlor	U	3.5	U	6.1	U	3.8	U	3.5
Endrin Ketone	U	3.5	U	6.1	U	3.8	U	3.5
Toxaphene	U	87	U	150	U	95	U	88
Aroclor 1016	U	44	U	76	U	47	U	44
Aroclor 1221	U	87	U	150	U	95	U	88
Aroclor 1232	U	44	U	76	U	47	U	44
Aroclor 1242	U	44	U	76	U	47	U	44
Aroclor 1248	U	44	U	76	U	47	U	44
Aroclor 1254	U	44	U	76	U	47	U	44
Aroclor 1260	1600 W	44	1400 W	76	159 W	47	1100 W	44
Aroclor 1268	U	44	U	76	U	47	U	44

## Analytical Procedure for Pesticides/PCBs in Soil

## Extraction Procedure

The soil samples were extracted by the Soxhlet method. A thirty gram aliquot was spiked with a surrogate solution consisting of tetrachloro-*m*-xylene and decachlorobiphenyl, mixed with 30 g anhydrous sodium sulfate and extracted for 16 hours with 300 mL of hexane. The extract was concentrated to 5 mL.

## Gas Chromatographic Analysis

The extract was analyzed for pesticide/PCBs using simultaneous dual column injections. The analysis was done on an HP 6890 GC/ECD system equipped with an HP 6890 automatic sampler. The systems were controlled with an HP-ChemStation. The following conditions were employed:

First Column	DB-608, 30 meter, 0.32 mm fused silica capillary, 0.50 $\mu$ m film thickness
Second Column	Rtx-CLPesticides, 30 meter, 0.32 mm fused silica capillary, 0.50 $\mu$ m film thickness
Injector Temperature	200 °C
Detector Temperature	300 °C
Temperature Program	120 °C for 1 minute 9 °C/min to 285 °C, hold for 10 minutes
Injection Volume	1 $\mu$ L

The gas chromatographs were calibrated using 5 pesticide standards at 20, 50, 100, 200, and 500  $\mu$ g/L. The results from each mixture were used to calculate the response factor (RF) of each analyte and the average RF was used to calculate the concentration of pesticide in the sample. Quantification was based on the DB-608 column (signal 1) and the identity of the analyte was confirmed using the Rtx-CLPesticides column (signal 2). A fingerprint chromatogram was run using each of the seven Aroclor mixtures and toxaphene; the calibration curves were run only if a particular PCB or toxaphene were found in the sample.

**FILE**

The pesticide results, listed in Table 1.1, are calculated by using the following formula:

$$C_u = \frac{(DF)(A_u)(V_i)}{(RF_{ave})(V_i)(W)(D)}$$

where;

$C_u$	= Concentration of analyte ( $\mu\text{g}/\text{kg}$ )
DF	= Dilution Factor
$A_u$	= Area or peak height
$V_i$	= Volume of sample (mL)
$RF_{ave}$	= Average response factor
$V_i$	= Volume of extract injected ( $\mu\text{L}$ )
W	= Weight of sample (g)
D	= Decimal percent solids

Response Factor calculation:

The response factor for each specific analyte is calculated using the peak area (peak height) from the continuing calibration check as follows:

$$RF = \frac{A_u}{\text{total pg injected}}$$

where;

$A_u$  = Area or peak height

and

$$RF_{ave} = \frac{RF1 + \dots + RFn}{n}$$

where;

n = number of samples.

Revision 3/9/00

**FILE**

Project Name: WTE-BIOLOGICAL CENTRAL  
 Project Number: \_\_\_\_\_  
 LM Contact: \_\_\_\_\_  
 No: 03902  
 Sheet 01 of 01 (do not copy)  
 (for addit. samples use new form)

Sample Identification				Analysis Requested			
Sample No.	Sample Location	Matrix	Disk Catalog	# of Plates	Container/Preserve	Analysis	Remarks
35	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	ZIPLOCK BAG	APERTURE	
36	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	Glass (wide mouth)	APERTURE	
37	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
38	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
39	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
40	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
41	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
42	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
43	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
44	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
45	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
46	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
47	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
48	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
49	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	
50	BATTERY PL. 2nd PL	SOLID	09-16-01	180g	8oz wide mouth	APERTURE	

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #:

Special Instructions:  
 \* \* \* samples are given to REE group for formalin to be added to samples (as per FMS)

PW: Purified Water  
 S: Soil  
 SD: Sediment  
 L: Dioxin Liquids  
 W: Waste Solids  
 W-W: Waste Water  
 TX: TCLP Extract  
 OR: Other  
 P: Plant Tissue  
 X: Other  
 (Handwritten: 09/16/01)

Analyzed by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Recommended by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Separated by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Lab Use Only

NYC

NYC Response  
 Asbestos Air Sampling Results for FreshMill Landfill  
 Sampling Date and Time: 9/20/01 7:00 AM to 4:30 PM

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)	
					f/min <sup>2</sup>	f/cc	Adjusted TEM f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc
9/20/01	00725	#1	683	Air	<7.0	<0.004	NR	NR	0	0.0044**
9/20/01	00724	#2	596	Air	8.92	0.008	NR	NR		<0.0052
9/20/01	00723	#3	574	Air	<7.0	<0.005	NR	NR		<0.0054
9/20/01	00721	#4	533	Air	<7.0	<0.005	NR	NR		<0.0065
9/20/01	01609	#5	555	Air	<7.0	<0.005	NR	NR		<0.0055
9/20/01	01608	#6	580	Air	NA	NA	NR	NR		NA
9/20/01	01610	#7	581	Air	<7.0	<0.005	NR	NR		<0.0056
9/20/01	00722	#8	533	Air	<7.0	<0.005	NR	NR		NA
9/20/01	01607	#9 C	236	Air	NA	NA	NR	NR		NA

\*\* Results being verified by laboratory

NS: Not sampled

AF/ANF: Asbestos fibers/Non asbestos fibers

Sample volume is below recommended limit of the method:

\*Structure (S) Roughly equivalent to Fiber (F)

NA: not analyzed due to overloading of particulates

NR: Analysis not requested

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)



FILE

NYC Response  
Asbestos Water Sample Analysis Results

Date Sampled	Sample No.	Location	Matrix	Asbestos Fibers (MFL)	Comments
9/20/01		Hudson River-Background	Water	<1.53	
9/20/01		Hudson River-North WTC	Water	<1.53	
9/20/01		Hudson River-West WTC	Water	<1.53	
9/20/01		Hudson River-South WTC	Water	<1.53	
9/20/01		ER - South Street	Water	<7.65	
9/20/01		Equipment Blank	Water	<0.38	
9/20/01		Bottle Blank	Water	<0.38	

MFL: Millions of fibers per liter  
Method of Sample Analysis: EPA 100.2

ATTN: JOHN JON.

US EPA REGION 2 LABORATORY  
 CHAIN OF CUSTODY FIELD DATA FORM  
 SURVEY NAME & LOCALITY: Amherst/John Jay HR / ER  
 PROJECT LEADER: John Grebe  
 OPERATING UNIT: HR / ER  
 PROGRAM RESULTS CODE: 02-455788

LAB ID / FIELD ID: HR-Base Ground  
HR-North WTC  
HR-West WTC  
ER-South St  
Squid blank  
Blank

DESCRIPTION & INSTRUCTIONS INCLUDING LOCATION, ESTIMATED CONCENTRATIONS, SPECIAL REPORTING LIMITS, SPECIAL TEST REQUIREMENTS & ALIQUOTING

LAB ID / FIELD ID	DESCRIPTION & INSTRUCTIONS INCLUDING LOCATION, ESTIMATED CONCENTRATIONS, SPECIAL REPORTING LIMITS, SPECIAL TEST REQUIREMENTS & ALIQUOTING	PROBATIONARY (Y/N)	ENFORCEMENT: CRIMINAL / CIVIL	Collection Date
HR-Base Ground	Asbestos 1L HDPE Grab	02-455788		12/15/01
HR-North WTC	Asbestos 1L HDPE	02-455788		1/4/02
HR-West WTC	Asbestos 1L HDPE	02-455788		1/5/02
ER-South St	Asbestos 1L HDPE	02-455788		1/5/02
Squid blank	Asbestos 1L HDPE	02-455788		1/25/02
Blank	Asbestos 1L HDPE	02-455788		1/25/02

COMMENTS:  
 All samples collected inside below the surface  
 of Hudson River with peristaltic pump through 1/2" plastic tubing.  
 One blank + one, one T. blank - etc.

ANALYSIS: Asbestos

DATE: 09/20/01

ANALYST: John Grebe

RECEIVED BY: John Grebe

DATE RECEIVED: 09/20/01

LABORATORY: HR / ER

PROJECT LEADER: John Grebe

OPERATING UNIT: HR / ER

PROGRAM RESULTS CODE: 02-455788

GC/MS Results for 9/21/01

File number	NYC079	File number	NYC080	File number	NYC081
Sample Location	Ambient Blank	Sample Location	West & Vessey	Sample Location	Top of Pile
Volume	0.5 L	Volume	0.5 L	Volume	0.25 L
Propylene	19 ppb	All	n.d.	Acetone	20 ppb
Acetone	43 ppb			Benzene	72 ppb
Benzene	64 ppb				
Toluene	28 ppb				
Ethylbenzene	16 ppb				

ERT 9:22:01  
ERT 9:50 AM

FILE

Location	Date	Time	WD	Tape Meters						Multi-Gas PFD-5								Multi Gas		TVAs 1003					
				COC12 ppbv	H2SO4 ppbv	IINO3 ppbv	IIC1 ppbv	H2S ppm	SO2 ppm	LEL %	O2 %	CO ppm	NO ppm	HCN ppm	FID ppm	~PID ppm									
A	9/21	1100	Stable	0	NA	NA	NA	NA	0	0	0	0	20.9	0	0	0	0	0	0	0	0	0	0	0	0
B	9/21	1105	Stable	0	NA	NA	NA	NA	0	0	0	0	20.9	0	0	0	0	0	0	0	0	0	0	0	0
#3	9/21	1110	Stable	0	NA	NA	NA	NA	0	0	0	0	20.9	0	0	0	0	0	0	0	0	0	0	0	0
C1	9/21	1120	Stable	0	NA	NA	NA	NA	0	0	0	0	20.9	0	0	0	0	0	0	0	0	0	0	0	0
I	9/21	1135	Downwind	0	NA	NA	NA	NA	0	0	0	0	20.5	0	0	0	0	0	0	0	0	0	0	0	0
D	9/21	1143	Stable	0	NA	NA	NA	NA	0	0	0	0	20.9	0	0	0	0	0	0	0	0	0	0	0	0
K	9/21	1155	Stable air	0	NA	NA	NA	NA	0	0	0	0	20.9	0	0	0	0	0	0	0	0	0	0	0	0
#1	9/21	1200	Stable air	0	NA	NA	NA	NA	0	0	0	0	20.9	0	0	0	0	0	0	0	0	0	0.16	0	0
E	9/21	1205	Stable	0	NA	NA	NA	NA	0	0	0	0	20.9	0	0	0	0	0	0	0	0	0	0	0	0
F	9/21	1210	Stable	0	NA	NA	NA	NA	0	0	0	0	20.9	0	0	0	0	0	0	0	0	0	0	0	0
J	9/21	1217	Crosswind	0	NA	NA	NA	NA	0	0	0	0	20.9	0	0	0	0	0	0	0	0	0	0	0	0
				Locations: A - Barclay + West Broadway																					
				B - Church + Dey																					
				C1 - Liberty + Broadway																					
				D - Albany + Greenwich																					
				E - South End + Liberty																					
				F - West + Vessey																					
				Comments: NA - not analyzed because only one tape meter was working																					
				(FID) High humidity - PID invalid (no useable measurements)																					
				#3 - Dey + Trade Ctr; #1 Liberty + South Tower																					

9/21/21

Location	Date	Time	WD	Tape Meters				Multi-Gas PHD-5							Multi Gas		TVA-1000	
				COC12 ppbv	H2SO4 ppbv	HNO3 ppbv	HCI ppbv	H2S ppm	SO2 ppm	LEL %	O2 %	CO ppm	NO ppm	HCN ppm	FID ppm	PID ppm		
A	9/21	3:44	Slight upwind	0	N/A	N/A	N/A	0	0	0	20.9	4	0	0	0	0	N/A	N/A
B	9/21	3:51	Crosswind	0	N/A	N/A	N/A	0	0	0	20.9	3	0	0	0	0	N/A	N/A
#3	9/21	3:55	Still	0	N/A	N/A	N/A	0	0	0	20.9	3	0	0	0	0	N/A	N/A
C	9/21	4:02	Upwind	0	N/A	N/A	N/A	0	0	0	20.9	4	0	0	0	0	N/A	N/A
C1	9/21	4:07	Upwind	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	N/A	N/A
H	9/21	4:13	Upwind	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	N/A	N/A
I	9/21	4:20	Upwind	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	N/A	N/A
D	9/21	4:25	Still	0	N/A	N/A	N/A	0	0	0	20.9	4	0	0	0	0	N/A	N/A
#2	9/21	4:28	Still	0	N/A	N/A	N/A	0	0	0	20.9	6	0	0	0	0	N/A	N/A
K	9/21	4:34	Still	0	N/A	N/A	N/A	0	0	0	20.9	2	0	0	0	0	N/A	N/A
#1	9/21	4:37	Downwind	0	N/A	N/A	N/A	0	0	0	20.9	3	0	0	0	0	N/A	N/A
Two World Center	9/21	4:44	Downwind	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	N/A	N/A
E	9/21	4:51	Downwind	0	N/A	N/A	N/A	0	0	0	20.9	5	0	0	0	0	N/A	N/A
F	9/21	4:56	Downwind	0	N/A	N/A	N/A	0	0	0	20.9	5	0	0	0	0	N/A	N/A
North Bridge	9/21	5:02	Downwind	0	N/A	N/A	N/A	0	0	0	20.9	5	0	0	0.6	0	N/A	N/A
J	9/21	5:48	Crosswind	0	N/A	N/A	N/A	0	0	0	20.9	0	0	0	0	0	0	0

Locations: A - Barclay + West Broadway; B - Church + Dey  
 C - Liberty + Trinity; C1 - Liberty + Broadway  
 D - Albany + Greenwich; E - South End + Liberty  
 F - West + Vessey  
 Comments C - Wash station across street; N - Building nearby; being power washed; D - Truck Wash - 100 ft. south; E - Wash Station - Boat;  
 J - Active truck washing

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Sunday, September 23, 2001**

**Most Recent Results (as of 5:00 p.m. 9/23):**

**Air: Fixed Monitors in New York City and New Jersey**

EPA analyzed 30 more samples taken on Sept. 19, 21 and 22 for asbestos from 13 fixed air monitors in and around ground zero, and from four monitors in New Jersey. One sample taken on Sept. 22 showed a marginal exceedance of the OSHA asbestos standard. This brings the total number of samples collected and analyzed to 177.

**Air: Non-Fixed Samples in New York City**

Using special instruments to measure volatile organic compounds (VOCs) at various locations of the plume still emanating from the World Trade Center debris pile, EPA identified elevated levels of benzene. EPA will continue to monitor this situation.

**Dust Samples**

**Asbestos:** One new dust sample taken from a beam from the South Tower of the World Trade Center on Sept. 21 had no detectable level of asbestos, which is consistent with reports that asbestos was not used in that tower.

**Air: Fresh Kills Landfill**

Ten air samples taken from ten air monitoring stations at the Fresh Kills Landfill show no detectable levels of asbestos. EPA continues to measure dust levels at the landfill through monitors separate from those collecting samples for asbestos. This data is gathered to determine the need for dust suppression measures. Several recent readings indicated the possible need for dust suppression to protect workers. We continue to recommend that workers at the landfill wear protective gear.

Based on EPA's assessment of health and safety operations at the landfill, the Agency will work with other federal enforcement agencies to upgrade worker protection operations at this location.

**Ambient Water Sampling**

EPA completed partial analysis of ambient water samples taken on Sept. 20 from the Hudson and East Rivers, as well as runoff at the foot of Rector Street. There were no exceedances of EPA standards identified in the completed analyses for metals, polycyclic aromatic hydrocarbons (PAHs) and for total suspended solids (TSS). We await analysis for PCBs, dioxin and asbestos on these samples.

**Ongoing activity**

EPA continues to operate wash stations at 15 sites set up for personnel and vehicles. Signs have been posted at the wash stations instructing rescue workers to wear respirators and to take proper safety precautions. This operation is flexible, allowing stations to be moved as needed. Wash stations have been staged to wash down workers entering food and rest areas.

EPA also has set up tent and shading facilities to provide workers resting areas and protection from the elements.

EPA is continuing to use its HEPA filter SUPERVAC vacuum trucks to clean the sidewalks and

streets. Sidewalks and promenade around Battery Park City have now been opened since EPA completed cleaning this area.

EPA and the Coast Guard continue to lead key corporate personnel into buildings in the "hot zone" to retrieve important information and check computer systems. In addition to leading the 37 entries completed so far, EPA has worked to clear 11 complete buildings. These building will be finished this evening. Starting tomorrow, EPA will turn most of this activity over to New York City.

EPA continues to work with the city and the Army Corp of Engineers to monitor for debris in the Hudson and East Rivers. The Corps uses its skimmer vessels to capture any debris identified.

EPA is reviewing the request from the "Ground Zero" Elected Officials Task Force for additional sampling in order to develop a response plan.

**U.S. Environmental Protection Agency (EPA)  
EPA Sampling and Response Actions  
Brief Summary  
September 23, 2001  
- Internal Use -**

**Samples From Fixed Air Monitors in and around "Ground Zero"**

- 30 new asbestos samples analyzed from the 13 fixed air monitors in lower Manhattan and four located in New Jersey. One sample measured on Sept. 2 showed a marginal exceedance of the OSHA standard.
- Total number of air samples from permanent stations is 177.

**Other Air Samples:**

- VOC analysis of air samples taken at various locations of the plume still emanating from the World Trade Center debris pile, showed elevated levels of benzene. EPA will continue to monitor this situation.

**Samples of Bulk Dust (in and around the World Trade Center site):**

- One new dust sample taken from the South Tower beam on Sept. 21 had no detectable level of asbestos, which is consistent with the reports that asbestos was not used in that tower.

**Ambient Water Samples:**

- No metals, PAHs or total suspended solids found in water quality samples taken from the Hudson and East rivers during heavy rains last Thursday. Awaiting analysis for PCBs, dioxin and asbestos.

**Air - Landfill:**

- 10 air samples taken at the Fresh Kills Landfill showed no detectable levels of asbestos. Analysis of dust levels showed possible need for dust suppression measures to protect workers. We are continuing to insist that workers at the landfill wear protective gear. EPA plans to work with other federal enforcement agencies to upgrade worker protection operations at this location.

**Ongoing Activities:**

- EPA continues wash down operations at 15 stations for rescue workers and trucks. Signs have been posted advising workers to wear respiratory protection. Stations can be moved as needed and have been set up at entry points to food and rest areas.
- EPA and the Coast Guard continued today to lead corporate personnel into buildings in the "hot zone," completing 37. Tonight EPA will also finish the complete clearing of 11 buildings. Tomorrow, EPA will turn most of this activity over to the city.
- EPA is reviewing the request from the "Ground Zero" Elected Officials Task Force for additional sampling in order to develop a response plan.



**U.S. Environmental Protection Agency  
Sampling Situation Report  
Sunday, September 23, 2001 ( 2:00 pm)**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Sept.19, 10 AM - 8PM)
  - 13 samples (including 1 duplicate) analyzed by PCM showed that 10 of these 13 samples were at or above the OSHA standard (0.01 f/cc) for PCM. Upon confirmatory TEM analysis 2 samples out of 10 were greater than the AHERA standard (70S/mm<sup>2</sup>). (Note: Sample volumes collected were lower than the recommended volumes. When normalized to 1200 liter volume, 2 samples exceeded the AHERA standard of 70S/mm<sup>2</sup>.)
  - These two samples results were 76.78 and 76.93 s/mm<sup>2</sup> and were at locations B (Intersection of Church and Dey) and E ( Intersection of Liberty and South End Avenue).. Both these samples are within the immediately impacted area.

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Sept.21-22, 4PM - 4AM)
  - 13 samples (including 1 duplicate) analyzed by PCM showed only 1 of these samples marginally exceeding the OSHA standard (0.01 f/cc) for PCM. Upon confirmatory TEM analysis no exceedance of the AHERA standard (70S/mm<sup>2</sup>) was noted. (Note: Sample volumes collected were lower than the recommended volumes. When normalized to 1200 liter volume, no samples exceeded the AHERA standard of 70S/mm<sup>2</sup>.)
- New Jersey
  - Sept 20 - all 4 samples showed less than detectable levels

NYC Bulk/Dust Samples

- One sample taken from the Tower 2 Beam on Sept. 21 had non-detectable levels of asbestos

Landfill Air Sampling locations (Asbestos and PM)

- 10 air samples taken on Sept. 22 had no detectable levels of asbestos
- Dust continues to be monitored at the site for dust suppression measures through the use of personal monitors

Direct Reading Instruments

- Nothing of significance identified.

Ambient Sampling & Rector Street Runoff Resampling

- Results from metals, PAHs and TSS analysis showed no exceedances of levels of concern

**FILE**

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NYC Response  
 Asbestos Air Sampling Results at Facility Locations  
 Sampling Date and Time: 10:00 (9/19/01) to 16:00:00 (9/19/01)

7.01  
 70 fibers > 45 level  
 or body at 100 ft

Non-Asbestos (N.A.S.)  
 Text (Area) 4 m<sup>2</sup>

Sampling Date	Sample No	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		S-Fluc	
					f/m <sup>3</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#)	f/m <sup>3</sup>		
9/19/2001	01562	A	480	Air	39.40	0.032	807.16	0.015	2	1	18.46	0.0148
9/19/2001	01563	B	480	Air	39.40	0.032	30.15	<0.006	4	1	30.71	0.0247
9/19/2001	NS	C	480	Air	39.38	0.032	31.0	<0.006	2	0	27.31	0.0099
9/19/2001	01564	G	480	Air	33.32	0.032	31.0	<0.006	2	0	27.31	0.0099
9/19/2001	01565	E	480	Air	39.40	0.032	30.4	<0.006	2	2	30.77	0.0247
9/19/2001	01580	F DUP	480	Air	45.86	0.032	20.9	<0.006	2	2	28.15	<0.0049
9/19/2001	01591	F DUP	480	Air	16.56	0.013	17.19	<0.006	1	1	12.31	0.0099
9/19/2001	NS	G	480	Air	-7.0	<0.006	0.12	<0.006	1	1	12.31	0.0099
9/19/2001	01585	H	480	Air	17.20	0.014	0.00	<0.006	1	1	12.31	0.0099
9/19/2001	01586	I	480	Air	12.10	0.01	0.00	<0.006	1	1	12.31	0.0099
9/19/2001	01588	K	480	Air	26.11	0.021	17.0	<0.006	1	1	12.31	0.0099
9/19/2001	NS	L	480	Air	-7.0	<0.006	0.00	<0.006	1	1	12.31	0.0099
9/19/2001	01589	M	480	Air	-7.0	<0.006	0.00	<0.006	1	1	12.31	0.0099
9/22/2001	NS	P	480	Air	-7.0	<0.006	0.00	<0.006	1	1	12.31	0.0099

Waiting for Results

NS: Not sampled  
 AF/NAF: Asbestos fibers/non asbestos fibers  
 Sample volume is below recommended limit of the method  
 \*Structure (S) Roughly equivalent to Fiber (F)  
 NA: not analyzed due to overloading of particulates  
 NR: Analysis not requested

- Sampling Locations:
- A: Intersection of Barclay+West Broadway
  - B: Intersection of Church+Dey St.
  - C: Intersection of Liberty+Trinity
  - D: Intersection of Liberty+ Broadway
  - E: Intersection of Greenwich+Abney
  - F: Intersection of Liberty+South End Ave
  - G: Intersection of West+West St.
  - H: Corner of Church and Duane
  - I: West Chase Plaza
  - J: West Street+Broadway
  - K: Corner of West and Warren
  - L: Corner of Albany and West
  - M: West Side Highway/ near community college
  - N: Intersection of Liberty + Broad
  - O: Pier Z5
  - P: Intersection of Harrison + West

FRT: 09/20/01 9:50 AM

NIOSH 7400: Fiber Analysis of Air samples Via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
 Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 795mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 16.08 (9/21/01) to 94.08 (9/22/01)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Adjusted TEM f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc
9/22/2001	17231	A	720	Air	17.2	0.009	<0.004	0	0	0
9/22/2001	17232	B	720	Air	8.26	0.004	<0.004	0	0	0
9/22/2001	17233	C	720	Air	<7.0	<0.004	<0.004	3	28.87	0.0743
9/22/2001	17234	D	720	Air	12.1	0.006	<0.004	0	<8.89	<0.0048
9/22/2001	17235	E	720	Air	15.25	0.014	<0.006	1	8.89	0.0061
9/22/2001	17236	F	720	Air	8.92	0.005	<0.004	0	<8.89	<0.0048
9/22/2001	17240	F DUP	720	Air	<7.0	<0.004	<0.004	0	8.89	0.0048
9/22/2001	NS	G								
9/22/2001	17244	H	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/22/2001	17235	I	720	Air	<7.0	<0.004	<0.004	1	17.78	0.0095
9/22/2001	17230	J	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/22/2001	17237	K	720	Air	<7.0	<0.004	<0.004	2	17.78	0.0095
9/22/2001	NS	L								
9/22/2001	NS	N								
9/22/2001	17242	O	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/22/2001	17241	P	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048

ALPHA (AHERA) 14.85  
ALPHA (AHERA) 14.85  
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ALPHA (AHERA) 14.85

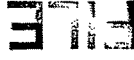
Sampling Locations:

- A: Intersection of Barclay+West Broadway
- B: Intersection of Church+Bay St
- C: Intersection of Liberty+Trinity
- D: Intersection of Greenwich+Abany
- E: Intersection of Liberty+South End Ave
- F: Intersection of Vesey+West St. F DUP
- G: Intersection of Church and Duane
- H: One Chase Plaza
- I: Wall Street+Broadway
- J: Corner of West and Warren
- K: Corner of Albany and West
- L: West Side Highway near community college
- M: Intersection of Liberty + Broad
- N: Pier 25
- P: Intersection of Harrison + West

NIOSH 7400:

- NS: Not sampled
- AF/ANF: Asbestos fibers/Non asbestos fibers
- Sample volume is below recommended limit of the method:
- \*Structure (S) Roughly equivalent to Fiber (F)
- NA: not analyzed due to overloading of particulates
- NR: Analysis not requested

ERT: 09/23/01 9:50 AM



NIOSH 7400: Fiber Analysis of Air samples Via NIOSH 7400, Revision 3, Issue 2, 8/15/94

NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fibers/cc (PCM), 70S/mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)

FILE

NYC Emergency Response  
Asbestos Air Sampling Results NYC ERINJ DEP

Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	>5µ S (#)	S/mm <sup>2</sup>	S-f/cc
9/20/2001	01931	A	480	Air	<7.00	<0.006	0/0	<0.006	0	<0.75	<0.0062
9/20/2001	01932	B	480	Air	<7.00	<0.006	0/0	<0.006	0	<0.75	<0.0062
9/20/2001	01933	D	432	Air	<7.00	<0.006	0/0	<0.004	0	<0.76	<0.0069
9/20/2001	01934	C	720	Air	<7.00	<0.004	0/0	<0.004	0	<0.61	<0.0046

PCM Phase Contrast Microscopy by NIOSH 7400

TEM Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of file method.

\*Structure (S) Roughly equivalent to Filter (F)

Standard criteria: EPA 40CFR Part 763 (AHERA), 0.01fiber/cc (PCM), 70S/mm<sup>2</sup>, Volume 1200L, for 25mm filter (TEM)

Sampling Location

- A: Liberty Park
- B: CITGO terminal
- C: FMC Terminal
- D: Shell Terminal

Sampling Times

- 11:00 (9/20/01)-19:00 (9/20/01)
- 12:45 (9/20/01)-20:45 (9/20/01)
- 11:50 (9/20/01)-19:50 (9/20/01)
- 13:15 (9/20/01) - 01:15 (9/21/01)

ERT: 09/23/01 9:50 AM

NYC Response  
Asbestos Bulk Sample Analysis Results

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/21/2001	01736	1-Beam Tower 2	Dust	ND	
PLM Polarized Light Microscope by Method NY State ELAP 198.1 MD Not Detected					

COC 04045

ERT 9:50 AM 9/23/01

FILE

FILE

NYC Response  
Asbestos Air Sampling Results for Frostkirk Landfill  
Sampling Date and Time:

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#)	Simm <sup>2</sup>	S-f/cc
9/22/2001	01611	#1	599	Air	<7	<0.004	0/0	<0.004	0	<7.75	<0.005
9/22/2001	01612	#2	666	Air	<7	<0.004	0/0	<0.004	0	<7.75	<0.0045
9/22/2001	01613	#3	373	Air	<7	<0.007	0/0	<0.007	0	<7.75	<0.008
9/22/2001	01614	#4	679	Air	<7	<0.004	0/0	<0.004	0	<7.75	<0.0044
9/22/2001	01615	#5	676	Air	<7	<0.004	0/0	<0.004	0	<7.75	<0.0044
9/22/2001	01616	#6	679	Air	<7	<0.004	0/0	<0.004	0	<7.75	<0.0044
9/22/2001	01617	#7	681	Air	<7	<0.004	0/0	<0.004	0	<7.75	<0.0044
9/22/2001	01618	#8	677	Air	<7	<0.004	0/0	<0.004	0	<7.75	<0.0044
9/22/2001	01619	#9	451	Air	<7	<0.006	0/0	<0.006	0	<7.75	<0.0066
9/22/2001	01620	#10	393	Air	<7	<0.007	0/0	<0.007	0	<7.75	<0.0076

NS: Not sampled  
AF/NAF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method.  
\*Structure (S) Roughly equivalent to Fiber (F)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples Via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
NIOSH 7402: Asbestos Analysis of air samples by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)







Location	Date	Time	WD	Tape Meters					Multi-Gas P111-5								Auld Gas		TVA-ID																		
				CO2	SO4	NO3	HCl	H2S	SO2	LeL	O2	CO	NO	HCN	ppm	ppm	ppm	ppm		ppm																	
L	9/22	1:15		0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
M	9/22	1:20	Cross	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
N	9/22	1:25	Truss	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
J	9/22	1:30	Truss	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
R	9/22	1:36	Still	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
B	9/22	1:42	Still	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
#3	9/22	1:54	Still	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
C	9/22	5:03	Still	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
H	9/22	5:10	Still	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
I	9/22	5:16	Still	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
D	9/22	5:20	Still	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
#2	9/22	5:21	Still	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
K	9/22	5:34	Up	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
P	9/22	5:37	Up	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	9/22	5:42	Down	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
#1	9/22	5:47	Still	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F	9/22	5:52	Still	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	9/22	5:59	Still	0	n/a	0	ppb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

General wind Direction North East variable

NV - Not Responding

\* Traffic Spike

9/22/04

Location	Date	Time	AVD	Tape Meters				Midi Gas PID-5						Multi		PVA-100		
				COCL2	H2SO4	HN03	HCl	H2S	SO2	LEL	O2	CO	NO	HCN	FID		PID	
L	9/22	10:07	Cross	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A	9/22	10:16	Down	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	9/22	10:38	Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	9/22	10:47	Down	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	9/22	10:55	Up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G	9/22	11:05	Up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H	9/22	11:10	Up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	9/22	11:19	Up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D	9/22	11:21	Cross	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J	9/22	11:32	Cross	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K	9/22	11:35	Down	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	9/22	11:46	Up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	9/22	11:50	Up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	9/22	11:54	Still	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M	9/22	12:01	Still	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F	9/22	12:07	Cross	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	9/22	12:11	Cross	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

General Wind Direction: East (North-East)  
 \* After reading area cleared at 12 then about 1:30  
 notes - Over check between changing key on tape meter getting longer  
 decided to leave it on the key it sprang when  
 No tape key for HCL

HUMID

September 23, 2001 (10:31am)Preliminary Results  
Metals, PAHs, TSSNew York City/ World Trade Center Sampling Activities  
Ambient Sampling & Rector Street Runoff Resampling**EPA Personnel:**

Street Runoff - Stephen Hale, Erwin Smieszek, Towana Joseph  
 Ambient Sampling - Warren McHose, Helen Grebe, Dick Coleates,  
 Kathleen Savino

**Sampling Date:** September 20, 2001**Sampling Time:** Afternoon - during rainstorms/ Samples arrived Edison 6 - 7:30 PM**Location:** Hudson River and East River**Sample Matrix:** Water**Analytes , Laboratory:**

*Region 2 Edison - Metals*), TSS, PAHs, PCB congeners  
*NYS DEC Contractor (Axys) - PCB congeners, PAHs, Dioxins/Furans*  
*Contract (Raj Singhvi coordinating, Ambient sample asbestos*  
*NYSDOH/Wadworth (Dr. J. Webber), Runoff sample asbestos*

**Runoff Sampling:** Samples of runoff from the location at the foot of Rector St. previously sampled on 09/14/01 during rain storm/street washdown. No washdown was being conducted during this sampling event, and flow from the discharge pipe was very low. The EPA Whaler supported the sampling.

**Ambient Sampling:** Ambient samples were collected from three locations in the Hudson River; directly west of Ground Zero, north of Ground Zero, south of Ground Zero. A reference (background) sample was collected near the George Washington Bridge. A sample was collected in the East River east of South Street Seaport. The EPA Clean Waters supported the sampling.

HR-Background	40 50.210 N 073 57.384 W
HR-North WTC	40 43.427 N 074 01.272 W
HR-West WTC	40 42.903 N 074 01.332 W
HR-South WTC	40 42.133 N 074 01.417 W
ER-South St.	40 42.210 N 074 00.071 W

**Preliminary Results:**

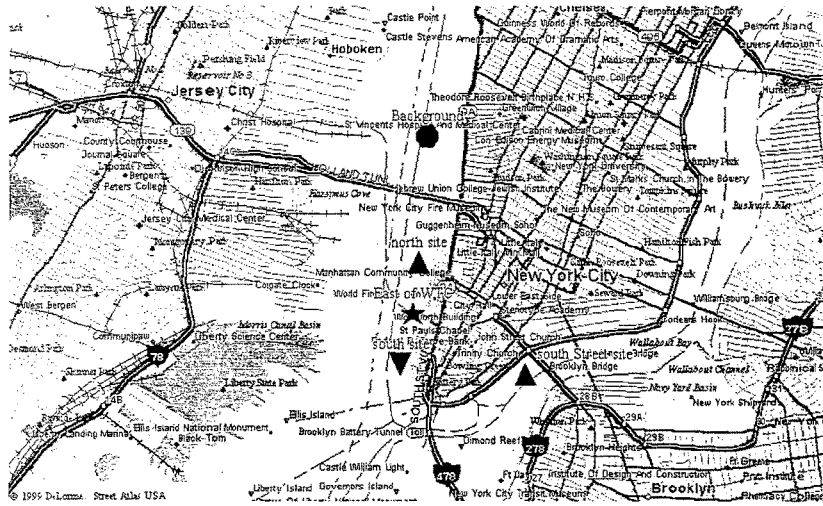
**Metals:** Metals were analyzed in the Region II laboratory. No metals were detected at levels of concern. For most detected metals, concentrations were greatest in the background George Washington Bridge sample. Rector St. Runoff

**FILE**

concentrations are elevated relative to the background sample, but since the flow was very low, no significant impact is expected.

**PAHs:** PAHs were analyzed in the EPA Region 2 Laboratory. No PAHs were detected in the ambient Hudson and East River Samples. Two (2) PAHs, Fluoranthene and pyrene, were detected in the runoff sample at a concentrations less than 1 ug/L, respectively.

**TSS:** TSS in the Hudson River samples were around 18 mg/L for the background and WTC area Hudson River samples, and 28 mg/L for the East River sample. TSS was 18 mg/L for the Rector St. Runoff sample.



FILE

Metals in Hudson and East Rivers and Rector St. Runoff (mg/L)

Metal	Hudson River			East River		Rector St.		Rector St.		Midtown Pumping Station	Newtown Creek STP Effluent
	Background (Bridge)	Hudson River North WTC	Hudson River West WTC	Hudson River South WTC	Rector St. (09/14/01)	Runoff (%GW Bridge Background)	Runoff (%GW Bridge Background)	Runoff (%GW Bridge Background)			
Silver	ND	ND	ND	ND	30	10	ND	ND	7.2	ND	ND
Aluminum	410	240	ND	ND	640,000	156,098	1,500	366	300	ND	ND
Arsenic	ND	ND	ND	ND	140	3,500	19	475	ND	ND	ND
Barium	23	18	17	17	8,600	37,391	60	261	38	27	27
Beryllium	ND	ND	ND	ND	78	78,250	ND	ND	ND	ND	ND
Calcium	260,000	290,000	280,000	290,000	270,000	5,500,000	2,115	240,000	92	64,000	35,000
Cadmium	ND	ND	ND	ND	180	9,000	ND	ND	ND	ND	ND
Cobalt	ND	ND	ND	ND	160	160,000	ND	ND	ND	ND	ND
Chromium	ND	ND	ND	ND	3,000	100,000	23	767	ND	ND	ND
Copper	ND	ND	ND	ND	4,000	8,000	29	116	46	41	41
Iron	390	230	200	200	440	320,000	8,205	1,500	385	730	540
Potassium	260,000	300,000	300,000	310,000	290,000	100,000	38	6,200	2	47,000	25,000
Magnesium	860,000	820,000	960,000	990,000	940,000	990,000	0.38	8,400	1	130,000	61,000
Manganese	56	40	40	32	66	32,000	57,143	53	95	100	74
Sodium	7,200,000	8,300,000	8,300,000	8,500,000	8,000,000	100,000	1	9,500	0	1,100,000	530,000
Nickel	ND	ND	ND	ND	910	36,400	8	300	ND	ND	ND
Lead	ND	ND	ND	ND	5,200	29,714	31	177	8	ND	ND
Selenium	ND	ND	ND	ND	56	1,600	ND	ND	ND	ND	ND
Antimony	ND	ND	ND	ND	470	6,714	34	486	ND	ND	ND
Thallium	ND	ND	ND	ND	100	1,000	ND	ND	ND	ND	ND
Vanadium	ND	ND	ND	ND	790	15,800	ND	ND	ND	ND	ND
Zinc	ND	ND	ND	ND	49,000	24,500	150	3,000	94	94	80
Mercury	ND	ND	ND	ND	9	9,000	ND	ND	ND	ND	ND

\* 1/2 of background detection limit used for calculation when background sample is Not Detected (ND)



**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Monday, September 24, 2001**

**Most Recent Results (as of 6:00 p.m., 9/24):**

**Air: Fixed Monitors in New York City and New Jersey**

**Asbestos** - EPA analyzed 15 more samples for asbestos taken in and around ground zero and in New Jersey. Three samples were marginally above the 70 structures of asbestos per square millimeter standard that EPA uses for re-entry into schools after asbestos removal activities.

**Air: Non-Fixed Samples in New York City**

Further analysis of the elevated benzene levels we reported yesterday revealed two readings for benzene that were above OSHA's standards for an eight-hour (workday) exposure period. These samples – which were tested for benzene and other volatile organic compounds (VOCs) – were captured at the plume of smoke and dust from the World Trade Centers debris pile. Rescue and removal workers can prevent exposure by using air respirators. EPA will continue to monitor this situation.

**Dust Samples**

**Dioxin** - The levels of dioxin detected in dust samples were below levels established by EPA that indicate a need for some type of remediation. The levels detected are generally within the upper bounds for the amount of dioxin one can expect in an urban environment (urban "background" levels).

**Air: Fresh Kills Landfill**

Analysis of nine samples for asbestos were all below the standard of 70 structures per square millimeter.

We have noted some increase in levels of dust from the landfill compared to the previous day. EPA continues to monitor the landfill and to insist that workers wear protective gear.

**Ambient Water Sampling**

Analysis of the sample taken from the runoff at the foot of Rector Street showed an elevated level of asbestos. This level has declined from the last reading. We await analysis of this sample for PCBs and dioxin, as well as analysis for PCBs, dioxin and asbestos in ambient water samples taken on Sept. 20 from the Hudson and East Rivers.

**Newtown Creek Sewage Treatment Plant**

Analysis of samples taken for dioxin showed no elevated levels.

**Ongoing activity**

EPA continues wash station operations at 15 sites set up for personnel and vehicles. Signs have been posted at the wash stations instructing rescue workers to wear respirators and to take proper safety precautions.

U.S. Environmental Protection Agency  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Monday, September 24, 2001 (4:00 pm)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Sept 22, 4AM - 4PM)
  - All samples below the OSHA (0.1 f/cc) and NYC reentry standard (0.01 f/cc) for PCM.
  - When normalized to 1200 liter volume, 3 samples above the TEM (AHERA) standard (70S/mm<sup>3</sup>). Majority of fibers were less than 5 micron length.
- New Jersey
  - Sept 21 - all less than detectable levels.

NYC Bulk/Dust Samples

- Dioxins/furans (Sept 16) - TEQ levels are below the EPA removal action guidance levels and are generally within the upper bounds for urban background.

Landfill Air Sampling locations

- Sept 22 (9AM - 9PM) - Particulate Monitoring
  - Dust continues to be monitored at the Site using datarams.
  - Increased readings noted as compared to previous day.
- Sept 22 - Sept 23 (6:20PM - 6:30AM) - Asbestos
  - All samples below OSHA and NYC reentry standards for PCM and TEM (AHERA standards).

NYC - Air (TAGA)

- Volatile organics (Sept 22)
  - Evidence of excursions above the OSHA TWA PEL (0.5 ppm) for benzene directly in the hottest area of the debris pile (below the breathing zone).
  - Migration occurring away from debris pile below the OSHA standard at nearby intersections. However, elevated sufficiently to be of concern for chronic exposures.
  - **ACTION ITEM:** Additional monitoring needed on a time-weighted basis for benzene beyond the debris pile perimeter. In addition, 1,3-butadiene levels are below OSHA standards on the debris pile, however sufficiently elevated to warrant monitoring on a time-weighted basis beyond the debris pile perimeter.

Newton Creek Sewage Treatment Plant, Brooklyn, NY

- Dioxins/furans (Sept 16) - nothing significant to report.

Dredge Material Sediment

- Dredge material sampled by EPA on 09/15/01 greatly exceed the modeled biological uptake TEQ HARS disposal criteria for TCDDs/TCDFs.
- The material ranks as unsuitable for HARS disposal.
- PCB levels were high.

**FILE**

Ambient Hudson River and Rector St. Runoff sampling

- Ambient results to date show no observed effects due to the WTC disaster.
- Samples collected in the vicinity of the WTC are generally diluted relative to the up-river (background) sample.
- The East River sample results are similar to those from the Hudson River background location.
- Available runoff concentrations are significantly attenuated from those observed in the 09/14/01 sample.

Sandy Hook "Greaseballs"

- Available data (fecal coliforms, oil and grease, metals) from analysis of two (2) samples suggest that the material derives from sewage.
- Fecal coliforms averaged about 200,000 MPN/100 ml, oil and grease about 48%, and detected metals dominated by calcium, iron, magnesium, and sodium.

**FILE**



NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 04/09 to 16/09 (09/22/01)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHIERA)	
					f/cc	Adjusted TEM f/cc	<5µ	>5µ	Shim <sup>1</sup>	S-f/cc
9/22/01	17431	A	720	Air	<7.0	<0.004	0/5	NA	NA	NA
9/22/01	17432	B	720	Air	<7.0	<0.004	0/2	0	8.89	<0.0048
9/22/01	17433	C	720	Air	<7.0	<0.004	0/2	0	8.89	<0.0048
9/22/01	17434	D	720	Air	7.84	0.004	0/0	6	52.32	0.0095
9/22/01	17435	E	720	Air	<7.0	<0.004	0/0	1	8.89	0.0048
9/22/01	17440	E (DUP)	720	Air	14.01	0.007	0/0	5	44.44	0.0238
9/22/01	17441	F	720	Air	8.92	0.005	0/2	1	8.89	0.0048
9/22/01	NS	F (DUP)								
9/22/01	NS	G								
9/22/01	17434	H	720	Air	<7.0	<0.004	0/0	0	8.89	<0.0048
9/22/01	17435	I	628	Air	<7.0	<0.003	0/0	0	8.89	0.0041
9/22/01	17430	J	430	Air	<7.0	<0.006	0/1	0	5.33	<0.0048
9/22/01	17437	K	720	Air	8.92	0.005	0/1	7	80	0.0428
9/22/01	17444	L	792	Air	<7.0	<0.003	0/0	0	<10	<0.0048
9/22/01	17442	N	720	Air	<7.0	<0.004	0/1	0	8.89	<0.0048
9/22/01	17443	M	720	Air	<7.0	<0.004	0/0	0	8.89	<0.0048
9/22/01	NS	O								
9/22/01	17438	P	720	Air	<7.0	<0.004	0/0	1	17.78	0.0095

continued

Sampling Locations:

- A: Intersection of Barclay+West Broadway
- B: Intersection of Church+Dey St.
- C: Intersection of Liberty+Brooklyn
- D: Intersection of Greenwich+Albany
- E: Intersection of Liberty+South End Ave
- F: Intersection of Vesey+West St.
- G: Intersection of Church and Duane
- H: One Chase Plaza
- I: Wall Street+Broadway
- J: Corner of West and Warren
- K: Corner of Albany and West
- L: Stuyvesant High North
- M: Pier 28
- N: Intersection of Harrison + West
- P: Intersection of Albany and South end

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) Roughly equivalent to Fiber (F)  
NA: not analyzed due to overloading of particulates  
NR: Analysis not requested

ERT: 09/24/01 9:50 AM

NIOSH 7400: Filter Analysis of Air samples Via NIOSH 7400, Revision 3, Issue 2, 8/18/94  
NIOSH 7402: Asbestos Analysis of air samples by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHIERA)  
Standard criteria: EPA 40CFR Part 763 (AHIERA); 0.8 fibers/cc (PCM), 705 fibers/m<sup>3</sup>, volume 12/00, for 25MM filter (TEM)

FL-09-22-01a.xls



NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	<5µ	>5µ	S/mm <sup>2</sup>	S-f/cc
9/21/01	01936	Liberty Park	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<7.75	<0.0062
9/21/01	01937	CITGO Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<7.75	<0.0062
9/21/01	01938	FMC	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<7.75	<0.0062
9/21/01	01939	Shell	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<7.75	<0.0062

09/24/01

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) Roughly equivalent to Fiber (F)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fibers/cc (PCM), 70S/mm<sup>2</sup>, Volume 1200L, for 25mm filter (TEM)

Sampling Location

- A: Liberty Park
- B: CITGO terminal
- C: FMC terminal
- D: Shell Terminal

Sampling Times

- 11:20 (9/21/01)-19:20 (9/21/01)
- 12:05 (9/21/01)-20:05 (9/21/01)
- 12:45 (9/21/01)-20:45 (9/21/01)
- 13:30 (9/21/01)-21:30 (9/21/01)

ERT: 09/24/01 9:50 AM

FILE

WTC Dust Samples:

Four dust samples were collected on 9/16/01 for dioxin and furans analysis, and low level of dioxin and furans were detected at the ppt range with total TEQs ranging from 26 to 85 (ppt).

ERT 9/22/01 9:50

**FILE**

9711

WATER ONLY RESULT

Sample ID Location % Solids Matrix Analyte	A06351 WTC 94.4 Dust			A06353 WTC 53.8 Dust			A06354 WTC 89.6 Dust			A06355 WTC 95 Dust		
	Result pg/g	EMPC pg/g	MDL pg/g	Result pg/g	EMPC pg/g	MDL pg/g	Result pg/g	EMPC pg/g	MDL pg/g	Result pg/g	EMPC pg/g	MDL pg/g
2378-TCDD	5.18		0.44	2.68		0.75	1.44		0.44	3.41		0.43
12378-PeCDD	8.48		2.2	3.29	J	3.7	3.7		2.2	5.63		2.2
123478-HxCDD	6.14		2.2	2.04	J	3.7	5.93		2.2	11		2.2
123678-HxCDD	16.5		2.2	6.95		3.7	5.4		2.2	11.1		2.2
123789-HxCDD	11.9		2.2	4.62		3.7	U		2.2	9.57		2.2
1234678-HpCDD	354		2.2	186		3.7	67.5		2.2	232		2.2
OCDD	3170		4.4	1690		7.5	299		4.4	2630		4.3
2378-TCDF	43.8		0.44	20.6		0.75	10.7		0.44	23.9		0.43
12378-PeCDF	41.8		2.2	15.6		3.7	11.2		2.2	25.5		2.2
23478-PeCDF	77.1		2.2	33.1		3.7	22.4		2.2	40.3		2.2
123478-HxCDF	49.2		2.2	20.1		3.7	16.3		2.2	31.4		2.2
123678-HxCDF	48.8		2.2	U	18.1	3.7	17.9		2.2	32.5		2.2
234678-HxCDF	62.5		2.2	25.1		3.7	33.8		2.2	39		2.2
123789-HxCDF	16.7		2.2	6.82		3.7	6.47		2.2	10.6		2.2
1234678-HpCDF	165		2.2	66.1		3.7	66.6		2.2	108		2.2
1234789-HpCDF	38.2		2.2	15.6		3.7	14.7		2.2	23.4		2.2
OCDF	238		4.4	113		7.5	81.5		4.4	168		4.3
Total TCDDs	325			102			109			167		
Total PeCDDs	189			64.2			66.7			135		
Total HxCDDs	224			79.2			72.4			156		
Total HpCDDs	696			360			125			445		
Total TCDFs	2190			910			656			1170		
Total PeCDFs	1110			451			392			693		
Total HxCDFs	579			233			241			373		
Total HpCDFs	356			154			136			232		
Total Adjusted Conc												
TEQ (ND=0)	84.4			35.0			26.3			51		
TEQ (ND=1/2)	84.4			35.2			26.3			51		
TEQ(EMPC,ND=0)	84.4			36.8			26.3			51		
TEQ(EMPC,ND=1/2)	84.4			36.8			26.3			51		

EMPC denotes Estimated Maximum Possible Concentration

TEQ: Toxicity equivalent factor

L.M. Contact: J. L. Lynam Phone: 711-321-4348

LVA  
 Sheet 01 of 01 (Do not copy)  
 (for admin. samples use new form)

00532

Sample Identification				Analyses Requested			
BEACT	Sample No.	Sample Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Analysis
756	A06351	WTC	Soil	9/16/01	1	5oz glass / none	X
757	A06352	WTC	Soil	9/16/01	1	5oz glass / none	X
758	A06353	WTC	Soil	9/16/01	1	5oz glass / none	X
759	A06354	WTC	Soil	9/16/01	1	5oz glass / none	X
760	A06355	WTC	Soil	9/16/01	1	5oz glass / none	X
Special Instructions: <b>JAC</b>							
Matrix: <ul style="list-style-type: none"> <li>AW - Aqueous Tissue</li> <li>DL - Drain Liquids</li> <li>DS - Drain Solids</li> <li>GW - Groundwater</li> <li>CG - Concrete</li> <li>PC - Paint</li> <li>PL - Plant Tissue</li> <li>PW - Potable Water</li> <li>S - Soil</li> <li>SD - Sediment</li> <li>SL - Sludge</li> <li>SW - Surface Water</li> <li>VA - Volatile Air</li> <li>WA - Wastewater</li> <li>X - Other</li> </ul>							
Samples Transferred From CHAIN OF CUSTODY #: <b>LEX 03962</b>							
Identification	Relinquished by	Date	Received by	Date	Relinquished by	Date	Received by
41 A06355	A06355	07/17/01	J. L. Lynam	09/16/01			
42							
43							



FILE

NYC Response  
 Asbestos Air Sampling Results for Freshkill Landfill  
 Sampling Date and Time: 9/23/01, 1828 (9/23/01)- 0630 (9/23/01)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCMI by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	AF/ANF	Adjusted TEM f/cc	Structure (F)	S-licc	
9/22-23/0001	00745	loc # 1	503	Air	<7.0	<0.005	0	<0.005	0	<7.75	<0.0059
9/22-23/0001	01637	loc # 2	667	Air	<7.0	<0.004	0	<0.004	0	<8.61	<0.0049
9/22-23/0001	01638	loc # 3	663	Air	<7.0	<0.004	0	<0.004	0	<8.61	<0.0049
9/22-23/0001	01635	loc # 4	323	Air	<7.0	<0.006	0	<0.006	0	<7.75	<0.0053
9/22-23/0001	01639	loc # 5	651.7	Air	<7.0	<0.004	0	<0.004	0	<8.61	<0.0049
9/22-23/0001	01640	loc # 6	651.6	Air	<7.0	<0.004	0	<0.004	0	<8.61	<0.0049
9/22-23/0001	00741	loc # 7	667	Air	<7.0	<0.004	0	<0.004	0	<8.61	<0.0049
9/22-23/0001	00742	loc # 8	669.4	Air	<7.0	<0.004	0	<0.004	0	<8.61	<0.0049
9/22-23/0001	00744	loc # 9 A	360	Air	<7.0	<0.007	0	<0.007	0	<7.75	<0.0077
9/22-23/0001	00747	loc # 9 B	720	Air	<7.0	<0.004	0	<0.004	0	<8.61	<0.0049
9/22-23/0001	00743	loc # 10	600	Air	<7.0	<0.004	0	<0.004	0	<7.75	<0.0050

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 \*Structure (S) Roughly equivalent to Fiber (F)  
 N/A: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/16/84  
 NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.1 fiber/cc (PCM), 7.05/fmm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)

9/22/01 9:50 AM

FK-09-23-01.xls

File Name	NYC		
Sample Location	Instrument Blank		
Sample Number	0		
Volume	0		
Target Compound	Concentration	Non-Target (Tics)	Conc.
All	ND	All	ND

File Name	NYC		
Sample Location	Tedlar Bag		
Sample Number	Ambient Blank		
Volume	250 mL		
Target Compound	Concentration	Non-Target (Tics)	Conc.
All	ND	All	ND

File Name	NYC090		
Sample Location	#1 Plume		
Sample Number			
Volume	100 mL		
Target Compound	Concentration	Non-Target (Tics)	Conc.
Propylene	3300 ppbv	C4 alkane	690 ppbv
Dichlorodifluoromethane	8.1 ppbv	C4 alkane	82 ppbv
Chloromethane	1600 ppbv	Pentane	470 ppbv
Vinyl Chloride	35 ppbv	2-Pentene	81 ppbv
1,3-Butadiene	460 ppbv	Isocyanomethane	220 ppbv
Bromomethane	97 ppbv	Methyl Ester-Acetic Acid	170 ppbv
Chloroethane	62 ppbv	Unknown	120 ppbv
Ethyl Alcohol	5000 ppbv	2-Methyl-1-Pentene	300 ppbv
Trichlorofluoromethane	21 ppbv	3,3-Dimethyl-1-butene	73 ppbv
Isopropyl Alcohol	110 ppbv	2-Methyl-Furan	950 ppbv
Acetone	2900 ppbv	4-Methyl-Cyclopentene	89 ppbv
Methylene Chloride	9.8 ppbv	1-Chloro-Butane	160 ppbv
Hexane	120 ppbv	1-Butanol	96 ppbv
2-Butanone	680 ppbv	2,5-dimethyl-Furan	97 ppbv
Chloroform	6.8 ppbv	Unknown	110 ppbv
Tetrahydrofuran	170 ppbv	1,2,3-trimethyl-Cyclopentane	83 ppbv
1,2-Dichloroethane	16 ppbv	alpha-Methylstyrene	99 ppbv
Benzene	3200 ppbv		
Heptane	93 ppbv		
1,4-Dioxane	58 ppbv		
Toluene	1100 ppbv		
2-Hexanone	64 ppbv		
Tetrachloroethene	7.2 ppbv		
Chlorobenzene	49 ppbv		
Ethyl Benzene	850 ppbv		
m&p-Xylenes	85 ppbv		
o-Xylenes	77 ppbv		
Styrene	1900 ppbv		
4-Ethyltoluene	49 ppbv		
1,3,5-Trimethyl benzene	44 ppbv		
1,2,4-Trimethyl benzene	35 ppbv		
1,3-Dichlorobenzene	4.4 ppbv		
1,2-Dichlorobenzene	6.2 ppbv		

Date Sample Collected 9/22/01

FILE

ERL 9/22/01



File Name	NYC091		
Sample Location	#2 Plume		
Sample Number			
Volume	100 mL		
Target Compound	Concentration	Non-Target (Tics)	Conc.
Propylene	2800 ppbv	Unknown	330 ppbv
Chloromethane	1500 ppbv	1-Butene	90 ppbv
Vinyl Chloride	28 ppbv	Pentane	430 ppbv
1,3-Butadiene	1100 ppbv	2-methyl-1-Butene	78 ppbv
Bromomethane	76 ppbv	Acetonitrile	230 ppbv
Chloroethane	52 ppbv	methyl ester-Acetic Acid	160 ppbv
Ethyl Alcohol	4700 ppbv	Unknown	110 ppbv
Trichlorofluoromethane	12 ppbv	1-Hexene	350 ppbv
Isopropyl Alcohol	93 ppbv	2-methyl-Furan	800 ppbv
Acetone	2500 ppbv	4-methyl-Cyclopentene	81 ppbv
Methylene Chloride	9.0 ppbv	1-chloro-Butane	140 ppbv
Hexane	100 ppbv	1-Butanol	91 ppbv
1,1-Dichloroethane	0.6 ppbv	2,5-dimethyl-Furan	88 ppbv
2-Butanone	600 ppbv	1-Octene	95 ppbv
Chloroform	6.1 ppbv	2,4-Dimethyl-1-heptene	81 ppbv
Tetrahydrofuran	160 ppbv	1-methylethyl-Benzene	67 ppbv
1,2-Dichloroethane	14 ppbv	alpha-Methylstyrene	93 ppbv
Benzene	2800 ppbv		
Heptane	80 ppbv		
Trichloroethene	2.5 ppbv		
1,4-Dioxane	56 ppbv		
Methyl Isobutyl Ketone	44 ppbv		
Toluene	920 ppbv		
2-Hexanone	31 ppbv		
Tetrachloroethene	6.4 ppbv		
Chlorobenzene	41 ppbv		
Ethyl Benzene	690 ppbv		
m&p-Xylenes	71 ppbv		
o-Xylenes	56 ppbv		
Styrene	1500 ppbv		
4-Ethyltoluene	42 ppbv		
1,3,5-Trimethyl benzene	38 ppbv		
1,2,4-Trimethyl benzene	31 ppbv		
1,3-Dichlorobenzene	3.5 ppbv		
1,4-Dichlorobenzene	3.6 ppbv		
1,2-Dichlorobenzene	6.8 ppbv		

*Dirt*  
*SHT 3E*

File Name	NYC092		
Sample Location	West/Liberty		
Sample Number			
Volume	250 mL		
Target Compound	Concentration	Non-Target (Tics)	Conc.
Ethyl Alcohol	140 ppbv	Sulfur Dioxide	4.2 ppbv
Isopropyl Alcohol	12 ppbv	Butane	5.0 ppbv
Acetone	31 ppbv	Acetaldehyde	4.2 ppbv
Benzene	9.2 ppbv	Unknown	4.1 ppbv
Toluene	4.9 ppbv	Unknown	4.0 ppbv
Styrene	6.4 ppbv	Unknown	5.6 ppbv
		2-ethyl-1-Hexanol	5.1 ppbv

**FILE**

File Name	NYC093		
Sample Location	Liberty/Greenwich		
Sample Number	Location #2		
Volume	250 mL		
Target Compound	Concentration	Non-Target (Tics)	Conc.
Ethyl Alcohol	240 ppbv	Isobutane	7.8 ppbv
Trichlorofluoromethane	9.4 ppbv	Butane	6.7 ppbv
Isopropyl Alcohol	8.8 ppbv	Trichloromonofluoromethane	14 ppbv
Acetone	22 ppbv	Unknown	4.4 ppbv
Benzene	8.3 ppbv	Unknown	4.8 ppbv
Toluene	5.5 ppbv	Unknown	4.3 ppbv
Styrene	5.5 ppbv	2-ethyl-1-Hexanol	5.0 ppbv
		Undecane	5.5 ppbv

File Name	NYC094		
Sample Location	Austin Tobin Plaza		
Sample Number	Location #3		
Volume	250 mL		
Target Compound	Concentration	Non-Target (Tics)	Conc.
Propylene	20 ppbv	2-methyl-1-Propene	12 ppbv
Chloromethane	9.9 ppbv	Acetaldehyde	8.3 ppbv
Ethyl Alcohol	240 ppbv	Pentane	5.9 ppbv
Isopropyl Alcohol	8.5 ppbv	Unknown	5.4 ppbv
Acetone	39 ppbv	Unknown	8.1 ppbv
2-Butanone	6.0 ppbv	Unknown	4.7 ppbv
Benzene	33 ppbv	2-ethyl-1-Hexanol	4.5 ppbv
Toluene	12 ppbv		
Ethylbenzene	8.3 ppbv		
Styrene	13 ppbv		

D.10 Samples Collected 9/22/01

ERT 9/2

FILE

FILE

Table 1. Organohalogenated Dibenzo-p-dioxins in Water

Sample ID Location	Chlor Final Effluent			Influent			MPS		
	Matrix	Water Result ng/L	Water EMPC ng/L	Water Result ng/L	Water EMPC ng/L	Water MDL ng/L	Water Result ng/L	Water EMPC ng/L	Water MDL ng/L
2378-TCDD		U	0.0389 J	U	0.010	0.010	U	0.010	0.010
123478-PeCDD		U		U	0.050	0.050	U	0.050	0.050
123478-HxCDD		U		U	0.050	0.050	U	0.050	0.050
123478-HxCDD		U		U	0.050	0.050	U	0.050	0.050
123478-HxCDD		U		U	0.050	0.050	U	0.050	0.050
123478-HpCDD		U		U	0.050	0.050	U	0.050	0.050
OCDD		0.0389 J		0.176 J	0.100	0.100	0.103	0.0148	0.100
2378-TCDF		U		U	0.010	0.010	U	0.010	0.010
12378-PeCDF		U		U	0.050	0.050	U	0.050	0.050
123478-PeCDF		U		U	0.050	0.050	U	0.050	0.050
123478-HxCDF		U		U	0.050	0.050	U	0.050	0.050
123478-HxCDF		U		U	0.050	0.050	U	0.050	0.050
123478-HxCDF		U		U	0.050	0.050	U	0.050	0.050
123789-HxCDF		U		U	0.050	0.050	U	0.050	0.050
1234678-HpCDF		0.0063 J		0.0142 J	0.050	0.050	U	0.050	0.050
1234789-HpCDF		U	0.0138	U	0.050	0.050	U	0.050	0.050
OCDF		U		U	0.03 J	0.100	U	0.050	0.100
Total TCDDs		U		U			U		
Total PeCDDs		U		U			U		
Total HxCDDs		U		U			U		
Total HpCDDs		U		U			U		
Total TCDFs		U		U			U		
Total PeCDFs		U		U			U		
Total HxCDFs		U		U			U		
Total HpCDFs		U		U			U		
Total Adjusted Conc		U		U			U		
TEQ (ND=0)		0.0001		0.0006			0.0001		0.0001
TEQ (ND=2)		0.0000		0.0000			0.0000		0.0000
TEQ(EMPC,ND=0)		0.0000		0.0000			0.0000		0.0000
TEQ(EMPC,ND=1/2)		0.0000		0.0000			0.0000		0.0000

EMPC denotes Estimated Maximum Possible Concentration

TEQ: Toxicity equivalent factor

STATE & LOCALITY: NEW YORK STATE PROJECT LEADER: Bernard H. ...

PROGRAM: ... OPERABLE UNIT: ... TSCA  CIVIL

LAB ID/ FIELD ID	CONTAINER	MATRIX	SPECIAL REQUIREMENTS	DESCRIPTION & INSTRUCTIONS INCLUDING LOCATION, ESTIMATED CONCENTRATIONS, SPECIAL REPORTING LIMITS, SPECIAL TEST REQUIREMENTS & ALLOCATING	Preservative (code)	Collection Time (24hr clock) Begin End	Collection Date
Chloroform Ethanol	A	A	<input type="checkbox"/>	1 liter glass for bio-w	023456789	1402:2002	09/15/01
Diluent	A	A	<input type="checkbox"/>	1 liter glass for bio-w	023456789	1402:1427	09/16/01
MPS	A	A	<input type="checkbox"/>	0-1 liter glass for bio-w	023456789	1614:1539	09/16/01
			<input type="checkbox"/>		123456789		
			<input type="checkbox"/>		123456789		
			<input type="checkbox"/>		123456789		
			<input type="checkbox"/>		123456789		
			<input type="checkbox"/>		123456789		
			<input type="checkbox"/>		123456789		

COMMENTS:

Matrix	Person Acquiring Responsibility for Sample(s)	Time	Date
Aqueous	<i>[Signature]</i>	5:30 PM	09/16/01
Non-aqueous (chlorinated)	<i>[Signature]</i>	6:15 PM	9/16/01
Soil	<i>[Signature]</i>	8:00 AM	9/17/01
Sediment			
Sludge			
Other			

Survey Complete? Y  N

September 24, 2001 (11:32am)Preliminary ResultsNew York City/ World Trade Center Sampling Activities  
Dredge Material Sediment Sampling 09/15/01

**EPA Personnel:** Dennis McChesney  
Kathleen Savino  
**DEC Personnel:** Stephen Zahn, DEC Police Officers/Boat operators

**Sampling platform:** NYSDEC Police Vessel

**Sampling Date:** 09/15/01  
**Sampling Time:** 1725-1843  
**Location:** Foot of Vesey by CSO M-6  
**Sample Matrix:** Sediment

**Preliminary Results Summary:**

Both dioxins and furans were detected in all of the samples. The theoretical Bioaccumulation Potential (TBP) was used to calculate the Toxic Equivalency (TEQ) for dioxins and furans. TEQs are greater than 10 times the allowable level for disposal of the material at the HARS.

Two (2) PCBs (Aroclors) were detected at concentrations exceeding NOAA Effects Range Medium (ERM), and average concentrations in Harbor sediments. Lead and mercury were also detected above the ERM and average Harbor sediment concentrations. PAHs associated with coal tar creosote and industrial activity were detected. Five (5) PAH compounds exceeded the ERM, and all were from a single shallow sample. PAH exceedences of ERMs were all less than a factor of two (2). Three VOCs were detected at very low concentrations. Dredge material disposal is at the Newark Bay contaminated sediment borrow pits.

The *Ampelisca* toxicity assay is in progress in the EPA Region 2 laboratory. Data is expected in approximately 2 weeks.

**Analytes (Laboratory):** Metals (REAC, Raj Singhvi coordinating)  
Pesticides/PCBs (REAC, Raj Singhvi coordinating)  
PAHs (REAC, Raj Singhvi coordinating)  
VOCs (REAC, Raj Singhvi coordinating)  
Dioxins/Furans (Paradigm Analytical, Raj Singhvi coordinating)  
Toxicity (EPA Region 2)

**Pre-dredged areas:** Discrete samples were collected from three (3) transects shore (by Joe DiMaggio Drive) to the Hudson River (west to east) using a petit ponar dredge sampler. The entire sample (about 6 inches depth) was collected, and the VOC sample was allocated to as sample jar. The remaining sample was homogenized, and allocated to sample jars. Dredging

FILE

operations are ongoing.

**Dredge Material:** The operating dredge acquired a full bucket of sediment and laid it on the barge deck. Three (3) discrete samples were collected from throughout the dredge sample (surface, interior). Samples were processed for analysis as above.

**Dredge Material Disposal:** Dredged material is destined for the contaminated dredge material borrow pits on the west side of Newark Bay.

**Dioxins and Furans:** Similar concentrations of dioxins and furans were detected in all samples. The data was modeled to evaluate bioaccumulation potentials (TBP) which were used to calculate Toxic Equivalencies (TEQs). Model assumptions were biased low (organic carbon 1%, % lipid 5.57% average from Peconic Estuary clam, crab, lobster, bluefish and striped bass) relative to routine dredge material evaluations. The calculated TEQ for total TCDD/TCDF compounds exceeded dredge material management criteria for Category 2 and Category 3 classification by 30 and 18 times, respectively. The material would not be eligible for disposal at the HARS.

**Previously Reported Data**

**Volatile Organic Compounds (VOCs):** Three VOCs (acetone, carbon disulfide, 2-butanone) were detected at very low concentrations. Acetone was detected in the lab blank, suggesting laboratory contamination with this common laboratory reagent.

**Base Neutral/Acid Extractables (BNAs):** BNAs were detected in all of the samples. The highest concentrations were detected in the six (6) inch deep petit ponar grab sample that was collected closest to the Joe DiMaggio Drive bulkhead (sample P-1). The compounds detected are often associated with highway runoff, creosote treated marine pilings, and industrial activities. Detected concentrations were compared to the ecological Effects Range Low (ERL) and Effect Range Medium (ERM) established by NOAA for the eleven (11) compounds for which these values exist. Five (5) compounds exceeded the ERM, and all were in the petit ponar grab (P-1) sample. ERM exceedences were all less than a factor of two (2). **Figure attached.**

**Metals:** All samples were analyzed for arsenic, cadmium, copper, lead, and mercury. All of the metals were detected in all of the samples. As for PAHs, petit ponar sample P-1 contained the highest concentrations of all of the metals. Concentrations of the metals in all of the six samples collected exceeded the upper concentrations detected throughout NY Harbor during EPA's 1994-1995 REMAP survey **Figure attached.**

<u>Metal</u>	<u>Detected Range</u>	<u>mg/Kg (ppm)</u>		<u>Mean Result</u>
		<u>ERL</u>	<u>ERM</u>	<u>1993 -1994</u>
				<u>EPA REMAP</u>

**FILE**

				<u>Survey NY/NJ</u> <u>Harbor Estuary*</u>
Arsenic	8.8 - 13	8.2	70	10.33 ± 2.05
Cadmium	0.71 - 2.6	1.2	9.6	0.71 ± 0.13
Copper	88 - 220	34	270	72.53 ± 17.4
Lead	110 - 250	46.7	218	78.8 ± 12.8
Mercury	1.2 - 2.8	0.15	0.71	0.74 ± 0.14

\* ± is the 90% confidence interval

**PCBs:** PCBs were analyzed as aroclors in all samples. Two (2) PCBs (Aroclor 1254 and 1260) were detected in all of the samples. No other PCBs were detected in any sample. The profile of the PCBs indicated that they were "weathered", suggesting that they have been entrained in the sediment for a long period of time. **Figure attached.**

	<u>ug/Kg (ppb)</u>			<u>Mean Result</u> <u>1993 -1994</u> <u>EPA REMAP Survey of</u> <u>NY/NJ Harbor Estuary</u>
	<u>Detected</u> <u>Range</u>	<u>ERL</u>	<u>ERM</u>	
1254	370 - 700	NA	NA	NA
1260	280 - 510	NA	NA	NA
<b>Total</b>	630 - 1210	22.7		224 ± 42*

\* ± is the 90% confidence interval

**Pesticides:** Low parts per billion levels of DDE and DDD, and Dieldrin were detected. No other pesticides were detected.

**Data Analysis:**

Dioxins and furans (TCDDs/TCDFs) greatly exceed HARS disposal criteria. The material is being disposed of in the Newark Bay Borrow Pits, which is designed to accommodate contaminated dredge material.

The highest concentrations of analyzed constituents were detected in the petit ponar dredge sample taken close to shore (Joe DiMaggio Drive). A CSO is also located in this area. PCBs (aroclor) detected in this sample were weathered suggesting a relatively old source. The detected PAHs are ubiquitous in industrialized areas, and bear the fingerprint of coal tar creosote used to treat marine pilings. Many submerged pilings area present in the area. Dredging operations were resulting in high concentrations of suspended matter in the vicinity, and some settling of suspended sediment. This area has not been subjected to dredging for a long period of time.

**FILE**

WTC

Table 1. Results of the Analysis for Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans in Sediment Based on Dry Weight

Sample ID % Solids Matrix	WTC-Ponar 1 41.8 Sediment			WTC-Ponar 2 42.3 Sediment			WTC-Ponar 3 37.7 Sediment			WTC-Dredge 1 38.4 Sediment			WTC-Dredge 2 38.5 Sediment			WTC-Dredge 3 37.9 Sediment			(DUPLICATE) WTC-Dredge 3 37.9 Sediment						
	Result ppb	EMPC ppb	MDL ppb	Result ppb	EMPC ppb	MDL ppb	Result ppb	EMPC ppb	MDL ppb	Result ppb	EMPC ppb	MDL ppb	Result ppb	EMPC ppb	MDL ppb	Result ppb	EMPC ppb	MDL ppb	Result ppb	EMPC ppb	MDL ppb	Result ppb	EMPC ppb	MDL ppb	
12378-TCDD	7.91		0.7	12.4		0.68	4.81		0.73	8.44		0.75	6.14		0.75	5.25		0.6	5.34		0.6	5.34		0.6	5.34
12378-PeCDD	4.22		3.5	2.57	J	3.4	2.57	J	3.7	5.03		3.8	5.48		3.8	5.25		4.1	5.33		4.1	5.33		4.1	5.33
12378-HxCDD	4.14		3.5	2.66	J	3.4	2.61	J	3.7	5.31		3.8	5.62		3.8	5.25		4.1	5.33		4.1	5.33		4.1	5.33
12378-OCDD	19.6		3.5	11.4		3.4	11.1		3.7	25		3.8	25.9		3.8	25.4		4.1	27.3		4.1	27.3		4.1	27.3
12378-HxCDF	18.5		3.5	10.5		3.4	10.3		3.7	25		3.8	25.3		3.8	25.3		4.1	27.3		4.1	27.3		4.1	27.3
12378-HpCDF	354		3.5	203		3.4	201		3.7	428		3.8	453		3.8	453		4.1	481		4.1	481		4.1	481
12378-OCDF	2940		7.0	1740		6.8	1660		7.3	2480		7.5	3700		7.5	3770		8.2	3830		8.2	3830		8.2	3830
23478-TCDF	17.7		9.7	11.9		0.99	12.5		0.73	8.44		0.75	6.14		0.75	5.25		0.8	5.34		0.8	5.34		0.8	5.34
23478-PeCDF	573		3.5	31.9		3.4	31.5		3.7	50.3		3.8	50.3		3.8	50.3		4.1	53.3		4.1	53.3		4.1	53.3
23478-HxCDF	11.9		3.5	7.06		3.4	6.62		3.7	14.6		3.8	14.6		3.8	14.6		4.1	14.8		4.1	14.8		4.1	14.8
23478-OCDF	11.3		3.5	8.46		3.4	8.52		3.7	14.6		3.8	14.6		3.8	14.6		4.1	14.8		4.1	14.8		4.1	14.8
12378-TCDF	10.1		3.5	6.94		3.4	6.94		3.7	14.6		3.8	14.6		3.8	14.6		4.1	14.8		4.1	14.8		4.1	14.8
12378-PeCDF	10.1		3.5	6.94		3.4	6.94		3.7	14.6		3.8	14.6		3.8	14.6		4.1	14.8		4.1	14.8		4.1	14.8
12378-HxCDF	10.1		3.5	6.94		3.4	6.94		3.7	14.6		3.8	14.6		3.8	14.6		4.1	14.8		4.1	14.8		4.1	14.8
12378-OCDF	84		3.5	49		3.4	48.5		3.7	86.7		3.8	104		3.8	105		4.1	108		4.1	108		4.1	108
123478-HpCDF	4.84		3.5	2.72	J	3.4	2.59	J	3.7	5.27		3.8	5.87		3.8	5.87		4.1	6.06		4.1	6.06		4.1	6.06
123478-OCDF	152		7.0	88.4		6.8	86.1		7.3	162		7.5	175		7.5	177		8.2	181		8.2	181		8.2	181
Total TCDDs	55.8			53.2			45.8		57.7	58.7			58.7			58.8			59.3			59.3			59.3
Total PeCDDs	55.7			28.3			28.6		59.8	64.5			64.5			64.8			65			65			65
Total HxCDDs	18.5			14.6			14.6		14.6	14.6			14.6			14.6			14.6			14.6			14.6
Total OCDDs	824			453			448		524	577			577			584			593			593			593
Total TCDFs	253			148			148		289	280			280			280			314			314			314
Total PeCDFs	11.9			7.06			7.06		14.6	14.6			14.6			14.6			14.6			14.6			14.6
Total HxCDFs	11.3			6.94			6.94		14.6	14.6			14.6			14.6			14.6			14.6			14.6
Total OCDFs	185			103			98.6		200	214			214			214			226			226			226
Total Adjusted Conc	31.1			20.7			17.9		34.3	35.4			35.4			35.4			38.3			38.3			38.3
TEQ (ND=0)	<31.8 <sup>b</sup>			28.7			18.8		36.2	37.2			37.2			37.2			38.8			38.8			38.8
TEQ (EMPC (ND=0))	32			18.9			18.9		37.2	37.2			37.2			37.2			38.8			38.8			38.8
TEQ (EMPC (ND=1/2))	32			28.7			18.9		37.2	37.2			37.2			37.2			38.8			38.8			38.8

EMPC denotes Estimated Maximum Possible Concentration

TEQ Toxicity equivalent factor, using



SURVEY NAME & LOCALITY: WTC Sediment: Dredge Material PROJECT LEADER: Savino, Kathleen  
 PROGRAM: NS OPERABLE UNIT: CA TSCA  CAA  AM  SDWA  RCRA  ENFORCEMENT: CRIMINAL  CIVIL

LAB ID/ FIELD ID	# OF CONTAINERS	MATRIX	SPECIAL REQUIREMENTS?	DESCRIPTION & INSTRUCTIONS INCLUDING LOCATION, ESTIMATED CONCENTRATIONS, SPECIAL REPORTING LIMITS, SPECIAL TEST REQUIREMENTS & ALLOUATING	Preservative (days)	Collection Time (24hr clock)	Collection Date
<u>WTC-Ponar 1</u>	<u>1</u>	<u>D</u>	<input type="checkbox"/>	<u>18. Amber glass for Dioxin/For. Tox. Equiv.</u>	<u>023456789</u>	<u>5:35</u>	<u>09/15/0</u>
<u>WTC-Ponar 2</u>	<u>1</u>	<u>D</u>	<input type="checkbox"/>		<u>023456789</u>	<u>6:30</u>	
<u>WTC-Ponar 3</u>	<u>1</u>	<u>D</u>	<input type="checkbox"/>		<u>023456789</u>	<u>6:45</u>	
<u>WTC-Dredge 1</u>	<u>1</u>	<u>D</u>	<input type="checkbox"/>		<u>023456789</u>	<u>6:00</u>	
<u>WTC-Dredge 2</u>	<u>1</u>	<u>D</u>	<input type="checkbox"/>		<u>023456789</u>	<u>6:05</u>	
<u>WTC-Dredge 3</u>	<u>1</u>	<u>D</u>	<input type="checkbox"/>		<u>023456789</u>	<u>6:15</u>	
			<input type="checkbox"/>		<u>123456789</u>		
			<input type="checkbox"/>		<u>123456789</u>		
			<input type="checkbox"/>		<u>123456789</u>		
			<input type="checkbox"/>		<u>123456789</u>		

COMMENTS: Dioxin Samples for analysis by contract lab.

Matrix:  A-aqueous  B-aqueous (chlorinated)  C-soil  D-sediment  E-sludge

Relinquished By: Kathleen Savino Received By: Kathleen Savino  
 Relinquished By: Chris Corneal Received By: Chris Corneal

Person Assuming Responsibility for Sample(s): Kathleen Savino  
 Received By: Chris Corneal

Survey Complete? Y  N

Time	Date
<u>6:45</u>	<u>9/15/0</u>
<u>8:50</u>	<u>9/15/0</u>
<u>9:01</u>	<u>9/16/0</u>

September 23, 2001 (10:31am)

Preliminary Results  
Metals, PAHs, TSS

New York City/ World Trade Center Sampling Activities  
Ambient Sampling & Rector Street Runoff Resampling

09/24/01

**Preliminary Results Summary:**

**Runoff:** Asbestos concentrations have decreased significantly (55 MFL) from the sample collected on 09/14 (10,000 MFL). Metal concentrations are also significantly attenuated. Two PAHs were reported at very low concentrations. TSS was at the same concentration as the ambient Hudson River background sample.

**Ambient:** Metals concentrations were below levels of concern, and generally decrease between the Hudson River background location and the Hudson River WTC sampling locations, likely due to dilution. PAHs were not detected. TSS was slightly elevated in the East River sample relative to the Hudson River samples.

**EPA Personnel:**

Street Runoff - Stephen Hale, Erwin Smieszek, Towana Joseph  
Ambient Sampling - Warren McHose, Helen Grebe, Dick Coleates,  
Kathleen Savino

**Sampling Date:** September 20, 2001

**Sampling Time:** Afternoon - during rainstorms/ Samples arrived Edison 6 - 7:30 PM

**Location:** Hudson River and East River

**Sample Matrix:** Water

**Analytes , Laboratory:**

*Region 2 Edison - Metals), TSS, PAHs, PCB congeners*

*NYS DEC Contractor (AxyS) - PCB congeners, PAHs, Dioxins/Furans*

*Contract (Raj Singhvi coordinating, Ambient sample asbestos*

*NYSDOH/Wadsworth (Dr. J. Webber), Runoff sample asbestos*

**Runoff Sampling:** Samples of runoff from the location at the foot of Rector St. previously sampled on 09/14/01 during rain storm/street washdown. No washdown was being conducted during this sampling event, and flow from the discharge pipe was very low. The EPA Whaler supported the sampling.

**Ambient Sampling:** Ambient samples were collected from three locations in the Hudson River; directly west of Ground Zero, north of Ground Zero, south of Ground Zero. A reference (background) sample was collected near the George Washington Bridge. A sample was collected in the East River east of South Street Seaport. The EPA Clean Waters supported the sampling.

**FILE**

HR-Background	40 50.210 N 073 57.384 W
HR-North WTC	40 43.427 N 074 01.272 W
HR-West WTC	40 42.903 N 074 01.332 W
HR-South WTC	40 42.133 N 074 01.417 W
ER-South St.	40 42.210 N 074 00.071 W

**Preliminary Results:**09/24/01

- Asbestos:** Asbestos in the runoff sample was analyzed at the NYSDOH Wadsworth Laboratories. Asbestos has decreased significantly relative to the concentration reported by the same lab for the runoff sample collected on 09/14/01.
- Metals:** Metals were analyzed in the Region II laboratory. No metals were detected at levels of concern. For most detected metals, concentrations were greatest in the background George Washington Bridge sample. Rector St. Runoff concentrations are elevated relative to the background sample, but since the flow was very low, no significant impact is expected.
- PAHs:** PAHs were analyzed in the EPA Region 2 Laboratory. No PAHs were detected in the ambient Hudson and East River Samples. Two (2) PAHs, Fluoranthene and pyrene, were detected in the runoff sample at a concentrations less than 1 ug/L, respectively.
- TSS:** TSS in the Hudson River samples were around 18 mg/L for the background and WTC area Hudson River samples, and 28 mg/L for the East River sample. TSS was 18 mg/L for the Rector St. Runoff sample.

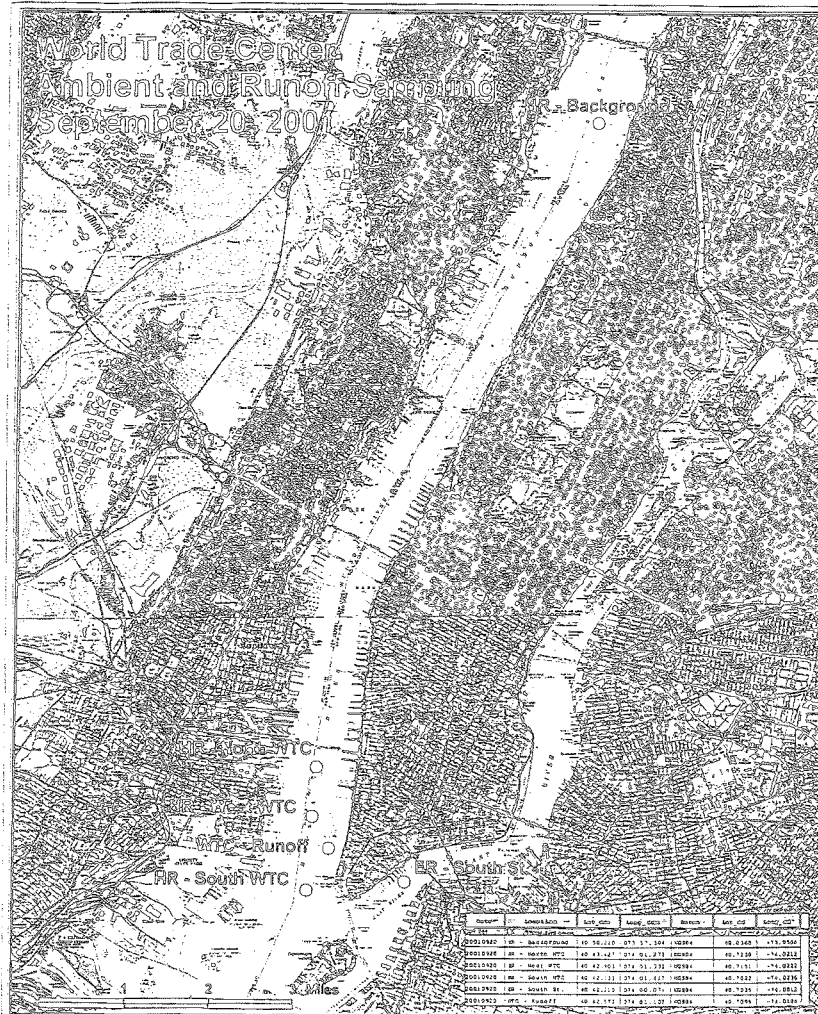
**FILE**



**Metals in Hudson and East Rivers and Rector St. Runoff (mg/L)**

Metal	Hudson River		Hudson River		Hudson River		Hudson River		East River		Rector St.		Rector St.		Newtown Creek STP Effluent
	Background (Bridge)	North WTC	West WTC	South WTC	Hudson River	Hudson River	Hudson River	South St)	09/14/01 Background	09/20/01 Background	% GW Bridge	Runoff (Rector St.)	% GW Bridge	Runoff	
Silver	ND	ND	ND	ND	ND	ND	ND	ND	30	10	ND	ND	ND	ND	7.2
Aluminum	410	240	ND	ND	ND	ND	420	640,000	156,098	1,500	366	300	ND	ND	300
Arsenic	ND	ND	ND	ND	ND	ND	ND	140	3,500	19	475	ND	ND	ND	ND
Barium	23	18	17	17	19	19	8,600	37,391	60	261	38	27	27	27	27
Beryllium	ND	ND	ND	ND	ND	ND	78	78,250	ND	ND	ND	ND	ND	ND	ND
Calcium	260,000	290,000	280,000	290,000	270,000	270,000	5,500,000	2,115	240,000	92	64,000	35,000	35,000	35,000	35,000
Cadmium	ND	ND	ND	ND	ND	ND	180	9,000	ND	ND	ND	ND	ND	ND	ND
Cobalt	ND	ND	ND	ND	ND	ND	160	160,000	ND	ND	ND	ND	ND	ND	ND
Chromium	ND	ND	ND	ND	ND	ND	3,000	100,000	23	767	ND	ND	ND	ND	ND
Copper	ND	ND	ND	ND	ND	ND	4,000	8,000	29	116	46	41	41	41	41
Iron	390	230	200	200	440	440	320,000	8,205	1,500	385	730	540	540	540	540
Potassium	260,000	300,000	300,000	310,000	290,000	290,000	100,000	38	6,200	2	47,000	25,000	25,000	25,000	25,000
Magnesium	860,000	820,000	960,000	990,000	940,000	940,000	990,000	0.38	8,400	1	130,000	61,000	61,000	61,000	61,000
Manganese	56	40	40	32	66	66	32,000	57,143	53	95	100	74	74	74	74
Sodium	7,200,000	8,300,000	8,300,000	8,500,000	8,000,000	8,000,000	100,000	1	9,500	0	1,100,000	0	530,000	530,000	530,000
Nickel	ND	ND	ND	ND	ND	ND	910	36,400	8	300	ND	ND	ND	ND	ND
Lead	ND	ND	ND	ND	ND	ND	5,200	29,714	31	177	8	8	8	8	8
Selenium	ND	ND	ND	ND	ND	ND	56	1,600	ND	ND	ND	ND	ND	ND	ND
Antimony	ND	ND	ND	ND	ND	ND	470	6,714	34	486	ND	ND	ND	ND	ND
Thallium	ND	ND	ND	ND	ND	ND	100	1,000	ND	ND	ND	ND	ND	ND	ND
Vanadium	ND	ND	ND	ND	ND	ND	790	15,800	ND	ND	ND	ND	ND	ND	ND
Zinc	ND	ND	ND	ND	ND	ND	49,000	24,500	150	3,000	94	80	80	80	80
Mercury	ND	ND	ND	ND	ND	ND	9	9,000	ND	ND	ND	ND	ND	ND	ND

\* 1/2 of background detection limit used for calculation when background sample is Not Detected (ND)

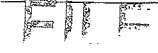


Working, Central Park, Jersey City and Brooklyn  
 7.5 USGS Topographic maps dated 1987, 1988, 1987  
 and 1987 and photorevised 1991, 1979, 1981, 1973.  
 Contour interval 10 feet.

Scale 1:70000

Legend

○ Sampling Locations



September 24, 2001 (10:45am)Preliminary ResultsNew York City/ World Trade Center Sampling Activities  
Sandy Hook "Greaseballs"

**Preliminary Results Summary:** Three grab samples were collected of the washup material the Ocean Beach at southern Sandy Hook. The "greaseball" material was only observed at this location. Two samples were submitted for analysis, and one has been archived. Data received to date suggest that the "greaseballs" are derived from sewage.

**EPA Personnel:** Thuan Tran, James Kurtenbach

**Sampling Date:** 09/20/01

**Sampling Time:** Grab 1: 1200 hours  
Grab 3: 1221 hours

**Location:** Sandy Hook Beach (Atlantic Ocean side at South Beach Area B), NJ. A survey of other Sandy Hook Ocean Beach locations did not reveal washup material.

**Sample Matrix:** "Greaseballs" - amorphous, sandy, gelatinous material

**Analytes (Laboratory):**  
Total/Fecal Coliform (Region 2)  
Oil and Grease (Region 2)  
PCBs (Contract)  
Metals (Region 2)  
Dioxins/Furans (Paradigm Analytical)

Preliminary Results:09/24/01**Oil and Grease**

Grab 1: 58%  
Grab 3: 42%

**Total Coliforms (MPN/100ml)** 16,000,000 estimated, confirmatory assays in progress

**Fecal Coliforms (MPN/100ml)**  
Grab 1: 300,000  
Grab 3: 110,000

**Metals:** Detected metals are dominated by relatively inert constituents (calcium, iron, magnesium, and sodium). Other metals were detected at low

**FILE**

concentrations.

Analyte	Grab 1 (mg/Kg)	Grab 3 (mg/Kg)
Silver	3.5	1.6
Aluminum	400	650
Arsenic	ND	1.2
Barium	5.5	6.7
Beryllium	ND	ND
Calcium	15000	14000
Cadmium	ND	ND
Cobalt	ND	ND
Chromium (total)	5.5	6.5
Copper	47	39
Iron	790	1900
Potassium	480	780
Magnesium	1000	1300
Manganese	11	25
Sodium	7500	9400
Nickel	1.9	2.2
Lead	11	15
Selenium	ND	ND
Antimony	ND	ND
Thallium	ND	ND
Vanadium	1.7	3.7
Zinc	180	120
Mercury	0.76	0.15

PCBs (Aroclors) :

Dioxins/Furans: Grab 1  
Grab 3Awaiting Data from contract lab  
Awaiting Data from contract lab

FILE

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Tuesday, September 25, 2001**

**Most Recent Results (as of 7:00 p.m. 9/25):**

**Freon Tanks** - The city plans to remove the freon tanks from the World Trade Center tomorrow. EPA will conduct real-time air monitoring during this removal.

**South Tower** - The city planned to remove all rescue workers from the site this afternoon during the demolition of the north wall of the South Tower. Our air monitors will be in operation during this action.

**Sandy Hook Beach Wash-Ups:**

Analysis of the reported grease balls that washed up on the beaches at Sandy Hook, New Jersey showed contents of 48% oil, along with calcium, iron and magnesium. Samples taken also showed fecal content at 200,000 per 100 milliliters, which is high. EPA has not established a direct link to the World Trade Center disaster site, nor has the Agency received reports of additional sightings of this material. EPA is investigating reports of failed sewage pumps in the area to determine whether they may have played a role in the appearance of this material. The Agency awaits sample analysis for PCBs and dioxin.

**Building Clearance:**

EPA continues to work with the city to prepare for its takeover of clearing operations for business returning to buildings in the financial district. EPA has completed its preliminary observations at 10 buildings, including schools and residences. Some appeared clean, others may need to be cleaned. EPA is currently developing a plan to sample these buildings to gather more information. The Agency plans to begin sampling tomorrow (9/26).



U.S. Environmental Protection Agency  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Tuesday, September 25, 2001 (12:00 pm)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Sept 22, 4PM - Sept 23, 4AM)
  - All samples below the OSHA PCM standard.
  - 5 samples (all perimeter samples) were above the NYC reentry standard for PCM. It should be noted that no samples exceeded the TEM (AHERA) standard.
- NYC / ER (Sept 23, 4AM - Sept 23, 4PM)
  - All samples below the OSHA standard and NYC reentry standard for PCM.
  - When normalized to 1200 cc volume, 1 sample above the TEM (AHERA) standard (Location K - corner of Albany and West). Majority of fibers were less than 5 microns.
- NYC / ER (Sept 23, 2PM - Sept 24, 2AM)
  - All samples below the OSHA standard and NYC reentry standard for PCM.
  - When normalized to 1200 cc volume, 1 sample above the TEM (AHERA) standard (Location P - Albany and South End). Majority of fibers were less than 5 microns.

Fixed Ambient Air Sampling Locations (Dioxin)

- NYC / ER (Sept 16)
  - No occupational standards available.
  - Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for long-term (chronic exposures).
  - ACTION ITEM: Additional monitoring needed for dioxin beyond the debris pile perimeter.

Ambient Air Sampling Locations (Metals)

- NYC / ER (Sept 23)
  - Ten samples collected within vicinity of ER operations.
  - Exceeds the National Ambient Air Quality Standard (1.5 ug/m<sup>3</sup> based on a 24 hour, 3 month period) for lead at 3 locations (Barclay/West Broadway, Church/Dey, SW corner WTC), however does not exceed the NIOSH standard.
  - Chromium levels were identified at 3 locations (Liberty/Broadway, Greenwich/Albany, Albany/South End) above the EPA Removal Action guidance levels. Does not exceed the most conservative NIOSH standard (1 ug/m<sup>3</sup>).

NYC Bulk/Dust Samples

- Asbestos (Sept 23) - all samples (11) collected had no detectable levels of asbestos. Samples were collected around ground zero area at the entry/exit portals for newly deposited material tracked by personnel and/or vehicles.

Landfill Air Sampling locations (Asbestos)

- Sept 23 (6:30AM - 6:30AM)
  - All samples below OSHA and NYC reentry standards for PCM and TEM (AHERA standards).

**FILE**

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NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 16:00 (9/22/01) to 04:00 (09/23/01)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		
					f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
9/22-9/23	00526	A	720	Air	29.3	0.016	0.04	NA	0	0	0.0048
9/22-9/23	00523	B	720	Air	20.38	0.011	0.12	<0.004	1	0	0.0048
9/22-9/23	00527	C	720	Air	21.02	0.011	0.1	<0.004	0	1	0.0048
9/22-9/23	00529	D	720	Air	NA	NA	NA	NA	0	0	0.0048
9/22-9/23	01462	E	720	Air	<7.0	<0.004	0.0	<0.004	0	0	<0.0048
9/22-9/23	01461	F	720	Air	15.29	0.008	0.1	<0.004	2	0	0.0095
9/22-9/23	01465	F DUP	720	Air	20.38	0.011	0.1	<0.004	0	0	<0.0048
9/22-9/23	NS	G	720	Air	8.92	0.005	0.2	<0.004	0	0	<0.0048
9/22-9/23	00630	H	720	Air	8.92	0.005	0.2	<0.004	0	0	<0.0048
9/22-9/23	00528	I	720	Air	12.1	0.006	0.0	<0.004	0	0	<0.0048
9/22-9/23	01466	J	720	Air	28.03	0.015	0.0	<0.004	1	1	0.0095
9/22-9/23	00525	K	720	Air	9.55	0.005	0.0	<0.004	0	0	<0.0048
9/22-9/23	01464	L	720	Air	<7.0	<0.004	0.1	<0.004	0	0	<0.0048
9/22-9/23	01463	M	720	Air	10.19	0.005	0.0	<0.004	0	0	<0.0048
9/22-9/23	NS	N	720	Air	<7.0	<0.004	0.0	<0.004	0	0	<0.0048
9/22-9/23	00524	O	720	Air	<7.0	<0.004	0.0	<0.004	1	0	0.0048

NS: Not sampled  
 AF/NAF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*S/fcc (S) is slightly equivalent to Fiber (F)  
 NA: Not analyzed due to overloading of particulates  
 NR: Analysis not requested

- Sampling Locations:  
 A: Intersection of Barclay+West Broadway  
 B: Intersection of Church+Dez St  
 C: Intersection of Liberty+Broadway  
 D: Intersection of Greenwich+Albany  
 E: Intersection of Liberty+South End Ave  
 F: Intersection of Vesey+West St  
 G: Intersection of Church and Duane  
 H: One Chase Plaza  
 I: Wall Street+Broadway  
 J: Corner of West and Warren  
 K: Corner of Albany and West  
 L: Sluys High North  
 M: Pier 25  
 N: Intersection of Harrison + West  
 O: Intersection of Albany and South end

ERT: 09/24/01 9:50 AM

NIOSH 7400: Fiber Analysis of Air samples Via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm2, volume 1200L, for 25MM filter (TEM)



NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 04.00 (9/23/01) to 16.00 (9/23/01)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	AF/ANF	Adjusted TEM f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
9/23/01	17471	A	720	Air	8.92	0.005	2089	<0.004	0	<8.89	<0.0048
9/23/01	17472	B	720	Air	<7.0	<0.004	0/51	<0.004	2	17.78	0.0095
9/23/01	17473	C	720	Air	<7.0	<0.004	0/31	<0.004	1	17.78	0.0095
9/23/01	17474	D	720	Air	<7.0	<0.004	0/39	<0.004	NA	NA	NA
9/23/01	17480	E	720	Air	<7.0	<0.004	0/13	<0.004	1	8.89	0.0049
9/23/01	17451	F	720	Air	<7.0	<0.004	4/15	<0.004	4	35.56	0.0180
9/23/01	NS	G		Air							
9/23/01	17474	H	720	Air	47.0	<0.004	0/11	<0.004	4	35.56	0.0180
9/23/01	17475	I	720	Air	<7.0	<0.004	0/29	<0.004	0	<8.89	<0.0048
9/23/01	17476	J	720	Air	11.46	0.006	2/44	<0.004	4	35.56	0.0180
9/23/01	17477	K	720	Air	7.01	<0.004	2/30	<0.004	7	88.89**	0.0478
9/23/01	17452	L	720	Air	47.0	<0.004	0/3	<0.004	0	<8.89	<0.0048
9/23/01	17454	N	720	Air	47.0	<0.004	0/3	<0.004	0	<8.89	<0.0048
9/23/01	17453	M	720	Air	47.0	<0.004	0/5	<0.004	0	<8.89	<0.0048
9/23/01	NS	O		Air							
9/23/01	17479	P	720	Air	47.0	<0.004	0/11	<0.004	1	17.78	0.0095

NS: Not sampled

- Sampling Locations:  
 A: Intersection of Barclay+West Broadway  
 B: Intersection of Church+Dey St.  
 C: Intersection of Liberty+Broadway  
 D: Intersection of Greenwich+Albany  
 E: Intersection of Liberty+South End Ave  
 F: Intersection of Vesey+West St.  
 G: Intersection of Church and Duane  
 H: One Chase Plaza  
 I: Wall Street+Broadway  
 J: Corner of West and Warren  
 K: Corner of Albany and West  
 L: Stuy High north  
 M: Pier 25 (Vball)  
 N: Intersection of Harrison + West  
 O: Abarly and South End  
 P: Abarly and South End

NIOSH 7400: Fiber Analysis of Air Samples Via NIOSH 7400, Revision 3, Issue 2, 8/16/94  
 NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard Criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 708/mm<sup>2</sup>, volume 1200L, for 25MM Rifer (TEM)

ERT: 09/25/01 9:50 AM

RVC Response  
 Asbestos Air Sampling Results at Fired Locations  
 Sampling Date and Time: 14:00 (9/23/01) to 02:00 (09/24/01)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)	
					f/mm <sup>3</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#)	S/mm <sup>2</sup>
9/23-9/24	01759	A	720 Liters	Air	<7.0	<0.004	0/9	<0.004	0	<8.89
9/23-9/24	01758	B	720 Liters	Air	11.46	0.006	0/3	<0.004	1	8.89
9/23-9/24	01757	C1	720 Liters	Air	10.19	0.005	0/0	<0.004	0	8.89
9/23-9/24	01754	D	720 Liters	Air	8.92	0.005	2/3	<0.004	2	17.78
9/23-9/24	01751	E	720 Liters	Air	7.64	0.004	2/2	<0.004	1	8.89
9/23-9/24	01760	F	720 Liters	Air	11.46	0.006	0/2	<0.004	0	<8.89
9/23-9/24	01756	G	NS							
9/23-9/24	01755	H	720 Liters	Air	<7.0	<0.004	0/1	<0.004	0	<8.89
9/23-9/24	01755	I	720 Liters	Air	<7.0	<0.004	1/0	0.004	1	8.89
9/23-9/24	01761	J	720 Liters	Air	8.92	0.005	0/1	<0.004	1	8.89
9/23-9/24	01753	K	720 Liters	Air	7.64	0.004	0/2	<0.004	2	35.56
9/23-9/24	01763	L	720 Liters	Air	<7.0	<0.004	0/0	<0.004	0	<8.89
9/23-9/24	01764	L Dup	720 Liters	Air	8.92	0.005	0/0	<0.004	0	<8.89
9/23-9/24	01766	M	720 Liters	Air	7.64	0.004	0/0	<0.004	0	<8.89
9/23-9/24	01765	N	720 Liters	Air	<7.0	<0.004	0/0	<0.004	0	<8.89
9/23-9/24	01752	P	720 Liters	Air	10.19	0.005	2/0	0.005	8	62.22
9/23-9/24	01762	Q	720 Liters	Air	7.64	0.004	0/1	<0.004	1	17.78

NS: Not sampled  
 AF/NAF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method  
 \*Structures (S) Roughly equivalent to Fiber (F)  
 NA: not analyzed due to overloading of particulates  
 NR: Analysis not requested  
 \*\*Amosite/Chrysotile total

- Sampling Locations:  
 A: Intersection of Barclay+West Broadway  
 B: Intersection of Church+Day St  
 C1: Intersection of Liberty+Broadway  
 D: Intersection of Greenwich+Albany  
 E: Intersection of Liberty+South End Ave  
 F: Intersection of Vesey+West St  
 G: Intersection of Church and Duane  
 H: One Chase Plaza  
 I: Wall Street+Broadway  
 J: Corner of West and Warren  
 K: Corner of Albany and West  
 L: Shuy High north  
 M: Intersection of Harrison + West  
 N: Pier 25 (Veh)  
 P: Albany - South End  
 Q: West - CGCP

ERT: 09/25/01 9:50 AM

NIOSH 7400: Fiber Analysis of Air samples Via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA), 0.0 fiber/cc (PCM), 705/mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)

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REVISED

NYC Response  
WTC Air samples - dioxin and furan results  
Summary Table

Sample No.	Sample Location	Date collected	TEQ (pg)	Air Volume (L)	ng/m <sup>3</sup>
01176	Day & Church	9/16/01	0.176	2640	0.0664
01186	Greenwich & Albany	9/16/01	0.0143	2558	0.0054
01184	Vessey & West	9/16/01	0.01	903	0.0094
01182	Liberty & Tenth	9/16/01	0.165	3298	0.05

TEQ: Toxicity Equivalent Factor using estimated maximum possible concentration and assuming concentration for non-detects of half the method detection limit.

ERT: 09/22/01

1111

Table 1.1 Results of the Analysis for Polychlorinated Biphenyls and Polynuclear Aromatic Hydrocarbons in Air

Sample ID Location Volume (L) Matrix	Laboratory Method Blank VCS188.1 Air		01178 DEV and CHURCH 2840 Air		01182 LIBERTY and TRINITY 3298 Air		01186 GREENWICH and ALBANY 2558 Air		01184 VESEY and WEST 903 Air		01104 FIELD BLANK 0 Air				
	Result ng	EMPC ng	MDL ng	Result ng	EMPC ng	MDL ng	Result ng	EMPC ng	MDL ng	Result ng	EMPC ng	MDL ng	Result ng	EMPC ng	MDL ng
2376-TCDF	U	0.010	0.010	0.0279	0.010	0.0274	0.010	0.0000	0.010	0.0000	0.010	0.010	U	0.0000	0.010
2376-TCDF	U	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	U	0.050	0.050
12376-HxCDD	U	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	U	0.040	0.040
12376-HxCDD	U	0.0815	0.0815	0.0815	0.0815	0.0815	0.0815	0.0815	0.0815	0.0815	0.0815	0.0815	U	0.0815	0.0815
12376-HxCDD	U	0.0548	0.0548	0.0548	0.0548	0.0548	0.0548	0.0548	0.0548	0.0548	0.0548	0.0548	U	0.0548	0.0548
12376-HxCDD	U	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	U	0.033	0.033
12376-HxCDD	U	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	U	0.010	0.010
2376-TCDF	U	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	U	0.0019	0.0019
12376-PaCDF	U	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	U	0.0011	0.0011
12376-PaCDF	U	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	U	0.012	0.012
12376-HxCDF	U	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	U	0.0009	0.0009
12376-HxCDF	U	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	U	0.0008	0.0008
12376-HxCDF	U	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	U	0.0007	0.0007
12376-HxCDF	U	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	U	0.0009	0.0009
12376-HxCDF	U	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	U	0.003	0.003
Total TCDFs	U	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	U	4.08	4.08
Total PaCDDs	U	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	U	3.08	3.08
Total HxCDDs	U	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	U	2.6	2.6
Total HpCDDs	U	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	U	0.003	0.003
Total TCDFs	U	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	U	3.07	3.07
Total PaCDFs	U	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	U	1.39	1.39
Total HxCDFs	U	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	U	0.89	0.89
Total HpCDFs	U	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	U	0.473	0.473
Total Adjusted Conc															
TEQ (MD-0)	U	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	U	0.0009	0.0009
TEQ (MD-1)	U	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	U	0.0009	0.0009
TEQ (EMPC, ND=0)	U	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	U	0.0009	0.0009
TEQ (EMPC, ND=12)	U	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	U	0.0024	0.0024

EMPC denotes Estimated Maximum Possible Concentration

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NYC Response  
Air sampling analysis results for Metals  
Sample collection date - 9/23/01

~~Ten air samples were collected and analyzed using modified NIOSH 7300 for Metals analysis.~~  
The results are reported in the attached file (NYER\_092301\_results.wb2).

~~All matrix spike recoveries were acceptable.~~

The initial calibration and continuing calibration checks all met QC criteria.

ERT 9/25/01

**FILE**

Table 1 Results of the Analysis for Metals in Air  
New York (WTC) ER site

Client ID		1031		1032		1033		1034		1035		1036	
Location		ERT/REAC COM #		EXT/REAC COM #		BARCLAYWEST #		CHURCHKEY #		LIBERTYROADWAY #		GREENHOLMBAY #	
Air Volume (L)		1328		1328		1074		1066		1070		1076	
Parameter	Analysis Method	Conc. µg/m³	MDL µg/m³	Conc. µg/m³	MDL µg/m³	Conc. µg/m³	MDL µg/m³	Conc. µg/m³	MDL µg/m³	Conc. µg/m³	MDL µg/m³	Conc. µg/m³	MDL µg/m³
Aluminum	ICAP	U	0.94	U	0.94	3.6	1.2	3.8	1.2	2.4	1.2	3.4	1.2
Antimony	AA-Fur	U	0.038	U	0.038	0.33	0.047	0.25	0.047	0.084	0.047	U	0.046
Arsenic	AA-Fur	U	0.038	U	0.038	U	0.047	U	0.047	U	0.047	U	0.046
Barium	ICAP	U	0.094	U	0.094	0.16	0.12	0.12	0.12	U	0.12	0.23	0.12
Beryllium	ICAP	U	0.038	U	0.038	U	0.047	U	0.047	U	0.047	U	0.046
Cadmium	ICAP	U	0.094	U	0.094	U	0.12	U	0.12	U	0.12	U	0.12
Calcium	ICAP	U	1.9	U	1.9	41	2.3	38	2.3	17	2.3	35	2.3
Chromium	ICAP	U	0.094	U	0.094	U	0.12	U	0.12	0.12	0.12	0.17	0.12
Cobalt	ICAP	U	0.19	U	0.19	U	0.23	U	0.23	U	0.23	U	0.23
Copper	ICAP	U	0.19	U	0.19	5.5	0.23	1.5	0.23	0.75	0.23	U	0.23
Iron	ICAP	U	0.47	U	0.47	17	0.58	6.6	0.58	5.1	0.58	7.2	0.58
Lead	AA-Fur	U	0.038	U	0.038	4.3	0.23	1.7	0.047	0.86	0.047	0.38	0.046
Magnesium	ICAP	U	9.4	U	9.4	U	12	U	12	U	12	U	12
Manganese	ICAP	U	0.094	U	0.094	0.28	0.12	U	0.12	0.15	0.12	U	0.12
Nickel	ICAP	U	0.19	U	0.19	U	0.23	U	0.23	U	0.23	U	0.23
Potassium	ICAP	U	38	U	38	U	47	U	47	U	47	U	46
Selenium	AA-Fur	U	0.038	U	0.038	U	0.047	U	0.047	U	0.047	U	0.046
Silver	ICAP	U	0.094	U	0.094	U	0.12	U	0.12	U	0.12	U	0.12
Sodium	ICAP	U	9.4	U	9.4	U	12	U	12	U	12	U	12
Thallium	AA-Fur	U	0.094	U	0.094	U	0.12	U	0.12	U	0.12	U	0.12
Vanadium	ICAP	U	0.19	U	0.19	U	0.23	U	0.23	U	0.23	U	0.23
Zinc	ICAP	U	0.19	0.39	0.19	8.1	0.23	3.6	0.23	1.7	0.23	0.86	0.23

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration (>=MDL) subtracted from all sample results

FILE



Table 1 Results of the Analysis for Metals in Air  
New York (WTC) ER site

Client ID		1037		1038		1039		1040	
Location		ALBANY/SOUTH END #		RECTORS/SOUTH END #		LIBERTY/SOUTH END #		LOC 3 SW WTC #	
Air Volume (L)		1076		1072		1064		1058	
Parameter	Analysis- Method	Conc. µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc. µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc. µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc. µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Aluminum	ICAP	1.5	1.2	1.6	1.2	1.8	1.2	3.1	1.2
Arsimony	AA-Fur	U	0.046	U	0.047	U	0.047	0.19	0.047
Arsenic	AA-Fur	U	0.046	U	0.047	U	0.047	U	0.047
Barium	ICAP	U	0.12	U	0.12	U	0.12	U	0.12
Beryllium	ICAP	U	0.046	U	0.047	U	0.047	U	0.047
Cadmium	ICAP	U	0.12	U	0.12	U	0.12	0.20	0.12
Calcium	ICAP	7.7	2.3	7.1	2.3	15	2.3	44	2.4
Chromium	ICAP	0.13	0.12	U	0.12	U	0.12	U	0.12
Cobalt	ICAP	U	0.23	U	0.23	U	0.23	U	0.24
Copper	ICAP	U	0.23	U	0.23	U	0.23	2.1	0.24
Iron	ICAP	2.5	0.58	2.4	0.58	2.3	0.59	4.4	0.59
Lead	AA-Fur	0.062	0.046	U	0.047	U	0.047	5.4	0.24
Magnesium	ICAP	U	12	U	12	U	12	U	12
Manganese	ICAP	U	0.12	U	0.12	U	0.12	U	0.12
Nickel	ICAP	U	0.23	U	0.23	U	0.23	U	0.24
Potassium	ICAP	U	46	U	47	U	47	U	47
Selenium	AA-Fur	U	0.046	U	0.047	U	0.047	U	0.047
Silver	ICAP	U	0.12	U	0.12	U	0.12	U	0.12
Sodium	ICAP	U	12	U	12	U	12	U	12
Thallium	AA-Fur	U	0.12	U	0.12	U	0.12	U	0.12
Vanadium	ICAP	U	0.23	U	0.23	U	0.23	U	0.24
Zinc	ICAP	0.44	0.23	0.47	0.23	U	0.23	6.3	0.24

MDL denotes Method Detection Limit

U denotes less than the MDL (not detected)

Average Media Blank concentration (&gt;=MDL) subtracted from all sample results

FILE

436

NYC Response  
Asbestos Bulk Sample Analysis Results

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/23/01	06212	West & Barclay	Solid	ND	
9/23/01	06213	West & Vesey	Solid	ND	
9/23/01	06214	West & Amex Tower	Solid	ND	
9/23/01	06215	Liberty & West	Solid	ND	
9/23/01	06216	Canal & West	Solid	ND	
9/23/01	06217	110 Canal	Solid	ND	
9/23/01	06218	Trinity & Liberty	Solid	ND	
9/23/01	06219	Canal St (150 feet east of Church)	Solid	ND	
9/23/01	06220	Dev St (150 feet east of Church Street)	Solid	ND	
9/23/01	06221	W. Broadway & Vesey	Solid	ND	
9/23/01	06222	W. Broadway & Barclay	Solid	ND	

PLM, Polarized Light Microscope by Method NY State ELAP 158.1  
ND: Not Detected

COC 04/05

ERT 9:50 AM 9/23/01

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VTC Response  
Ambient Air Sampling Results for Freshair Lane  
Sampling Date and Time: 09/23/01 08:38 AM to 10:50 PM

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHIERA)		
					f/m <sup>3</sup>	f/cc	AFNAF	Adjusted TEM f/cc	Structures (F)	S-f/cc	
9/23/01	02100	Loc #1	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02094	Loc #2	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02095	Loc #3	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02096	Loc #4	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02097	Loc #5	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02098	Loc #6	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02099	Loc #7	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02100	Loc #8	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02101	Loc #9	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02102	Loc #10	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02103	Loc #11	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02104	Loc #12	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02105	Loc #13	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02106	Loc #14	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02107	Loc #15	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02108	Loc #16	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02109	Loc #17	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02110	Loc #18	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02111	Loc #19	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043
9/23/01	02112	Loc #20	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0043

NIOSH Not sampled  
AFNAF: Asbestos fiber/non asbestos fiber  
Sample volume is below recommended limit of the method.  
\*Structure (S) Roughly equivalent to Fiber (F)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/18/94  
NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 743 (AHIERA)  
Standard criteria: EPA 40 CFR Part 743 (AHIERA); 0.01 fiber/cc (PCM); 705/minz, volume 1200L, for 28MM filter (TEM)

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9/25/01 9:50 AM

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Wednesday, September 26, 2001**

**Most Recent Results (as of 6:30 p.m. 9/26):**

**Air: Fixed Monitors in New York City and New Jersey:**

**Asbestos** - EPA analyzed 61 more samples for asbestos taken in and around ground zero. Two samples were marginally above the 70 structures per millimeter squared standard that EPA uses for re-entry into schools after asbestos removal activities.

**Air: Non-Fixed Samples in New York City**

**Dioxin** - Analysis of four air samples taken for dioxin on Sept. 16 showed all samples were at or above EPA's removal action guideline, which is based on a 30-year, 24-hour exposure risk scenario. However, there is no short-term exposure problem. These samples were captured at the plume still emanating from the fires within the World Trade Centers debris pile. We expect that these levels measured will only persist for a few weeks until the fires are extinguished. The air respirators EPA has provided for the recovery workers can prevent exposure to levels monitored at the site.

EPA took another round of air samples for dioxin on Sept. 23 and is awaiting results. EPA will take samples on Thursday, Sept. 27, depending on weather conditions, and will continue monitoring.

**Metals** - Analysis of ten samples showed three elevated readings for lead and three for chromium. While these readings are considered elevated, they are not a short-term concern. The regulatory standards and guidelines for lead and chromium are based on long-term exposure. EPA will continue to monitor for these metals.

**VOCs** - Analysis of samples taken on Sept. 24 showed no detections for volatile organic compounds.

**Air: Fresh Kills Landfill**

**Asbestos** - Analysis of 32 samples for asbestos taken were all below the standard of 70 structures per square millimeter. The Fresh Kills Landfill receives the debris from the World Trade Center collapse.

**Dust Samples**

**Asbestos** - 11 dust samples taken on Sept. 23 for asbestos showed no readings for asbestos-containing material. These samples were taken around the perimeter of ground zero and at worker entry points to the area.

**Ambient Water Sampling**

Analysis of the sample taken from the runoff at the foot of Rector Street showed non-detect for PCBs. Sample results for asbestos, PAHs and PCBs taken on Sept. 20 from the Hudson and East Rivers also were non-detect.

EPA did additional round of ambient water sampling on Tuesday, September 25 following a rain storm.

**Newtown Creek Sewage Treatment Plant**

Analysis of samples taken for dioxin showed no elevated levels.

**ONGOING ACTIVITY**

**Underground Storage Tanks** - We have a report of eight underground storage tanks that contain oil. EPA has responsibility for pumping out the contents of these identified tanks. We are developing a plan for the pumping, which will be done as needed during debris removal efforts.

**Washing Operations** - EPA is working with city officials on a longer term plan to consolidate most of our wash stations into one central location. Workers will be transported to this center from various work points at ground zero before exiting the site. Some existing wash stations will remain, for example, at entry points to rest and food areas. EPA also is now responsible for operation of the wash stations at Fresh Kill Landfill.

**Site Access Control Barrier** - The city is constructing this barrier to control access to the site during future debris removal activities. A map of this barrier is in attached file.

U.S. Environmental Protection Agency  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Wednesday, September 26, 2001 (12:00 pm)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Sept 24, 2AM - 2PM)
  - All samples below the OSHA and NYC reentry standard for PCM and the TEM (AHERA) standard.
- NJ (Sept 22, 12N - 10PM)
  - All samples either less than detectable or below all PCM and TEM standards. Note: TEM (AHERA) results for one sample are pending (reported as NR).

Landfill Air Sampling locations (Asbestos)

- Sept 23-24 (6:30PM - 6:30AM)
  - All samples below OSHA and NYC reentry standards for PCM and the TEM (AHERA standards).
- Sept 24 (6:00AM - 6:00PM)
  - All samples below OSHA and NYC reentry standards for PCM and the TEM (AHERA standards).

Direct Reading Instruments

- Sept 24 - nothing of significance identified

Ambient Sampling and Rector Street Runoff Sampling

- Sept 20 - see attached summary for details
  - Ambient - PCBs, asbestos, and PAHs reported as not detected.
  - Runoff - PCBs reported as not detected.

Newtown Creek Sewage Treatment Plant/Manhattan Pumping Station

- Sept 15-16 - see attached summary for details
  - All parameters either below permit limits in final effluent or below levels of concern.
  - WTC disaster does not appear to have affected influent to the plant.

**FILE**

FILE

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 02:00 to 14:00 (09/24/01)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Adjusted TEM trace	Structures (#)	S/fcc*	
9/24/01	01779	A	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01779	D	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01777	C1	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01777	D	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01777	E	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01780	F	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01785	G	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01776	H	720	Air	<7.0	<0.004	<0.004	1	8.89	0.0048
9/24/01	01776	I	720	Air	<7.0	<0.004	<0.004	0	<8.89	0.0048
9/24/01	01782	J	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01773	K	720	Air	<7.0	<0.004	<0.004	0	17.78	0.0065
9/24/01	01783	L	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01784	L Trip	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01785	M	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01785	N	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01772	O	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048
9/24/01	01781	Q	720	Air	<7.0	<0.004	<0.004	0	<8.89	<0.0048

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
NA: not analyzed due to overloading of particulates  
NR: Analysis not requested

Sampling Locations:  
A: Intersection of Barclay+West Broadway  
B: Intersection of Church+Dey St.  
C1: Intersection of Liberty+Broadway  
D: Intersection of Greenwich+Albany  
E: Intersection of Liberty+South End Ave  
F: Intersection of Vesey+West St.  
G: Intersection of Church and Duane  
H: One Chase Plaza  
I: Wall Street+Broadway  
J: Corner of West and Warren  
K: Corner of Albany and West  
L: Sluys HS  
M: Intersection of Harrison + West  
N: Pier 25  
P: Intersection of Albany and South end  
Q: West at CGCP

NIOSH 7400: Fiber Analysis of Air samples Via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
NIOSH 7402: Asbestos fibers analysis by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA-402-PR Part 763 (AHERA)  
Standard criteria: EPA-402-PR Part 763 (AHERA); 0.01 fibers/cc (PCM); 705/Sm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)

NYC Emergency Response  
 Asbestos Air Sampling Results NYC. ER/NJ DEP  
 Sampling Date and Time: 09/22/01 12:00 noon to 10:00 PM

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	A/F/NAF	Adjusted TEM f/cc	<5µ	>5µ	S/mm <sup>2</sup>	S-f/cc*
9/22/01	01941	Liberty Park	480	Air	<7.0	<0.006	0/0	<0.006	0	0	NR	NR
9/22/01	01942	CITGO Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<8.00	<0.0064
9/22/01	01943	FMC	480	Air	<7.0	<0.006	0/1	<0.006	0	0	<8.00	<0.0064
9/22/01	01944	Shell	456	Air	7.64	0.005	0/0	<0.006	1	0	8	0.0064

002-0104

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 \*Structure (S) Roughly equivalent to Fiber (f)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70S/mm<sup>2</sup>, Volume 1200L, for 25mm filter (TEM)  
 NR Not reported

Sampling Location  
 A: Liberty Park  
 B: CITGO terminal  
 C: FMC Terminal  
 D: Shell Terminal

Sampling Times  
 11:00 (9/22/01)-19:00 (9/22/01)  
 11:45 (9/22/01)-19:45 (9/22/01)  
 12:20 (9/21/01)-20:20 (9/22/01)  
 12:40 (9/22/01)-20:40 (9/22/01)

ERT: 09/26/01 9:50 AM

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NYC Response  
 Asbestos Air Sampling Results for Freshkill Landfill  
 Sampling Date and Time: 09/23/01 18:30 PM to 09/24/01 06:30 AM

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)	
					f/cc	AF/ANF	Adjusted TEM f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
9/24/01	02110	Loc #1	638	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0048
9/24/01	02102	Loc #2	668	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0046
9/24/01	02103	Loc #3	667	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0046
9/24/01	02104	Loc #4	620	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0050
9/24/01	02105	Loc #5	240	Air	<7.0	<0.011	<0.011	0	<8.00	<0.0128
9/24/01	02107	Loc #6	672	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0046
9/24/01	02108	Loc #8	669	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0046
9/24/01	02111	Loc #9A	288	Air	<7.0	<0.009	<0.009	0	<8.00	<0.0107
9/24/01	02112	Loc #9B	770	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0048
9/24/01	02109	Loc #10	0	Air	<7.0	<0.004	No volume taken	results not available	<8.00	<0.0048

NS: NA sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) Roughly equivalent to Fiber (F)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 70S/mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)

9/26/01 9:50 AM

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NYC Response  
Asbestos Air Sampling Results for Freshkill Landfill  
Sampling Date and Time: 9/24/01 6:00 AM to 6:00 PM

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#) <5µ	Structures (#) >5µ	S-f/cc	
9/24/01	02121	Loc #1	666.2	Air	<7.0	<0.004	0.00	<0.004	0	0	<8.89	<0.0048
9/24/01	02122	Loc #2	709.1	Air	<7.0	<0.004	1.00	<0.004	0	0	<8.0	<0.0043
9/24/01	02123	Loc #3	720	Air	<7.0	<0.004	0.05	<0.004	0	0	<8.89	<0.0048
9/24/01	02124	Loc #4	717.9	Air	<7.0	<0.004	0.01	<0.004	0	0	<8.00	<0.0043
9/24/01	02125	Loc #5	720	Air	<7.0	<0.004	0.05	<0.004	0	0	<8.89	<0.0048
9/24/01	02126	Loc #6	720	Air	<7.0	<0.004	1.00	<0.004	1	0	<8.89	0.0048
9/24/01	02127	Loc #7	720	Air	<7.0	<0.004	0.02	<0.004	0	0	<8.89	<0.0048
9/24/01	02128	Loc #8	720	Air	<7.0	<0.004	0.08	<0.004	0	0	<8.89	<0.0048
9/24/01	02129	Loc #9a	720	Air	10.19	0.005	0.02	<0.004	0	0	<8.89	<0.0048
9/24/01	02130	Loc #9b	720	Air	<7.0	<0.004	0.08	<0.004	0	0	<8.89	<0.0048
9/24/01	02131	Loc #10	720	Air	<7.0	<0.004	0.25	<0.004	0	0	<8.89	<0.0048

00000001

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) Roughly equivalent to Fiber (F)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/1994  
NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01fiber/cc (PCM), 0.05mm<sup>2</sup>, volume 1200L, for 25MM filter (TEM)

1 of 2

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location		Date	Time	Wind Dir.	Tape Meters							Misco-A RADAR			
					COCl <sub>2</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	HNO <sub>3</sub> ppbv	HCl ppbv	H <sub>2</sub> S ppm	VOC ppm	LEL %	O <sub>2</sub> %	CO ppm	FIID ppm	PID ppm
AINWOOD		9/11/01	0730						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			0745						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			0755						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			0805						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			0835						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			0845						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			0855						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			0900						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			0910						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			1000						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			1015						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			1045						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			1100						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			1115						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			1150						0.00	0.00	0.0	20.9%	0.00	5.55	0.00
LIBERTY			1200						0.00	0.00	0.0	20.9%	0.00	5.55	0.00

.....

Zaf 2

September 2, 2000

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters								Micro-A RADAR					
				COCl <sub>2</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	HNO <sub>3</sub> ppbv	HCl ppbv	H <sub>2</sub> S ppm	VOC ppm	LEL %	O <sub>2</sub> %	CO ppm	FID ppm	PID ppm			
Area - Acorn	9/4/00	12:10															
Area 6 - Boggs		12:00															
Area 6 - Boggs		1335															
Area 6 - Boggs		1345															
Area 6 - Boggs		1355-1400															
Area 6 - Boggs		1350															
Area 6 - Boggs		1355															
Area 6 - Boggs		1400															
Area 6 - Boggs		1410															
Area 6 - Boggs		1420															
Area 6 - Boggs		1425															

.....

Location	Date		Time	WD	Tape Meters				Multi-Gas PHD-5				Multi Gas			
	11ppb CO	2ppb H2S			250ppb SO4	250ppb HNO3	250ppb HCl	ppm SO2	ppm H2S	ppm LEL	ppm O2	ppm CO	ppm NO	ppm HCN	ppm PHD	
L		9/24	2:31	Cross W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
A		9/24	2:40	Cross W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B		9/24	2:46	UpW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H3		9/24	2:52	UpW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Church + Crescent		9/24	2:59	Variable	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C		9/24	3:02	UW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		9/24	3:07	UW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H		9/24	3:11	UW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F		9/24	3:18	Cross W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D		9/24	3:26	Cross W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
# 2		9/24	3:26	Cross W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K		9/24	3:46	Cross	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P		9/24	3:52	Cross/Down	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E		9/24	3:54	DW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
# 1		9/24	4:01	DW/Cross	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F		9/24	4:09	Cross	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Locations: A - Greenwich - Bardsley + B - Church + Day  
 C - Church Liberty - C1 - Broadway + Liberty  
 D - Greenwich - Albany + E - South End + Liberty  
 F - West + Varsity - H - Chase Plaza  
 I - Broadway + Wall - J - West + Warren  
 K - West + Albany - L - St. H.S. + Ice  
 Comments: General wind to west / Quite a bit of traffic in Zone  
 \*Active plume at Church + Courtland  
 \*PHD measured w/ MultiGas plus

0.12003

Station	Date		Time	WD	Trace Meters				Multi-Gas PID-5				Multi-Gas		TVA-100		
	11/9/96	2/20/96			11/25/04	11/25/04	11/25/04	11/25/04	11/25/04	11/25/04	SO2	CO	NO	HCN	HCN	HCN	HCN
Q	9/24	4:12	Cross/Down		ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
T	9/24	4:17	Down		ND	↓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	9/24	4:26	Down		ND	↓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
M	9/24	4:30	Down		ND	↓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<p>9/24 7/24/04</p>																	
<p>ions: A - Greenwald - Barclay, B - Church &amp; Day            C - Church &amp; Liberty, G - Broadway &amp; Liberty            P - Greenwald - Albany, F - South End &amp; Liberty            I - West &amp; Vesey, H - Chase Plaza            J - Broadway &amp; Wall, K - West Warren            L - West Albany, S - St. A.S. Tice            mens: By end of run wind to North</p>																	

September 25, 2001 (10:05am)

Preliminary Results  
PCBs, Metals, PAHs, TSS

New York City/ World Trade Center Sampling Activities  
Ambient Sampling & Rector Street Runoff Resampling

**Preliminary Results Summary:**

**Runoff:** PCB congeners (DL 0.0052 ug/L) were reported as not detected by the EPA Region 2 Lab. Additional samples for Dioxins/Furans, PCB congeners (High Resolution GC/MS) and PAHs are being performed by the NYSDEC contract lab, with results expected next week.

*(Previously Reported)* Asbestos concentrations have decreased significantly (55 MFL) from the sample collected on 09/14 (10,000 MFL). Metal concentrations are also significantly attenuated. Two PAHs were reported at very low concentrations. TSS was at the same concentration as the ambient Hudson River background sample.

**Ambient:** PCB congeners (DL 0.0052 ug/L) and PAHs (DLs  $\leq$  1.0 ug/L) were reported as not detected by the EPA Region 2 Lab. Additional samples for Dioxins/Furans, PCB congeners (High Resolution GC/MS) and PAHs are being performed by the NYSDEC contract lab, with results expected next week. Asbestos was reported as less than the detection limit in all samples.

*(Previously Reported)* Metals concentrations were below levels of concern, and generally decrease between the Hudson River background location and the Hudson River WTC sampling locations, likely due to dilution. PAHs were not detected. TSS was slightly elevated in the East River sample relative to the Hudson River samples.

**EPA Personnel:**

Street Runoff - Stephen Hale, Erwin Smieszek, Towana Joseph  
Ambient Sampling - Warren McHose, Helen Grebe, Dick Coleates,  
Kathleen Savino

**Sampling Date:** September 20, 2001  
**Sampling Time:** Afternoon - during rainstorms/ Samples arrived Edison 6 - 7:30 PM  
**Location:** Hudson River and East River  
**Sample Matrix:** Water

**Analytes , Laboratory:**

*Region 2 Edison - Metals), TSS, PAHs, PCB congeners*  
*NYS DEC Contractor (Axys) - PCB congeners, PAHs, Dioxins/Furans*  
*Contract (Raj Singhvi coordinating, Ambient sample asbestos*  
*NYSDOH/Wadsworth (Dr. J. Webber), Runoff sample asbestos*

**FILE**

**Runoff Sampling:** Samples of runoff from the location at the foot of Rector St. previously sampled on 09/14/01 during rain storm/street washdown. No washdown was being conducted during this sampling event, and flow from the discharge pipe was very low. The EPA Whaler supported the sampling.

**Ambient Sampling:** Ambient samples were collected from three locations in the Hudson River; directly west of Ground Zero, north of Ground Zero, south of Ground Zero. A reference (background) sample was collected near the George Washington Bridge. A sample was collected in the East River east of South Street Seaport. The EPA Clean Waters supported the sampling.

HR-Background	40 50.210 N 073 57.384 W
HR-North WTC	40 43.427 N 074 01.272 W
HR-West WTC	40 42.903 N 074 01.332 W
HR-South WTC	40 42.133 N 074 01.417 W
ER-South St.	40 42.210 N 074 00.071 W

**Preliminary Results:**

09/25/01

**PCB Congeners:** PCB congeners were analyzed in the EPA Region 2 laboratory. The 71 PCB congeners analyzed were reported as not detected (DL 0.0052 ug/L). Additional samples for Dioxins/Furans, PCB congeners (High Resolution GC/MS) and PAHs are being performed by the NYSDEC contract lab (AxyS), with results expected next week.

**Asbestos:** Asbestos was analyzed by the EPA REAC contract laboratory. Asbestos is reported as non-detect in all samples, with detection limits of < 1.53 MFL in Hudson River Samples, and < 7.65 MFL in the East River sample. The East River sample may be re-analyzed.

09/24/01

**Asbestos:** Asbestos in the runoff sample was analyzed at the NYSDOH Wadsworth Laboratories. Asbestos has decreased significantly relative to the concentration reported by the same lab for the runoff sample collected on 09/14/01.

**Metals:** Metals were analyzed in the Region II laboratory. No metals were detected at levels of concern. For most detected metals, concentrations were greatest in the background George Washington Bridge sample. Rector St. Runoff concentrations are elevated relative to the background sample, but since the flow was very low, no significant impact is expected.

**PAHs:** PAHs were analyzed in the EPA Region 2 Laboratory. No PAHs were detected in

**FILE**



the ambient Hudson and East River Samples. Two (2) PAHs, Fluoranthene and pyrene, were detected in the runoff sample at a concentrations less than 1 ug/L, respectively.

**TSS:** TSS in the Hudson River samples were around 18 mg/L for the background and WTC area Hudson River samples, and 28 mg/L for the East River sample. TSS was 18 mg/L for the Rector St. Runoff sample.

Metals in Hudson and East Rivers and Rector St. Runoff (mg/L)

**FILE**

Metal	Hudson River Background		Hudson River North WTC		Hudson River West WTC		Hudson River South WTC		East River (South St)		Runoff (Rector St) 09/14/01		Runoff % GW Bridge (Rector St) 09/20/01		Runoff % GW Bridge Background		Midtown Pumping Station		Newtown Creek STP Effluent	
	Background (GW Bridge)	North WTC	West WTC	South WTC	South WTC	South WTC	South WTC	South WTC	South St	South St	09/14/01	Background	09/20/01	Background	Background	Background	Station	Station	Effluent	Effluent
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	30	10	ND	ND	ND	7.2	ND	ND	ND	ND
Aluminum	410	240	ND	ND	ND	ND	ND	ND	420	640,000	156,098	1,500	366	300	ND	300	ND	ND	ND	ND
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	140	3,500	19	475	ND	ND	ND	ND	ND	ND	ND
Barium	23	18	17	17	17	17	17	17	19	8,600	37,391	60	261	38	27	38	27	27	27	27
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	78	78,250	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	260,000	290,000	280,000	290,000	290,000	290,000	290,000	290,000	270,000	5,500,000	2,115	240,000	92	64,000	35,000	64,000	35,000	35,000	35,000	35,000
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	180	9,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt	ND	ND	ND	ND	ND	ND	ND	ND	ND	160	160,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,000	100,000	23	767	ND	ND	ND	ND	ND	ND	ND
Copper	ND	ND	ND	ND	ND	ND	ND	ND	ND	4,000	8,000	29	116	46	41	46	41	41	41	41
Iron	390	210	200	200	200	200	200	200	440	320,000	8,205	1,500	385	730	540	730	540	540	540	540
Potassium	260,000	300,000	300,000	310,000	310,000	310,000	310,000	310,000	290,000	100,000	38	6,200	2	47,000	25,000	47,000	25,000	25,000	25,000	25,000
Magnesium	860,000	820,000	960,000	990,000	990,000	990,000	990,000	990,000	940,000	990,000	0.38	8,400	1	130,000	61,000	130,000	61,000	61,000	61,000	61,000
Manganese	56	40	40	40	40	40	40	40	66	32,000	57,143	53	95	100	74	100	74	74	74	74
Sodium	7,200,000	8,300,000	8,300,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,000,000	100,000	1	9,500	0	1,100,000	530,000	1,100,000	530,000	530,000	530,000	530,000
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	910	36,400	8	300	ND	ND	300	ND	ND	ND	ND
Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	5,200	29,714	31	177	8	8	177	8	8	8	8
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	56	1,600	ND	ND	ND	ND	1,600	ND	ND	ND	ND
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	470	6,714	34	486	ND	ND	6,714	486	486	486	486
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	1,000	ND	ND	ND	ND	1,000	ND	ND	ND	ND
Vanadium	ND	ND	ND	ND	ND	ND	ND	ND	ND	790	15,800	ND	ND	ND	ND	15,800	ND	ND	ND	ND
Zinc	ND	ND	ND	ND	ND	ND	ND	ND	ND	49,000	24,500	150	3,000	94	80	24,500	3,000	94	80	80
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND	9	9,000	ND	ND	ND	ND	9,000	ND	ND	ND	ND

\* % of background detection limit used for calculation when background sample is Not Detected (ND)



September 25, 2001 (9:20am)

Final Preliminary Data

New York City/ World Trade Center Sampling Activities  
Newtown Creek STP/ Manhattan Pumping Station

**Preliminary Results Summary:** Laboratory data for all parameters has been received. All parameters were either below permit limits in final effluent, or below levels of concern. The WTC disaster does not appear to have effected influent to the plant.

**EPA Personnel:** Randy Braun  
Stephen Hale  
Richard Coleates

**Sampling Date:** September 15 - 16, 2001

**Sampling Time:** 24-hour composites beginning at approximately 1:00pm on 9/15/01

**Location:** Three sampling locations: 1) Newtown Creek STP final treated discharge, 2) Influent to Newtown Creek STP from Brooklyn and Queens, and 3) 13<sup>th</sup> Street pump station (contains all waste water from southern Manhattan, including WTC area).

**Sample Matrix:** Water

**Analytes (Laboratory):**

PCBs (Region 2)  
PAHs (Region 2)  
Metals (Region 2)  
BOD5 (Region 2)  
TSS (Region 2)  
Dioxins/Furans (contract lab - Paradigm Analytical)  
Asbestos (contract lab)

**Preliminary Results:**

**Dioxins/Furans:** Two dioxin and two furan compounds were detected in one or more samples. The total TEQ for the Influent about twice as high as the TEQ for the Midtown Pumping Station and the Effluent samples. The TEQ for the Influent was about 8 times less than the total TEQ for the Rector St. Runoff sample collected on 09/14/01, and is also less than the TEQ for the highest sample collected by the Harbor CARP program (22 pg/L).

**Pumping Station:** OCDD was reported in the midtown pumping station sample at 103 J pg/L, which is about 50 times less than the concentration reported for this compound in Rector St. runoff. The TEQ for the Midtown pumping station is 8.5 pg/L, compared with 122 pg/L for the runoff sample.

**FILE**

**Influent:** OCDD, 1234678-HpCDD., and OCDF were detected in the combined influent, resulting in a TEQ of 15.5 pg/L.

**Effluent:** OCDD and 1234678-HpCDF were detected in the final effluent, with a TEQ of 8 pg/L.

Compound	Manhattan Pumping Station <sup>1</sup> (pg/L)	Influent <sup>1</sup> (pg/L)	Effluent <sup>1</sup> (pg/L)	Rector St. Runoff <sup>2</sup> (pg/L)
1234678-HpCDD	14.6 *	29.7 J	14.6 *	530.58 JK
OCDD	103	176	38.9	5547.62 J
1234678-HpCDF	ND	14.2 J	6.3 J	304.09JK
OCDF	ND	30 J	13.8 *	392.70 J
Total HpCDDs	ND	29.7	ND	---
Total HpCDFs	ND	21.9	ND	---
TEQ <sup>3</sup>	8.5	15.5	8.0	122
TEQ (include EMPC) <sup>3</sup>	8.6	15.6	8.0	----

ND - Non Detect

\* Reported as ND with an Estimated Maximum Possible Concentration (EMPC) for this compound

<sup>1</sup> Paradigm Analytical (REACT contract)

<sup>2</sup> Axys Analytical (NYSDEC contract). Blank corrected.

<sup>3</sup> ND (including those not shown) = 1/2 of Detection Limit

**PCBs (Aroclors) :**

Pumping Station Not Detected  
 Influent: Not Detected  
 Effluent: Not Detected

**BOD5 (mg/L):**

Pumping Station 120  
 Influent: 210  
 Effluent: 38  
 % Removal 82

**PAHs:** Permit limits for PAHs and semi-volatiles do not exist. Levels were elevated in the pumping station sample and the influent. PAHs were not detected in the

**FILE**

effluent.

Pumping Station (ug/L)	Napthalene (5.8); 2- methyl napthalene (10); 1-methyl napthalene (6.7); biphenyl (1.5); 2,6- dimethylnapthalene (7.9); 2,3,5-trimethylnapthalene (4.5).
Influent (ug/L)	Napthalene (1.4); 2- methyl napthalene (1.0); 1-methyl napthalene (0.65); biphenyl (2.7); 2,6- dimethylnapthalene (0.53).
Effluent (ug/L)	Not Detected

**Mercury:**

Pumping Station	Not Detected
Influent:	Not Detected
Effluent:	Not Detected

**Non-Filterable Residue (TSS) (mg/L):**

Pumping Station	85
Influent	120
Effluent	33 (Permit 30 day average 35%)
% Removal	73%

**Metals:** No metals were detected above permit discharge limits.

**FILE**

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Thursday, September 27, 2001**

**Most Recent Results (as of 6:00 p.m. 9/27):**

**Air: Fixed Monitors in New Jersey:**

**Asbestos** - EPA analyzed 12 samples for asbestos taken in New Jersey on Sept. 22, 23 and 24. Ten samples were non-detect and preliminary analysis of two samples taken on Sept. 22 show levels below the 70 structures per millimeter squared that is EPA's standard for allowing re-entry into schools after asbestos removal activities.

**Air: Staten Island Landfill**

**Particulate Matter** - EPA took air dust samples at the landfill on Sept. 23 and 26. The results show decreasing levels in particulate matter between these sampling dates, as well as from previous monitoring results. The Staten Island Landfill receives the debris from the World Trade Center collapse.

On 9/24 and 9/25 no air samples were taken from the landfill or New York City, due to rainfall, which prevents accurate sample readings.

**Carbon Monoxide (CO)**- Direct readings of Carbon Monoxide have been taken around the ground zero area by EPA. The results have been well below the level of concern established by OSHA, which is 50 Parts Per Million (PPM). However, the personal monitors worn by the rescue workers inside ground zero have had readings above the OSHA levels. These monitors are set to warn workers when the OSHA levels are exceeded, in order to prevent injury. As a precaution FEMA is reportedly bringing in a medical team to handle any potential health complaints.

**Sandy Hook Beach Wash-Ups:**

On Sept. 20, EPA took samples of grease balls that had washed up on the beaches in Sandy Hook, New Jersey. Analysis showed contents of 48% oil, along with calcium, iron and magnesium. There were also high readings for fecal content. We have confirmed that there were sewage bypasses and releases from the 26<sup>th</sup> Ward Treatment Plant in Jamaica Bay on 9/13 and 14. The material found in Sandy Hook, NJ may also have come from the combined sewage overflows caused by the rains of 9/13. EPA can't definitively state the source of the greasballs on Sandy Hook. Also, we have not established a link between this material and the World Trade Center disaster site. We are monitoring this situation with the National Park Service at Sandy Hook and have not received any new reports of grease balls in the area.

U.S. Environmental Protection Agency  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Thursday, September 27, 2001 (12:00 pm)

Fixed Ambient Air Sampling Locations (Asbestos)

- NJ (Sept 23, 11:30AM - 9:30PM / Sept 24, 1100AM - 9:00PM)
  - All samples for both days had less than detectable levels for both PCM and TEM standards.

Landfill Air Sampling locations

- Fresh Kills (Sept 23 / Sept 26, 9AM - 8PM) - Particulate Monitoring
  - Average concentrations on both days appear to have decreased from previous day.
  - No data collected on Sept 24-25 due to weather conditions.

Direct Reading Instruments

- NYC (Sept 26)
  - Increase in carbon monoxide levels from previous day. Otherwise nothing else of significance to note.

**FILE**

NYC Emergency Response  
 Asbestos Air Sampling Results NYC ER/NJ DEP  
 Sampling Date and Time: 09/23/01 11:30 AM to 9:30 PM

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400 f/mm <sup>2</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	<5µ S (#)	>5µ S (#)	TEM (AHERA) S/mm <sup>2</sup>	S-f/cc*
9/23/01	01946	Liberty Park	480	Air	<7.0	<0.006	0/7	<0.006	0	0	<8.0	<0.0064
9/23/01	01947	CITGO Terminal	480	Air	<7.0	<0.006	0/1	<0.006	0	0	<8.0	<0.0064
9/23/01	01948	FMC Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<8.0	<0.0064
9/23/01	01949	Shell Terminal	480	Air	<7.0	<0.006	0/2	<0.006	0	0	<8.0	<0.0064

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location

- A: Liberty Park
- B: CITGO Terminal
- C: FMC Terminal
- D: Shell Terminal

Sampling Times

- 11:20 (9/23/01)-19:20 (9/23/01)
- 12:15 (9/23/01)-20:15 (9/23/01)
- 13:05 (9/23/01)-21:05 (9/23/01)
- 13:25 (9/23/01)-21:25 (9/23/01)

**FILE**



NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/min <sup>2</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	<5µ	>5µ	S/mm <sup>2</sup>	S-f/cc <sup>a</sup>
9/24/01	01951	Liberty Park	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<6.15	<0.0049
9/24/01	01952	CITGO Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<6.15	<0.0049
9/24/01	01953	FMC Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<6.15	<0.0049
9/24/01	01954	Shell Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<6.15	<0.0049

cc:er/nj

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 \*Structure (S) roughly equivalent to Fiber (f)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

**Sampling Location**  
 Liberty Park  
 CITGO Terminal  
 FMC Terminal  
 Shell Terminal

**Sampling Times**  
 1110 (9/24/01)-1910 (9/24/01)  
 1200 (9/24/01)-2000 (9/24/01)  
 1230 (9/24/01)-2030 (9/24/01)  
 1302 (9/24/01)-2102 (9/24/01)

ERT: 09/27/01 9:50 AM

**FILE**

**Daily DataRam Particulate Monitoring Summary Sheet**  
**Fresh Kills Landfill**  
**September 23, 2001**

Weather Info: No Weather data provided.

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	MingConc ug/m3	AvgConc ug/m3	MaxConc ug/m3
1	-74.199795	40.566119	2224	1	42	10:30:00	10	00:15:00	100	0.0	3.2	30.5	203.1
2	-74.198262	40.566883	2226	1	46	11:30:00	10	00:15:00	100	0.0	0.0	26.0	382.9
3	-74.198665	40.570054											
4	-74.201180	40.569790	2381	1	47	11:45:00	10	00:15:00	100	0.0	6.5	30.4	348.1
5	-74.205873	40.568892	2483	1	47	11:45:00	10	00:15:00	100	0.0	0.0	38.2	477.9
6	-74.207406	40.563818	2012	1	45	11:15:00	10	00:15:00	100	0.0	0.0	35.1	560.2
7	-74.205414	40.560414	2084	1	45	11:15:00	10	00:15:00	100	0.0	0.0	37.4	322.8
8	-74.203019	40.561915	2152	1	44	11:00:00	10	00:15:00	100	0.0	0.0	34.2	390.6
9a	-74.201433	40.564822											
9b	-74.201433	40.564822											
10	-74.205414	40.562898											

**FILE**

**Daily DataRam Particulate Monitoring Summary Sheet**  
**Fresh Kills Landfill**  
**September 26, 2001**

Weather Info: Wind direction averaged approximately 270 degrees. No DataRam Data is being collected at night due to prevailing weather conditions..

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	MingConc ug/m3	AvgConc ug/m3	MaxConc ug/m3
1	-74.199795	40.565139	2226	1	44	11:00:00	10	00:15:00	100	0.0	2.9	22.7	159.5
2	-74.198262	40.56883	2480	1	41	10:15:00	10	00:15:00	100	0.0	0.0	16.9	634.0
3	-74.198685	40.570954											
4	-74.201380	40.569790	2012	1	41	10:15:00		00:15:00	100	0.0	0.0	4.5	337.9
5	-74.205873	40.568892	2224	1	39	09:45:00	10	00:15:00	100	0.0	0.0	8.3	84.0
6	-74.207406	40.563818	2012	1	39	09:45:00	10	00:15:00	100	0.0	4.2	10.7	71.7
7	-74.205414	40.560434	2481	1	42	10:30:00	10	00:15:00	100	0.0	0.0	11.5	198.9
8	-74.203019	40.561915	2363	1	44	11:00:00	10	00:15:00	100	0.0	0.0	12.7	103.6

**FILE**

WIND direction = NW

Location	Date	Time	Tape Meters				Electrochemical Cell 4407								Cannonball			
			004050 010076		HCN		H2S	VOC	LEL	O2	CO	R22	CH4	NOx	SO2			
			HI	CI	COCL2	HCN										ppmv	ppmv	ppmv
<del>C</del>																		
A	9/26/01	10:30	ND(0.5)	ND(11)	ND(1.1)	ND	ND	ND	ND	20.8	0.9	1						0.2
B	9/26/01	09:55	ND	ND	ND	ND	ND	ND	ND	20.7	1.7	1						0.1
C	9/26/01	09:52	ND	ND	ND	ND	ND	ND	ND	20.7	4.0	1						0.1
H	9/26/01	10:45	ND	ND	ND	ND	ND	ND	ND	20.7	0.9	1						0.1
I	9/26/01	09:35	ND	ND	ND	ND	ND	ND	ND	20.6	0.9	1						0.1
D	9/26/01	09:30	ND	ND	ND	ND	ND	ND	ND	20.6	0.7	ND						ND
K	9/26/01	09:28	ND	ND	ND	ND	ND	ND	ND	20.6	0.7	ND						0.1
E	9/26/01	09:13	ND	ND	ND	ND	ND	ND	ND	20.7	0.7	ND						0.9
F	9/26/01	10:23	ND	ND	ND	ND	ND	ND	ND	20.8	0.5	ND						0.2
J	9/26/01	10:35	ND	ND	ND	ND	ND	ND	ND	1.8	1.0	2						0.1
N	9/26/01	10:43	ND	ND	ND	ND	ND	ND	ND	20.9	1.2	2						0.2
L	9/26/01	10:52	ND	ND	ND	ND	ND	ND	ND	20.9	0.8	2						0.2
M	9/26/01	10:48	ND	ND	ND	ND	ND	ND	ND	20.8	0.7	2						0.1
P	9/26/01	09:19	ND	ND	ND	ND	ND	ND	ND	20.6	3.7	ND						0.1
#1	9/26/01	10:14	ND	ND	ND	ND	ND	ND	ND	20.8	1.4	1						0.2
#2	9/26/01	09:58	ND	ND	ND	ND	ND	ND	ND	20.7	0.4	1						ND
S	9/26/01	09:23	ND	ND	ND	ND	ND	ND	ND	20.6	1.4	ND						0.1
#3	9/26/01		ND	ND	ND	ND	ND	ND	ND	2.8	1.6	1						0.1
Q	9/26/01	10:27	ND(0.5)	ND(1)	ND(1.1)	ND	ND	ND	ND	20.8	2.0	1						0.2

ND = Not detected, detection limits in parentheses (.)

FILE

Location	Date	Time	Tape Meters				Electrochemical Cell 4407							PHID		Cannonball	
			HCl ppbv	COCL2 ppbv	HCN ppbv	004050 ppbv	H2S ppm	VOC ppm	LEL %	O2 %	CO ppm	SO2 ppm	NO ppm	731219			
BL	9-26-01	1410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
A	9-26-01	1520	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	9-26-01	1500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C	9-26-01	1455	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	9-26-01	1448	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	9-26-01	1449	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	9-26-01	1440	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	9-26-01	1430	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	9-26-01	8:15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	9-26-01	1535	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J	9-26-01	1559	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	9-26-01	1600	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	9-26-01	1405	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	9-26-01	1430	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2	9-26-01	1505	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	9-26-01	1510	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q	9-26-01	1530	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1	9-26-01	1550	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
W	9-26-01	1605	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

HCl  
B AT

NI

1.3

15

FILE

4

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Friday, September 28, 2001**

**Most Recent Results (as of 1:00 p.m. 9/28):**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 52 samples taken in and around the ground zero area from the evening of September 25<sup>th</sup> to the morning of September 27<sup>th</sup>. All samples showed levels below the 70 structures per millimeter squared, which is EPA's standard for allowing re-entry into schools after asbestos removal activities. EPA analyzed 4 samples for asbestos taken in New Jersey on Sept. 25 and 26th. All of those samples showed levels below the 70 structures per millimeter squared standard.

**Dust Samples**

**Asbestos** - 13 dust samples were taken on Sept. 25 at various sites in lower Manhattan. Of 10 taken on the streets 4 showed no readings for asbestos-containing material and 6 had less than 1% asbestos. 2 samples were taken from inside the EPA and Coast Guard trailers, 1 from 110 Greenwich St.: all showed no readings for asbestos-containing material.

**Ambient Air Non-fixed Monitors:**

**PCBs** - EPA took 4 samples on 9/16. All samples were well below the EPA Guideline level of concern.

**Inorganic Acids** - 4 samples were taken on 9/16 and all samples were well below the occupational NIOSH guideline level of concern.

**Volatile Organic Compounds** - 6 samples were taken on 9/16 in and around ground zero area. All samples, except one taken at ground level near the South Tower, were below the NIOSH occupational standards. The one sample taken at ground level showed a benzene level above the OSHA standard.

**Ambient Water Sampling** - Samples were taken in the Hudson and East Rivers on 9/26. All samples had results of no detection for PCBs and PAHs, and were below the level of concern for metals.

U.S. Environmental Protection Agency  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Friday, September 28, 2001 (12:00 pm)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Sept 25, 2:00PM - 7:00PM)
  - 5 of 17 samples were at or above the PCM standard. No samples were above the TEM standard.
  - Note: Sampling times were reduced since a demolition event was scheduled.
- NYC / ER (Sept 26, 12:00AM - 12:00PM)
  - 6 of 17 samples were above the PCM standard. No samples were above the TEM standard.
- NYC / ER (Sept 27, 12:00AM - 12:00PM)
  - All 18 samples were below both the PCM and TEM standard.
- NJ (Sept 25, 11:30AM - 2:00PM - 7:00PM)
  - All 4 samples were below both the PCM and TEM standard.

NYC Bulk/Dust Samples

- NYC / ER - Asbestos (Sept 25) - street intersections
  - All 10 samples were either nondetect or less than 1%.
- NYC / ER - Asbestos (Sept 25) - EPA/Coast Guard trailers
  - Asbestos was not detected in the 2 samples collected indoors.
- 1. NYC / ER - Asbestos (Sept 25) - 110 Greenwich Street
  - a. Asbestos was not detected in the one sample collected indoors.

Ambient Air Sampling Locations (PCBs)

- NYC / ER (Sept 16)
  - Trace amounts detected in 2 of 4 samples at concentrations well below levels of concern.

Ambient Air Sampling Locations (inorganic acids)

- NYC / ER (Sept 16)
  - All results either nondetect or below occupational standards.

**FILE**

Ambient Air Sampling Locations (TAGA - volatile organics)

- NYC / ER (Sept 26)
  - Benzene exceeded OSHA TWA PEL (0.5 ppm) at one location in the plume at ground level (command center). All other results below occupational standards.

NYC Ambient Water Sampling Locations

- NYC / ER (Sept 25)
  - PCBs and PAHs reported as not detected. Metal concentrations below levels of concern.

**FILE**



NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 09/25/01 1400 to 1900

Sampling Date	Sample No.	Sample Location	Sample Volume	Matrix	PCMB by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		
					f/ft <sup>3</sup>	f/cc	Adjusted TEM f/cc	Structures (#)	S/mm <sup>2</sup>	S-ft/cc	
9/25/01	00950	A	300	Air	43.11	0.056	0.011	0	0	<8.00	<0.0103
9/25/01	00949	B	300	Air	<7.0	<0.009	0.02	0	0	<8.00	<0.0103
9/25/01	00948	C-1	300	Air	10.19	0.013	0.06	0	0	<8.00	<0.0103
9/25/01	00945	D	300	Air	<7.0	<0.009	0.00	0	0	<8.00	<0.0103
9/25/01	00944	E	300	Air	16.56	0.021	0.00	0	0	<8.00	<0.0103
9/25/01	00951	F	300	Air	<7.0	<0.009	0.06	0	0	<8.00	<0.0103
9/25/01	00947	H	300	Air	<7.0	<0.009	0.00	0	0	<8.00	<0.0103
9/25/01	00946	I	300	Air	<7.0	<0.009	0.01	0	0	<8.00	<0.0103
9/25/01	00953	J	300	Air	<7.0	<0.009	0.10	0	0	<8.00	<0.0103
9/25/01	00944	K	300	Air	7.64	0.010	0.02	0	0	<8.00	<0.0103
9/25/01	00957	L	300	Air	<7.0	<0.009	0.01	0	0	<8.00	<0.0103
9/25/01	00954	N	300	Air	<7.0	<0.009	0.00	0	0	<8.00	<0.0103
9/25/01	00955	M	300	Air	<7.0	<0.009	0.00	0	0	<8.00	<0.0103
9/25/01	00942	P	300	Air	<7.0	<0.009	0.00	0	0	<8.00	<0.0103
9/25/01	00952	Q	300	Air	7.64	0.010	0.04	0	0	<8.00	<0.0103
9/25/01	00943	S	300	Air	<7.0	<0.009	0.00	0	0	<8.00	<0.0103

00943-0124

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St
- C-1: SW corner of Broadway & Liberty St
- D: East end of Albany St, at Greenwich St
- E: Western end of Liberty St, at South End Ave
- F: Northern median strip of Vesey & West St
- H: South side of Chase Manhattan Plaza at Pine St
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Slyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- S: Rector & South End

NS: Not sampled

AF/ANF: Asbestos fibers/shn asbestos fibers

Sample volume is below recommended limit of the method:

\*Structure (S) Roughly equivalent to Fiber (F)

NA: not analyzed due to overloading of particulates

ERT: 09/29/01 9:50 AM

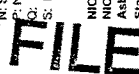
NIOSH 7400: Filter Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94

NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)

Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-09-25-01.xls



NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 09/26/01 0000 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		
					f/m <sup>3</sup>	/cc	Adjusted TEM /cc	Structures (#)	S /f/cc*		
9/26/01	00970	A	720	Air	21.66	0.012	0/4	<0.004	0	<8.89	<0.0048
9/26/01	00969	B	720	Air	26.03	0.015	0/2	<0.004	0	8.89	0.0048
9/26/01	00968	C,1	720	Air	30.57	0.016	0/1	<0.004	0	<8.89	<0.0048
9/26/01	00965	D	720	Air	17.83	0.009	2/4	<0.004	0	8.89	0.0048
9/26/01	00961	E	720	Air	39.49	0.021	0/5	<0.004	1	8.89	0.0048
9/26/01	00971	F	720	Air	14.01	0.007	0/2	<0.004	0	<8.89	<0.0048
9/26/01	00967	H	720	Air	15.29	0.008	0/3	<0.004	1	8.89	0.0048
9/26/01	00966	I	720	Air	21.66	0.012	2/4	<0.004	0	<8.89	<0.0048
9/26/01	00973	J	720	Air	8.92	0.005	0/0	<0.004	0	8.89	0.0048
9/26/01	00964	K	720	Air	10.83	0.006	0/0	<0.004	0	<8.89	<0.0048
9/26/01	00974	L Dup	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.89	<0.0048
9/26/01	00975	L	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.89	<0.0048
9/26/01	00976	N	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.89	<0.0048
9/26/01	00977	M	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.89	<0.0048
9/26/01	00962	P	720	Air	29.3	0.016	1/2	<0.004	0	8.89	0.0048
9/26/01	00972	Q	720	Air	<7.0	<0.004	0/1	<0.004	0	<8.89	<0.0048
9/26/01	00963	S	720	Air	7.64	0.004	0/2	<0.004	1	8.89	0.0048

code 04033

Sampling Locations:

- A: NE corner of West Broadway & Barclay Street
- B: SE corner of Church & Dey St.
- C,1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St.
- G: SE corner of Wall St. at Broadway
- H: NE corner of Warren & West St.
- I: On walkway (and North Plaz) bus area (north side of Stuyvesant High), access to TAGA bus area
- J: Western end of Harrison St. at West St. (on tree next to bullhead)
- K: South side of Pier 25 (next to volleyball court)
- L: NE corner of South End Ave. & Albany
- M: Barclay & West St. (center island) in proximity to USCS command post
- N: Reclor & South End

NS: Not sampled

- AF/ANF: Asbestos fibers/Non asbestos fibers
- Sample volume is below recommended limit of the method:
- Structure (S) roughly equivalent to Fiber (F)
- Nk: not analyzed due to overloading of particulates

FILE

ERT: 9/27/01 2:00pm

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

WYC Response  
Asbestos Air Sampling Results at Field Locations  
Sampling Date and Time: 09/27/01 0909 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)	
					f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#)	S-f/cc	
9/27/01	02640	A	720	Air	<0.004	0/1	<0.004	0	<0.0043	
9/27/01	02639	B	720	Air	0.005	0/0	<0.004	0	<0.0043	
9/27/01	02638	C1	720	Air	<0.004	0/1	<0.004	0	<0.0043	
9/27/01	02637	D	720	Air	<0.004	0/2	<0.004	0	0.0043	
9/27/01	02641	E	720	Air	<0.004	0/1	<0.004	1	0.0043	
9/27/01	02637	F	720	Air	<0.004	0/1	<0.004	1	0.0043	
9/27/01	02637	H	720	Air	<0.004	0/1	<0.004	0	<0.0043	
9/27/01	02636	I	720	Air	<0.004	0/0	<0.004	0	<0.0043	
9/27/01	02643	J	720	Air	<0.004	0/0	<0.004	0	<0.0043	
9/27/01	02647	K	720	Air	<0.004	0/0	<0.004	0	<0.0043	
9/27/01	02648	L DUP	720	Air	<0.004	0/0	<0.004	0	<0.0043	
9/27/01	02645	M	720	Air	<0.004	0/0	<0.004	0	<0.0043	
9/27/01	02644	N DUP	720	Air	<0.004	0/0	<0.004	0	<0.0043	
9/27/01	02646	P	720	Air	<0.004	0/0	<0.004	0	<0.0043	
9/27/01	02632	R	720	Air	14.65	0/5	<0.004	2	0.0043	
9/27/01	02642	S	720	Air	<0.004	0/3	<0.004	0	<0.0043	
9/27/01	02633	S	720	Air	<0.004	0/1	<0.004	0	<0.0043	

code 04172

Sampling Locations:

- A: Corner West Broadway & Barclay
- B: SE corner of Church & Duane
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & W F DUP
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: Corner of West Broadway & Duane
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec. area (north side of Slyvesant High), access to TAGA bus area
- M: Western end of Hanfison St. at West St. (on tree next to volleyball court)
- N: South side of Pier 25 (next to volleyball court)
- O: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCOG command post
- R: TAGA Bus Location
- S: Rector & South End

NS: Not sampled

- A: Asbestos fiber/ft on asbestos fiber
- S: Sample below detection limit of the method.
- \*Structure (S) Roughly equivalent to Fiber (F)
- NA: not analyzed due to overloading of particulates

\*\* Amosite/Cyrrsollite/Total

ERT: 09/28/01 9:50 AM



NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 5/imm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM ( AHERA)				
					f/cc	f/mm <sup>2</sup>	A/NAF	Adjusted TEM f/cc	<5µ	>5µ	S/mm <sup>2</sup>	S (f)	S-f/cc*
9/25/01	02071	Liberty Park	480	Air	<7.0	<7.0	0.0	<0.006	0	0	0	<6.15	<0.0049
9/25/01	02072	CITGO Terminal	480	Air	<7.0	<7.0	0.2	<0.006	0	0	0	<6.15	<0.0049
9/25/01	02073	FMC Terminal	480	Air	<7.0	<7.0	0.71	<0.006	0	0	0	<6.15	<0.0049
9/25/01	02074	Shell Terminal	480	Air	<7.0	<7.0	0.2	<0.006	0	0	0	<6.15	<0.0049

COE00976

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

**Sampling Location**  
Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

**Sampling Times**  
1100 (9/25/01)-1015 (9/26/01)  
1300 (9/25/01)-1057 (9/26/01)  
1205 (9/25/01)-1136 (9/26/01)  
1145 (9/25/01)-1209 (9/26/01)

ERT: 09/28/01 9.50 AM

**FILE**

DEP-09-25-01.xls

NYC Response  
Asbestos Bulk Sample Analysis Results

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/25/01	06157	West & Vesey	Solid	0.50%	
9/25/01	06158	Vesey & Washington	Solid	ND	
9/25/01	06159	W. Broadway & Barday	Solid	ND	
9/25/01	06160	Fulton & Church	Solid	0.75%	
9/25/01	06161	Liberty & Trinity	Solid	0.75%	
9/25/01	06162	Greenwich & Albany	Solid	ND	
9/25/01	06163	Greenwich & Liberty	Solid	0.25%	
9/25/01	06164	Washington & Albany	Solid	0.25%	
9/25/01	06165	West & Albany	Solid	ND	
9/25/01	06166	Liberty & West	Solid	0.25%	

PLM Polarized Light Microscope by Method NY State ELAP 198.1  
ND: Not Detected

COC 04207

ERT:9:50 AM 9/29/01

FILE

NYC Response  
Asbestos Bulk Sample Analysis Results

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/25/01	EPA Floor 9-25	EPA Trailer	Bulk	ND	
9/25/01	CG Floor 9-25	CG Trailer	Bulk	ND	

PLM: Polarized Light Microscope by Method NY State ELAP 198.1  
ND: Not Detected

COC 04123

ERT: 9/28/01 9:50am

FILE

NYC Response  
Asbestos Bulk Sample Analysis Results

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/26/01	03676	110 Greenwich (Indocore)	Bulk	ND	
PLM: Polarized Light Microscope by Method NY State ELAP 198 1					
ND: Not Detected					

COC 04208

ERT: 9/26/01 9:50am

FILE

Table 1.1 Results of the Analysis for Total PCBs in Air by 680  
WA # NYCER

Sample ID	01205	01204	01176	01182	01186	01194
Location	Lot Blank	Field Blank	DEY and CHURCH	LIBERTY and TRINITY	GREENWICH and ALBANY	VESEY and WEST
Matrix	Air	Air	Air	Air	Air	Air
Volume (L)	0	0	2640	3299	2158	903
Analyte	Result	Result	Result	Result	Result	Result
	ng	ng	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
	MDL	MDL	MDL	MDL	MDL	MDL
	ng	ng	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
209-DiCB	U	U	U	U	U	U
Sum of MoCBs	5.00	5.00	1.9	1.5	2.3	5.5
Sum of DiCBs	U	U	U	U	U	U
Sum of TriCBs	U	U	U	U	U	U
Sum of TeCBs	U	U	5.04	6.34	U	U
Sum of PeCBs	U	U	U	U	U	U
Sum of HxCBs	U	U	U	U	U	U
Sum of HpCBs	U	U	1.94	U	U	U
Sum of HxCBs	U	U	U	U	U	U
Sum of HpCBs	U	U	U	1.77	U	U
Sum of OcCBs	U	U	U	U	U	U
Sum of NoCBs	U	U	U	U	U	U
Total	0	0	6.98	8.11	0	0

FILE



Table 1 Results of the Analysis for  
WA # 0-236 WTC Response

Sample Number	01172	01178	01187	01190		
Location	Day & church	Liberty & Trinity	Greenwich & Albany	Vessey & West		
Date Sampled	9/16/01	9/16/01	9/16/01	9/16/01		
Volume (L)	96	96	96	96		
Compound	Result mg/m <sup>3</sup>	MDL mg/m <sup>3</sup>	Result mg/m <sup>3</sup>	MDL mg/m <sup>3</sup>	Result mg/m <sup>3</sup>	MDL mg/m <sup>3</sup>
Hydrogen Fluoride	U	0.0026	U	0.0026	U	0.0026
Hydrogen Chloride	0.056	0.013	0.06	0.013	0.047	0.013
Hydrogen Bromide	U	0.0053	U	0.0053	U	0.0053
Nitric Acid	0.034	0.0053	0.036	0.0053	U	0.0053
Phosphoric Acid	U	0.013	U	0.013	U	0.013
Sulfuric Acid	U	0.013	0.26	0.013	U	0.013

Note: Samples were subtracted by the average of the lot blank & field blank results  
Analyzed by NIOSH Method #7903, Ion Chromatography

FILE





DRAFT GCMS Results for 09/26/01 DRAFT

File name	NYC134	NYC135	NYC136	NYC137	NYC138	NYC139	NYC140
Sample Location	Method Bk	North Park Pier	Austin Tobin Plaza	West & Liberty	Liberty & Greenwich	South Tower in Plume Area	Church St Command
Sample Number	02521	02521	02524	02522	02523	02525	02526
Sample Height	Breathing	Breathing	Breathing	Breathing	Breathing	Ground	Ground
Volume	500	100	100	100	100	100	100
Ethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	400 ppb
m&p-Xylenes	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	100 ppb
o-Xylene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	130 ppb
Styrene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	21 ppb	250 ppb
Bromoform	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2,2-Tetrachloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
4-Ethyltoluene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	72 ppb
1,3,5-Trimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	72 ppb
1,2,4-Trimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	37 ppb
1,3-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,4-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Benzyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	26 ppb
1,2,4-Trichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Hexachloro-1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb

RL=Reporting Limit (20 ppb)

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September 27, 2001 (3:50pm)

Preliminary Results  
PCBs, PAHs, Metals, TSS

New York City/ World Trade Center Sampling Activities  
Repeat Ambient Sampling (2)

Preliminary Results Summary

PCB congeners (DL 0.0057 ug/L) and PAHs (DLs  $\leq$  1.0 ug/L) were reported as not detected by the EPA Region 2 Lab.

Metals concentrations were below levels of concern, and generally decrease between the Hudson River background location and the Hudson River WTC sampling locations, likely due to dilution. TSS was slightly elevated in the East River sample relative to the Hudson River samples.

**EPA Personnel:** Ambient Sampling - Randy Braun, Helen Grebe, Thuan Tran, Darven Adams

**Sampling Date:** September 25, 2001  
**Sampling Time:** 1020 - 1230 hours (10:20 AM - 12:30PM) Rain of about ½ inch between 0000 hours and 0600 hours (12:00 AM - 6:00 AM)  
**Location:** Hudson River and East River  
**Sample Matrix:** Water

**Analytes , Laboratory, and Expected Turn-Around:**  
*Region 2 Edison* - Metals, TSS, PAHs, PCB congeners  
*NYS DEC Contractor (AxyS)* - PCB congeners, PAHs, Dioxins/Furans  
*Asbestos Contract* (Raj Singhvi coordinating)

**Runoff Sampling:** No runoff or CSO overflow was observed, therefore no samples collected.

**Ambient Sampling:** Ambient samples were collected from five (5) locations previously sampled on 09/20/01. The locations in the Hudson River are directly west of Ground Zero, north of Ground Zero, south of Ground Zero. A reference (background) sample was collected from the Hudson River near the George Washington Bridge. A sample was collected in the East River east of South Street Seaport. The EPA Clean Waters supported the sampling.

HR-Background	40 50.210 N 073 57.384 W
HR-North WTC	40 43.427 N 074 01.272 W
HR-West WTC	40 42.903 N 074 01.332 W

FILE

HR-South WTC 40 42.133 N 074 01.417 W  
ER-South St. 40 42.210 N 074 00.071 W

**Preliminary Results:**

**PCB Congeners:** PCB congeners were analyzed by the EPA Region 2 laboratory. There were no reported detections of PCBs in any sample at a detection limit of 0.0057 ug/L.

**PAHs:** PAHs were analyzed by the Region 2 Laboratory. There were no reported detections at a detection limit of  $\leq 1$  ug/L.

**Metals:** Metals were analyzed in the Region II laboratory. Concentrations in all samples were of the same magnitude and similar concentration to those reported in the first ambient sampling conducted on 09/20/01. No metals were detected at levels of concern. The results show no discernable impact on ambient water quality from the WTC disaster.

**TSS:** TSS in the Hudson River samples ranged 14 - 15 mg/L for the background and WTC area Hudson River samples, and 19 mg/L for the East River sample. Results are similar to those reported in the 09/20/01 samples.

**FILE**

Wind direction = NW

Location	Date	Time	Tape Meters			Electrochemical Cell 4407										PHB Analyte		Cannonball 731219			
			HI ppmv	CO ppbv	HCN ppbvw	H2S ppm	VOC ppm	LEL %	O2 %	CO ppm	E22 ppmv	CH4 ppmv	NO ppm	SO2 ppm	E22 ppmv	CH4 ppmv					
																	004050 ppmv	010076 ppbv	010076 ppbvw		
<del>X</del>																					
A	9/26/01	10:30	ND(0.5)	ND(11)	ND(1.1)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2	
B	9/26/01	09:55	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1
C	9/26/01	09:52	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1
H	9/26/01	09:45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1
I	9/26/01	09:35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1
D	9/26/01	09:30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	9/26/01	09:28	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	9/26/01	09:13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1
F	9/26/01	10:23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.9
J	9/26/01	10:35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
N	9/26/01	10:43	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1
L	9/26/01	10:52	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
M	9/26/01	10:48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
P	9/26/01	09:19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1
#1	9/26/01	10:14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1
#2	9/26/01	09:58	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
S	9/26/01	09:23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
#3	9/26/01		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1
Q	9/26/01	10:27	ND(0.5)	ND(11)	ND(1.1)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2

ND = not detected, detection limits in green above ( ).

Location	Date	Time	Tape Meters				Electrochemical Cell							PHD		Cannonball		
			HCl ppbv	COCL2 ppbv	HCN ppbv	010076	H2S ppm	VOC ppm	LEL %	O2 %	CO ppm	R <sub>20</sub> CH	NO ppm	SO2 ppm	731219	NO ppm	SO2 ppm	
GL	9-26-01	1410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
A	9-26-01	1520	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	9-26-01	1500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C	9-26-01	1455	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	9-26-01	1448	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	9-26-01	1444	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	9-26-01	1440	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	9-26-01	1430	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	9-26-01	8:15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	9-26-01	1535	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J	9-26-01	1559	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	9-26-01	1600	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	9-26-01	1405	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	9-26-01	1430	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2	9-26-01	1505	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	9-26-01	1516	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q	9-26-01	1530	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1	9-26-01	1550	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
W	9-26-01	1605	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

15

4

HCl BAT  
NI  
1



**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Saturday, September 29, 2001**

**Most Recent Results (as of 6:00 p.m. 9/29):**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 36 samples taken in and around the ground zero area and in New Jersey from September 26 to September 28. Four samples taken on Sept. 26 within the area around the World Trade Center restricted to the general public showed levels above the 70 structures per millimeter squared, which is EPA's standard for allowing children to re-enter schools after asbestos removal activities. The location and results for these four samples were: East end of Albany St. at Greenwich St. (163 structures), Vesey and West St. (118 structures), West St. and Albany St. (296 structures), Barclay and West St. (74 structures).

All of the other 32 samples were below the school re-entry standard.

This brings the total number of samples collected and analyzed to 357.

**Staten Island Landfill (Asbestos)**

**Air** - 33 air samples were taken from Sept. 26 to Sept. 27. All test results showed levels below EPA's standard used for allowing re-entry into schools.

**Dust** - Eight dust samples taken on Sept. 28 were analyzed for asbestos. All showed no detection of asbestos. Debris from the World Trade Center disaster site is currently being stored at this landfill.

**Ambient Water Sampling** - Seven water samples taken from the Hudson River on Sept. 25 were analyzed for asbestos. None of the samples showed readings above the acceptable level EPA has established for asbestos in drinking water. New York City's drinking water does not come from the Hudson River. It comes from reservoirs north of the city.

U.S. Environmental Protection Agency  
Sampling Situation Report  
Saturday, September 29, 2001 ( 11:30 AM)

**FILE**

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Sept.26, 12:00 noon to 12:00 midnight)

All 16 samples (including 1 duplicate) were below the OSHA PCM standard and were also below the NYC reentry standard. However confirmatory TEM analysis showed that 4 of these 16 samples were above the AHERA standard (70S/mm<sup>3</sup>). (Note: Sample volumes collected were lower than the recommended volumes but were adjusted to determine if they exceeded established standards.)

The four samples exceeding the AHERA standard had results of 163 s/mm<sup>2</sup>, 118 s/mm<sup>2</sup>, 296 s/mm<sup>2</sup>, and 74 s/mm<sup>2</sup> and corresponded to locations **D** (East End of Albany Street at Greenwich Street), **F** (Northern media strip of Vesey and West Street), **K** (West Street and Albany Street in median strip) and **Q** (Barclay and West Street (center island), respectively. All these samples are within the immediately impacted area.

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Sept.28, 12:00 midnight - 12:00 noon)

All 17 samples (including 1 duplicate) were below the OSHA PCM standard and were also below the NYC reentry standard. No samples exceeded the AHERA standard of 70S/mm<sup>3</sup>.

New Jersey

Sept 26 - all 4 samples were below the established standards.

NYC Bulk/Dust Samples (Landfill)

Eight samples taken on Sept. 28 at the landfill were non-detect for asbestos.

Landfill Air Sampling locations (Asbestos)

11 air samples taken on Sept. 26 (8:00 AM - 6:00 PM) were below the established standards for all the methods analyzed.

11 air samples taken on Sept. 27 (7:30 AM - 6:30 PM) were below the established standards for all the methods analyzed.

11 air samples taken on Sept. 26-27 (6:30 PM on Sept. 26 - 7:30 AM on Sept. 27) were below the established standards for all the methods analyzed.

Direct Reading Instruments

Nothing of significance identified.

NYC Ambient Water Sampling

The seven water samples taken on Sept.25 showed no levels above the established Drinking Water MCL for asbestos of 7 MFL (million of fibers per liter).

FILE

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 09/26/01 1200 to 0000

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)	
					f/cc	AF/ANAF	Adjusted TEM f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
9/26/01	2533	A	720	Air	31.65	0/26	<0.004	0	<8.89	<0.0048
9/26/01	2534	B	720	Air	48.41	1/13	<0.004	1	8.89	0.0048
9/26/01	2535	C-1	720	Air	17.83	0/2	<0.004	1	8.89	0.0048
9/26/01	1512	D	720	Air	33.12	0/18	<0.004	10	97.78	0.0523
9/26/01	1513	E	720	Air	20.38	0/11	<0.004	2	17.78	0.0095
9/26/01	2536	F	720	Air	33.12	2/16	<0.004	7	71.11	0.0380
9/26/01	2537	H	720	Air	29.3	0/4	<0.004	2	17.78	0.0095
9/26/01	2538	I	720	Air	26.75	0/4	<0.004	1	8.89	0.0048
9/26/01	2539	J	720	Air	24.2	0/13	<0.004	0	<8.89	<0.0048
9/26/01	2540	J Dnp	720	Air	22.29	0/6	<0.004	1	8.89	0.0048
9/26/01	2541	K	720	Air	28.95	0/15	<0.004	19	177.78	0.0981
9/26/01	NS	L	720	Air		0/4	<0.004	0	<8.89	<0.0048
9/26/01	1514	M	720	Air	<7.0	0/4	<0.004	0	<8.89	<0.0048
9/26/01	2542	N	720	Air	<7.0	0/4	<0.004	0	<8.89	<0.0048
9/26/01	2543	O	720	Air	21.3	0/12	<0.004	4	44.44	0.0238
9/26/01	1514	P	720	Air	29.3	0/13	<0.004	4	44.44	0.0238
9/26/01	1511	S	720	Air	6.92	0/9	<0.004	0	<8.89	<0.0048

Sampling Locations:

- A: NE corner of West Broadway & Barclay Street
- B: SE corner of Church & Dey St.
- C-1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on free next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- O: Barclay & West St. (center island) in proximity to USCG command post
- S: Rector & South End

NS: Not sampled  
AF/ANAF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) Roughly equivalent to Fiber (F)  
NA: not analyzed due to overloading of particulates

ERT: 9/29/01 09:50am

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
NIOSH 7402: Asbestos Analysis by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA), 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-05-26-01a.xls

FILE

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 09/26/01 0800 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					fmm <sup>2</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#)	Stmm <sup>2</sup>	S-f/cc	
9/26/01	02652	A	720	Air	<7.0	<0.004	0/8	<0.004	0	0	<8.00	<0.0043
9/26/01	02653	B	720	Air	<7.0	<0.004	0/0.5	<0.004	0	0	<8.00	<0.0043
9/26/01	02654	C-1	720	Air	<7.0	<0.004	0/3.5	<0.004	0	0	<8.00	<0.0043
9/26/01	02657	D	720	Air	14.85	0.009	0/10.5	<0.004	0	0	<8.00	<0.0043
9/26/01	02651	E	720	Air	<7.0	<0.004	0/4	<0.004	0	0	<8.00	<0.0043
9/26/01	02652	F	720	Air	<7.0	<0.004	0/4	<0.004	1	0	8	0.0043
9/26/01	02653	F	720	Air	8.92	0.005	0/6	<0.004	0	0	<8.00	<0.0043
9/26/01	02654	F	720	Air	10.93	0.006	0/3	<0.004	0	0	<8.00	<0.0043
9/26/01	02655	J	720	Air	7.01	<0.004	0/2.5	<0.004	0	0	<8.00	<0.0043
9/26/01	02658	K	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0043
9/26/01	02664	L	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0043
9/26/01	02665	L DUJ	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0043
9/26/01	02666	N	720	Air	<7.0	<0.004	0/4.5	<0.004	0	0	<8.00	<0.0043
9/26/01	02657	M	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0043
9/26/01	02659	P	720	Air	<7.0	<0.004	0/1	<0.004	1	0	8	0.0043
9/26/01	02653	G	720	Air	<7.0	<0.004	0/1	<0.004	1	0	8	0.0043
9/26/01	02660	S	720	Air	<7.0	<0.004	0/2	<0.004	0	0	<8.00	<0.0043

cc=0.004

\*\* Aerosol/Cylinder/ratio

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- CT: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenweh St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & Wt F DUJ
- G: South side of Church
- H: South side of Church Manhattan Plaza at Pine St.
- I: SE corner of Warren & West St.
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Slyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St (on tree next to volleyball court)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- S: TAGA Bus Location
- S: Reclin & South End

NS: Not sampled

AF/ANF: Asbestos fibers/Non asbestos fibers

Sample volume is below recommended limit of the method:

\*Structure (S) Roughly equivalent to Fiber (F)

NR: Not reported

NA: not analyzed due to overlapping of particulates

ERT: 09/29/01 9:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/1/984

NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 Stmm<sup>2</sup>, volume 1200 L, for 25 min filter (TEM)

FL-09-28-01.xls

NYC Response  
 Asbestos Bulk Sample Analysis Results  
 Sampling Date: 09/28/01

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
9/28/01	06876	LF South and Car Pile	Dust	ND	
9/28/01	06877	LF Southwest Car Pile	Dust	ND	
9/28/01	06878	LF Bulk Steel S	Dust	ND	
9/28/01	06879	LF Building 7th Ave.	Dust	ND	
9/28/01	06880	LF Building 7 W Pile	Dust	ND	
9/28/01	06881	LF WTC South Pile	Dust	ND	
9/28/01	06882	LF WTC Central Pile	Dust	ND	
9/28/01	06883	LF WTC North Pile	Dust	ND	

608#06212

PLM Polarized Light Microscope by Method NY State ELAP 198.1  
 ND: None Detected

ERT: 09/29/01 9:50 AM

FILE

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400 f/mm <sup>2</sup>	f/cc	TEM by NIOSH 7402		TEM (AHERA)			
							AF/NAF	Adjusted TEM f/cc	<5µ	>5µ	S/mm <sup>2</sup>	S-f/cc*
9/26/01	01961	Liberty Park	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<6.15	<0.0049
9/26/01	01962	CITGO Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<6.15	<0.0049
9/26/01	01963	FMC Terminal	480	Air	10.83	0.009	0/5	<0.006	0	0	<6.15	<0.0049
9/26/01	01964	Shell Terminal	480	Air	<7.0	<0.006	0/1	<0.006	0	0	<6.15	<0.0049

09/29/01

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1019 (9/26/01)-1022 (9/27/01)
CITGO Terminal	1101 (9/26/01)-1111 (9/27/01)
FMC Terminal	1139 (9/26/01)-1140 (9/27/01)
Shell Terminal	1210 (9/26/01)-1213 (9/27/01)

FILE

FILE

NYC Response  
Asbestos Air Sampling Results for Freshkill Landfill  
Sampling Date and Time: 09/26/01 0600 to 1600

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/cc	Adjusted TEM f/cc	Structures (#)	S-f/cc	f/cc	Adjusted TEM f/cc	Structures (#)	S-f/cc
9/26/01	00751	#1	709	Air	<1.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0043
9/26/01	00752	#2	655	Air	<1.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0047
9/26/01	00753	#3	648	Air	<1.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0048
9/26/01	00754	#4	648	Air	<1.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0048
9/26/01	00755	#5	643	Air	<1.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0048
9/26/01	00756	#6	645	Air	<1.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0048
9/26/01	00757	#7	642	Air	<1.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0048
9/26/01	00758	#8	641	Air	<1.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0048
9/26/01	00759	#9A	626	Air	0.92	0.005	0/2	<0.004	2	1	24	0.0148
9/26/01	00760	#9B	627	Air	7.64	0.005	0/8	<0.004	0	0	<8.00	<0.0048
9/26/01	00761	10	637	Air	10.19	0.006	0/6	<0.004	0	0	<8.00	<0.0048

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) Roughly equivalent to Fiber (F)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/1994  
NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 09/26/01 2:00 PM

FILE

NYC Response  
 Asbestos Air Sampling Results for Freshkill Landfill  
 Sampling Date and Time: 09/27/01 0730 to 1830

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/ftm <sup>3</sup>	f/cc	AF/ANF	Adjusted TEM f/cc	Structures (#)	TEM (AHERA) S/mm <sup>2</sup>	S-f/cc	
9/27/01	00541	Loc 1	628	Air	23.39	0.013	0/1	<0.004	0	0	<8.0	<0.0049
9/27/01	00542	Loc 2	650	Air	<7	<0.004	0/0	<0.004	0	0	<8.0	<0.0047
9/27/01	00543	Loc 3	650	Air	<7	<0.004	0/2.9	<0.004	0	0	<8.0	<0.0047
9/27/01	00544	Loc 4	650	Air	<7	<0.004	0/0	<0.004	0	0	<8.0	<0.0047
9/27/01	00545	Loc 5	649	Air	<7	<0.004	0/0	<0.004	0	0	<8.0	<0.0047
9/27/01	00546	Loc 6	536	Air	<7	<0.004	0/2	<0.004	0	0	<8.0	<0.0059
9/27/01	00547	Loc 7	649	Air	<7	<0.004	0/0	<0.004	1	2	24	0.0142
9/27/01	00548	Loc 8	670	Air	<7	<0.004	0/0	<0.004	2	2	32	0.0184
9/27/01	00549	Loc 9A	628	Air	26.75	0.016	0/1	<0.004	2	0	16	0.0099
9/27/01	00550	Loc 9B	623	Air	34.39	0.021	0/1	<0.004	1	0	8	0.0049
9/27/01	00553	Loc 10	651	Air	16.56	0.010	0/1	<0.004	0	0	<8.0	<0.0047

COG-04009

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) Roughly equivalent to Fiber (F)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 9/29/01 9:50am



FILE

NYC Response  
 Asbestos Air Sampling Results for Freshkill Landfill  
 Sampling Date and Time: 09/26/01 to 09/27/01 (1830 to 0730)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	AF/ANF	Adjusted TEM f/cc	Structures (#)	S- f/cc	
9/27/01	00764	#1	720	Air	<7.0	<0.004	0/3	<0.004	0	<8.89	<0.0048
9/27/01	00765	#2	720	Air	<7.0	<0.004	0/1	<0.004	0	<8.89	<0.0048
9/27/01	00766	#3	720	Air	<7.0	<0.004	0/2	<0.004	0	<8.89	<0.0048
9/27/01	00767	#4	720	Air	<7.0	<0.004	0/1	<0.004	0	<8.89	<0.0048
9/27/01	00768	#5	720	Air	<7.0	<0.004	0/1	<0.004	0	<8.89	<0.0048
9/27/01	00769	#6	700	Air	<7.0	<0.004	0/2	<0.004	0	<8.89	<0.0048
9/27/01	00770	#7	720	Air	<7.0	<0.004	0/1	<0.004	0	<8.89	<0.0048
9/27/01	02137	#8	720	Air	<7.0	<0.004	0/1	<0.004	0	<8.89	<0.0048
9/27/01	02138	#9A	240	Air	<7.0	<0.011	0/1	<0.011	0	<8.00	<0.0128
9/27/01	02139	#9B	720	Air	<7.0	<0.004	0/3	<0.004	0	<8.89	<0.0048
9/27/01	02140	10	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.89	<0.0048

09/26/01

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) Roughly equivalent to Fiber (F)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 09/29/01 9:50 AM

PK-09-27-01A.xls

0.10102  
0.2488874  
SAPPHIRE

Location	Date	Time	Tape Meters				Electrochemical Cell 4407							Cannonball			
			HCl ppm	004050 ppm	010076 ppm	004050 ppm	H2S ppm	VOC ppm	LEL %	O2 %	CO2 ppm	R22 ppm	NO ppm	SO2 ppm			
G																	
A	9/27/01	10:19	ND	ND	ND	ND	ND	ND	0.1	ND	20.9	4.4	4	0.2			
B	9/27/01	10:05	ND	ND	ND	ND	ND	ND	ND	ND	20.9	2.7	ND	ND			
C	9/27/01	9:58	ND	ND	ND	ND	ND	ND	ND	ND	20.9	4.1	4	0.1			
H	9/27/01	9:53	ND	ND	ND	ND	ND	ND	ND	ND	20.9	3.0	ND	ND			
I	9/27/01	9:47	ND	ND	ND	ND	ND	ND	ND	ND	20.9	3.2	ND	0.1			
D	9/27/01	9:43	ND	ND	ND	ND	ND	ND	ND	ND	20.9	5.6	ND	ND			
K	9/27/01	9:41	ND	ND	ND	ND	ND	ND	ND	ND	20.9	2.5	ND	0.1			
E	9/27/01	9:33	ND	ND	ND	ND	ND	ND	ND	ND	20.9	5.3	ND	0.2			
F	9/27/01	10:32	ND	ND	ND	ND	ND	ND	ND	ND	21.0	11.0	5	0.2			
J	9/27/01	10:39	ND	ND	ND	ND	ND	ND	ND	ND	21.0	4.7	5	ND			
N	9/27/01	10:45	ND	ND	ND	ND	ND	ND	0.3	ND	21.0	2.8	5	0.3			
P	9/27/01	9:30	ND	ND	ND	ND	ND	ND	0.1	ND	20.9	5.5	ND	0.2			
S	9/27/01	9:32	ND	ND	ND	ND	ND	ND	ND	ND	20.9	3.0	ND	0.1			
#1	9/27/01	9:39	ND	ND	ND	ND	ND	ND	ND	ND	20.9	2.7	ND	0.1			
#2	9/27/01	10:08	ND	ND	ND	ND	ND	ND	0.4	ND	20.9	11.0	4	0.1			
#3	9/27/01	10:12	ND	ND	ND	ND	ND	ND	ND	ND	20.9	2.1	4	ND			
Q	9/27/01	10:37	ND	ND	ND	ND	ND	ND	3.0	ND	21.0	15.0	5	0.3			
L	9/27/01	10:48	ND	ND	ND	ND	ND	ND	ND	ND	21.0	3.0	5	0.2			
M	9/27/01	10:45	ND	ND	ND	ND	ND	ND	ND	ND	21.0	2.4	5	0.4			

0.1

copy sent  
Date 1/17/2004  
(2004/1/17/04)

Location	Date	Time	Tape Meters				Electrochemical Cell						PMD		Cannonball		
			HCl ppm	CO ppm	SO2 ppm	NO ppm	H2S ppm	VOC ppm	LEL %	O2 %	CO ppm	SO2 ppm	CH4 ppm	NO ppm	SO2 ppm		
G																	
A	9/27/01	2:31	ND	ND	ND	ND	0.5	ND	21.3	ND	ND	ND	ND	ND	ND	ND	0.4
B	9/27/01	2:15	ND	ND	ND	ND	ND	ND	21.2	ND	ND	ND	ND	ND	ND	ND	0.2
C	9/27/01	2:10	ND	ND	ND	ND	ND	ND	21.4	ND	ND	ND	ND	ND	ND	ND	ND
H	9/27/01	2:05	ND	ND	ND	ND	ND	ND	21.4	ND	ND	ND	ND	ND	ND	ND	0.1
I	9/27/01	1:57	ND	ND	ND	ND	ND	ND	21.2	ND	ND	ND	ND	ND	ND	ND	0.1
D	9/27/01	1:53	ND	ND	ND	ND	ND	ND	21.2	ND	ND	ND	ND	ND	ND	ND	0.1
K	9/27/01	1:49	ND	ND	ND	ND	ND	ND	21.3	ND	ND	ND	ND	ND	ND	ND	0.2
E	9/27/01	1:34	ND	ND	ND	ND	ND	ND	21.4	ND	ND	ND	ND	ND	ND	ND	0.2
F	9/27/01	2:37	ND	ND	ND	ND	ND	ND	21.3	ND	ND	ND	ND	ND	ND	ND	0.1
J	9/27/01	2:50	ND	ND	ND	ND	ND	ND	21.3	ND	ND	ND	ND	ND	ND	ND	0.1
N	9/27/01	2:54	ND	ND	ND	ND	ND	ND	21.3	ND	ND	ND	ND	ND	ND	ND	0.1
P	9/27/01	1:41	ND	ND	ND	ND	ND	ND	21.3	ND	ND	ND	ND	ND	ND	ND	0.2
S	9/27/01	1:45	ND	ND	ND	ND	ND	ND	21.3	ND	ND	ND	ND	ND	ND	ND	0.2
#1	9/27/01	1:38	ND	ND	ND	ND	ND	ND	21.4	ND	ND	ND	ND	ND	ND	ND	0.1
#2	9/27/01	2:19	ND	ND	ND	ND	0.7	ND	21.3	ND	ND	ND	ND	ND	ND	ND	0.1
#3	9/27/01	2:22	ND	ND	ND	ND	ND	ND	21.3	ND	ND	ND	ND	ND	ND	ND	0.1
Q	9/27/01	2:40	ND	ND	ND	ND	ND	ND	21.3	ND	ND	ND	ND	ND	ND	ND	ND
L	9/27/01	3:02	ND	ND	ND	ND	ND	ND	21.3	ND	ND	ND	ND	ND	ND	ND	0.1
M	9/27/01	2:58	ND	ND	ND	ND	ND	ND	21.3	ND	ND	ND	ND	ND	ND	ND	ND

SAFARI

NYC Response  
 Asbestos Water Sample Analysis Results  
 Sampling Date and Time: 09/25/01 9:40 AM to 12:15 PM

✓  
 ✓  
 ✓  
 ✓

Date Sampled	Sample No.	Location	Matrix	Asbestos Fibers (MFL)	Comments
9/25/2001	HRB-03	Hudson River-Background	Water	<0.70	
9/25/2001	HRN-04	Hudson River-North WTC	Water	<0.70	
9/25/2001	HRW-05	Hudson River-West WTC	Water	<0.70	
9/25/2001	HRS-06	Hudson River-South WTC	Water	<0.70	
9/25/2001	ER-07	ER - South Street	Water	<0.70	
9/25/2001	EB-02	Equipment Blank	Water	<0.70	
9/25/2001	BB-01	Bottle Blank	Water	<0.70	

MFL Millions of fibers per liter  
 Method of Sample Analysis: EPA 100.2

*Detection limit 0.19*  
*Reporting limit 2.0702 2SD above detection limit.*

ERT: 09/29/01 9:50 AM

FILE

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Sunday, September 30, 2001**

**Most Recent Results (as of 6:00 p.m. 9/30):**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 17 samples taken in and around the ground zero area on September 27 and 8 samples collected in New Jersey from September 27 to September 29. All samples had non-detectable levels of asbestos or were less than the AHERA standard of 70 structures per millimeter squared, which is EPA's criteria for allowing children to re-enter schools after asbestos removal activities.

This brings the total number of air samples collected and analyzed to 382.

**Fresh Kills Landfill, Staten Island**

**Asbestos** - 20 air samples were taken from Sept. 28 to Sept. 29. All test results showed levels either at non-detectable levels or below the AHERA standard used for allowing re-entry into schools.

**Assistance to Emergency Response Personnel**

Using direct reading instruments, EPA is providing real-time analysis in the immediate vicinity of the debris pile at ground zero, of compounds such as benzene, sulphur dioxide and carbon monoxide that are associated with fires. This information helps response workers on the scene determine what level of respiratory protection is appropriate to use. All but one sample taken on September 28 and 29 were below OSHA standards. One sample taken on September 29 found benzene at 2.6 parts per million, which exceeded the OSHA standard of .5 part per million for an eight-hour day, but did not approach a level of immediate concern to workers.

U.S. Environmental Protection Agency  
Sampling Situation Report  
Sunday, September 30, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC/ER (September 27, 12:00 noon to 12:00 midnight)  
All 17 samples were below the TEM standard.
- NJ (September 27 am to September 28 am)  
All 4 samples either less than detectable or below PCM and TEM standards.
- NJ (September 28 am to September 29 am)  
All 4 samples less than detectable levels.

Landfill Air Sampling Locations (Asbestos)

- September 28 (September 28, 7:00 am to 7:00 pm)  
All 9 samples were less than detectable.
- September 28 (September 28, 6:00 pm to September 29, 6:00 am)  
All 11 samples either less than detectable or below PCM and TEM standards.

Direct Reading Instruments and TAGA Unit

- September 28 and September 29  
Sample taken from smoke plume on September 29 had levels of benzene exceeding OSHA standards. All other parameters within acceptable ranges.

**FILE**

FILE

NYC Reference  
 Ambient Air Sampling Results at Field Locations  
 Sampling Date and Time: 09/27/01 1600 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					fiber/cm <sup>3</sup>	fiber	Adjusted TEM fcc	Stirreness (N) <5µ	Stirreness (N) >5µ	S-fcc*		
9/27/01	01507	A	720	Air	7.64	0.004	0.08	<0.004	0	0	-8.89	<0.0048
9/27/01	01508	B	720	Air	20.38	0.011	0.15.5	<0.004	0	0	-8.89	<0.0048
9/27/01	01509	C 1	720	Air	<7.0	<0.004	0.04	<0.004	0	0	-8.89	<0.0048
9/27/01	01510	D	720	Air	<7.0	<0.004	0.02.5	<0.004	1**	0	8.89	0.0048
9/27/01	01511	E	720	Air	<7.0	<0.004	0.01	<0.004	2**	0	17.78	0.0095
9/27/01	01512	F	720	Air	<7.0	<0.004	0.05	<0.004	1**	0	-8.89	<0.0048
9/27/01	01513	G	720	Air	<7.0	<0.004	0.05	<0.004	1**	0	-8.89	<0.0048
9/27/01	01514	H	720	Air	14.01	0.007	0.05.5	<0.004	0	0	-8.89	<0.0048
9/27/01	01515	I	720	Air	8.92	0.005	0.04	<0.004	0	0	-8.89	<0.0048
9/27/01	01516	J	720	Air	7.64	0.004	0.05	<0.004	0	0	-8.89	<0.0048
9/27/01	01517	K	720	Air	<7.0	<0.004	0.02	<0.004	1**	0	8.89	<0.0048
9/27/01	01518	L	720	Air	<7.0	<0.004	0.01	<0.004	0	0	-8.89	<0.0048
9/27/01	01519	M	720	Air	<7.0	<0.004	0.01	<0.004	0	0	-8.89	<0.0048
9/27/01	01520	N	720	Air	14.85	0.008	0.07	<0.004	0	0	-8.89	<0.0048
9/27/01	01521	O	720	Air	<7.0	<0.004	0.02	<0.004	0	0	-8.89	<0.0048
9/27/01	01522	P	720	Air	10.18	0.005	0.05	<0.004	2**	0	17.78	0.0095
9/27/01	01523	Q	720	Air	<7.0	<0.004	0.01	<0.004	0	0	-8.89	<0.0048
9/27/01	01524	R	720	Air	<7.0	<0.004	0.01	<0.004	0	0	-8.89	<0.0048
9/27/01	01525	S	720	Air	<7.0	<0.004	0.01	<0.004	0	0	-8.89	<0.0048
9/27/01	01526	T	720	Air	<7.0	<0.004	0.01	<0.004	0	0	-8.89	<0.0048
9/27/01	01527	U	720	Air	<7.0	<0.004	0.01	<0.004	0	0	-8.89	<0.0048

NS: Not sampled  
 AFANF: Asbestos fibers/non asbestos fibers  
 \*Sample volume is below recommended limit of the method.  
 \*\*Stirreness (S) roughly equivalent to fiber (f)  
 N/A: Not analyzed due to overloading of particulates

- Sampling Locations:  
 A: NE corner of West Broadway & Barclay  
 B: Corner of Church & Dry St.  
 C: Triple (E, C, S) corner of Church & Dry St.  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Liberty St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St  
 H: Church and Duane St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: Westway (underpass) (north side of Chavesport High) access to TAGA bus area  
 M: Westway (underpass) (south side of Chavesport High) access to TAGA bus area  
 N: South side of Pier 25 (next to volleyball court)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St.  
 R: TAGA Bus Location  
 S: Rector & South End

NIOSH 7400: Filter Analysis of Air Samples via NIOSH 7400, Revision 3, Iss. 2, 8/16/94  
 NIOSH 7402: Filter Analysis of Air Samples via NIOSH 7402, Revision 3, Iss. 2, 8/16/94  
 AHERA: Airborne Particulate Matter (APM) by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 Stirreness, volume 1200 L, for 36 mm filter (TEM)

ERT: 09/28/01 9:50 AM



NYC Emergency Response  
Asbestos Air Sampling Results NYC ERNJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/m <sup>3</sup>	f/cc	AFINAP	Adjusted TEM f/cc	<5µ	>5µ	S/mm <sup>2</sup>	S-f/cc*
9/28/01	01966	Liberty Park	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<7.75	<0.0062
9/28/01	01967	CITGO Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<7.75	<0.0062
9/28/01	01968	FMC Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<7.75	<0.0062
9/28/01	01969	Shell Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<7.75	<0.0062

CC-004116

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 \*Structure (S) roughly equivalent to Fiber (f)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1024 (9/27/01) - 0844 (9/28/01)
CITGO Terminal	1112 (9/27/01) - 1028 (9/28/01)
FMC Terminal	1141 (9/27/01) - 1105 (9/28/01)
Shell Terminal	1214 (9/27/01) - 1135 (9/28/01)

ERT: 09/30/01 09:50 AM



FILE

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/min <sup>2</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	>5µ	S (#)	S-f/cc*	
9/28/01	08841	Liberty Park	480	Air	10.19	0.008	0/0	<0.006	0	0	<7.75	<0.0062
9/28/01	08842	CITGO Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<7.75	<0.0062
9/28/01	08843	FMC Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<7.75	<0.0062
9/28/01	08844	Shell Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<7.75	<0.0062

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA-40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location  
Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

Period in which samples were collected and retrieved  
Sampling Times  
0949 (9/28/01) - 0943 (9/29/01)  
1029 (9/28/01) - 1023 (9/29/01)  
1108 (9/28/01) - 1104 (9/29/01)  
1140 (9/28/01) - 1151 (9/29/01)

ERT: 09/30/01 09:50 AM

FILE

NYC Response  
Asbestos Air Sampling Results for Freshkill Landfill  
Sampling Date and Time: 09/28/01 1600 to 0600

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)	
					f/mm <sup>3</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#)	S/mm <sup>3</sup>
9/28/01	00656	#1	717	Air	<7.0	<0.004	0/2	<0.004	0	<8.89
9/28/01	00657	#2	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.89
9/28/01	00658	#3	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.89
9/28/01	00659	#4	323	Air	<7.0	<0.003	0/0	<0.003	0	<8.00
9/28/01	00660	#5	700	Air	<7.0	<0.004	0/0	<0.004	0	<8.89
9/28/01	02141	#6	240	Air	<7.0	<0.011	0/0	<0.011	0	<8.00
9/28/01	02142	#7	720	Air	<7.0	<0.004	0/0	<0.004	1*	8.89
9/28/01	02143	#8	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.89
9/28/01	02144	#9A	703	Air	<7.0	<0.004	0/1	<0.004	0	<8.89
9/28/01	02145	#9B	273.4	Air	<7.0	<0.010	0/0	<0.010	0	<8.00
9/28/01	02146	#10	723	Air	<7.0	<0.004	0/0	<0.004	0	<8.89

Code 00024

NS: Not sampled  
AF/NAF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) Roughly equivalent to Fiber (F)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 09/30/01 9:50 AM

FK-09-28-01.xls

FILE

NVC Response  
 Asbestos Air Sampling Results for Freshkill Landfill  
 Sampling Date and Time: 09/28/01 0700 to 1900

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/mm2	f/cc	AF/ANF	Adjusted TEM f/cc	Structures (#)	S/mm2	S-f/cc	
9/28/01	02149	#1	664	Air	<7.0	<0.004	0/1	<0.004	0	0	<8.00	<0.0046
9/28/01	02150	#2	663	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0046
9/28/01	02081	#3	Air	Air	Pump fail-disconnected							
9/28/01	02082	#4	670	Air	<7.0	<0.004	0/1	<0.004	0	0	<8.00	<0.0046
9/28/01	02083	#5	673	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0046
9/28/01	02084	#6	671	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0046
9/28/01	02085	#7	678	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0046
9/28/01	02087	#8	680	Air	7.64	0.004	0/1	<0.004	0	0	<8.00	<0.0045
9/28/01	02086	#9A	683	Air	<7.0	<0.004	0/1	<0.004	0	0	<8.00	<0.0045
9/28/01	02088	#10	706	Air	No filter-pump not turned on							
09/28/01				Air	16.56	0.009	0/2	<0.004	1	0	8	0.0044

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) Roughly equivalent to Fiber (F)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm2, volume 1200 L, for 25 mm filter (TEM)

ERT:9/30/01 9:50 AM

Location	Date		Time	WD	Tape Meters				Multi-Gas-PHD-5				I-VIA-1		
	11.9pb GOE3	2.5aa H3504			2.5aa H3504	2.5aa H3504	11.9pb H2S	SO2 ppm	CO ppm	CO ppm	HCN ppm	Gas ppm	FID	P	
E	9-28-01	10:17			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	9-28-01	10:26			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
R	9-28-01	10:28			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	9-28-01	10:30			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	9-28-01	10:44			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	9-28-01	10:48			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	9-28-01	10:55			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	9-28-01	10:00			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1	9-28-01	10:05			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	9-28-01	10:12			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	9-28-01	10:16			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	9-28-01	10:20			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
A	9-28-01	10:30			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q	9-28-01	10:35			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	9-28-01	10:40			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	9-28-01	10:43			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Locations: A - Greenwisch + Barclay, B - Church + Day  
 C - Church + Liberty, D - Broadway + Liberty  
 E - Greenwisch + Albany, F - South End + Liberty  
 G - West + Vesey, H - Chase Plaza  
 I - Broadway + Wall, J - West + Warren  
 K - West + Albany, L - Sh. H's Trce

Comments: H-1 + H-F measured on tape meters; CO on Campbell's H.S. SO2, LEL, VOC on multitrace

Location	Date	Time	CO	SO2	HCN	Gas	FID	P
N	9-28-01	10:48	ND	ND	ND	ND	ND	ND
M	9-28-01	10:51	ND	ND	ND	ND	ND	ND
L	9-28-01	10:53	ND	ND	ND	ND	ND	ND

Location	Date		Time	Day		HF Tape Meters						Multi-Gas P11D-5						TVA-100		
	11/01	21/01		11/01	21/01	11/01	21/01	SO <sub>2</sub>	CO	HCN	CO <sub>2</sub>	LEL	CO	HCN	CO <sub>2</sub>	FID	PID			
E	9/29/01	1545				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
#1	9/28/01	1549				↑	ND	ND	ND	ND	20.9	0.3	ND	ND	ND	ND	ND	ND		
P	9/28/01	1555				ND	ND	ND	ND	ND	20.9	2.1	ND	ND	ND	ND	ND	ND		
S	9/28/01	1558				ND	ND	ND	ND	ND	20.9	2.1	ND	ND	ND	ND	ND	ND		
K	9/28/01	1601				ND	ND	ND	ND	ND	20.9	1.4	ND	ND	ND	ND	ND	ND		
D	9/28/01	1604				ND	ND	ND	ND	ND	20.9	3.9	ND	ND	ND	ND	ND	ND		
I	9/28/01	1609				ND	ND	ND	ND	ND	20.9	1.4	ND	ND	ND	ND	ND	ND		
H	9/28/01	1643				ND	ND	ND	ND	ND	21.0	0.6	ND	ND	ND	ND	ND	ND		
Cl	9/28/01	1617				ND	ND	ND	ND	ND	21.0	0.7	ND	ND	ND	ND	ND	ND		
B	9/28/01	1622				ND	ND	ND	ND	ND	21.0	1.4	ND	ND	ND	ND	ND	ND		
#2	9/28/01	1630				ND	ND	ND	ND	ND	21.0	1.2	ND	ND	ND	ND	ND	ND		
#3	9/28/01	1634				ND	ND	ND	ND	ND	21.0	1.9	ND	ND	ND	ND	ND	ND		
A	9/28/01	1643				ND	ND	ND	ND	ND	21.1	2.1	ND	ND	ND	ND	ND	ND		
Q	9/28/01	1648				ND	ND	ND	ND	ND	21.1	1.7	ND	ND	ND	ND	ND	ND		
F	9/28/01	1652				ND	ND	ND	ND	ND	21.1	1.7	ND	ND	ND	ND	ND	ND		
J	9/28/01	1657				ND	ND	ND	ND	ND	21.1	1.6	ND	ND	ND	ND	ND	ND		

Locations: A - Greenwisch + Barely; B - Church + Day  
 C - Church + Liberty; Cl - Broadway + Liberty  
 D - Greenwisch + Albany; E - South End + Liberty  
 F - West + Vesey; H - Chase Pl 24  
 I - Broadway + Wall; J - West + Warren  
 K - West + Albany; L - St. As. Tree

Com #ms: 9/28/01 1700  
 M 9/28/01 1705  
 L 9/28/01 1708

Notes: \*3 - Flags across from Day  
 \*4 - heavy growth  
 \*5 - mpth coc: SO<sub>2</sub>, H<sub>2</sub>S, O<sub>2</sub>, LEL, PID (coc)  
 \*6 - Carbonball: r.n  
 \*7 - HCN, HF, HCl \*8  
 \*9 - FID (coc)

DRAFT GC/MS  
 Results for  
 09/29/01 DRAFT  
 Tentatively  
 Identified

FILE

File name	NYC171	NYC172	NYC173
Sample Location	Method Blank	Verizon Level E	Ambient blank
Sample Number			Breathing
Sample Height			500 mL
Volume	None	10 mL	None
		C9-Alkane 700 ppb	
		C9-Alkane 520 ppb	
		C10-Alkane 920 ppb	
		C10-Alkane 1100 ppb	
		C10-Alkane 640 ppb	
		C11-Alkane 840 ppb	
		C11-Alkane 1300 ppb	

File name	NYC174	NYC175	NYC176
Sample Location	Sample #1 9/29 11:47	Sample #2 9/29 11:52	9/29 Smoke Plume on Pile
Sample Number			
Sample Height	100 mL	100 mL	100 mL
Volume	None	None	C4-Alkene 640 ppb
			Acetaldehyde 260 ppb
			C5-Alkane 550 ppb
			Unknown 220 ppb
			C5-Alkene 140 ppb
			C6-Alkene 97 ppb
			C5-Alkene 200 ppb
			C6-Alkene 220 ppb
			C6-Alkene 110 ppb
			2-methyl-Furan 380 ppb
			1-chloro-Butane 310 ppb
			1-Butanol 240 ppb
			C9-Alkene 110 ppb
			Cyclopentanone 600 ppb
			1-methylcyclohexane 600 ppb
			Propyl-Benzene 110 ppb
			alpha-Methylstyrene 540 ppb

A. Data Lim.			HF Type Meters 250psi 100psi				Multi-Gas PID-5				Multi-Gas PID		TVA-100				
Location	Date	Time	WD	ppmv	ppbv	ppbV	HCl	ppm	SO <sub>2</sub>	NO	CO	ppm	ppm	ppm	ppm	ppm	ppm
							%	%	%	%	%	%	%	%	%	%	%
F	9/29/03	0922		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	9/29/03	0925		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	9/29/03	0930		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	9/29/03	0932		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	9/29/03	0937		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	9/29/03	0941		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	9/29/03	0946		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	9/29/03	0950		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1	9/29/03	0955		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	9/29/03	1007		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
#2	9/29/03	1010		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
A	9/29/03	1017		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q	9/29/03	1027		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	9/29/03	1031		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	9/29/03	1035		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	9/29/03	1038		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

0.12 ppm

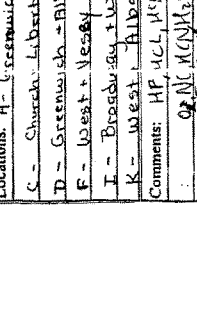
Multi-Gas PID-5

Multi-Gas PID

TVA-100

Locations: A - Greenwisch + Barclay, B - Church + Day  
 C - Church, Liberty, D - Broadway + Liberty  
 E - Greenwisch + Albany, F - South End + Liberty  
 G - West + Vessie, H - Chase Plaza  
 I - Broadway + Wall, J - West + Warren  
 K - West + Albany, L - 5th, N.S. - I-85  
 Comments: HP, 4CL, KEN, JRE  
 #2 NC 1020, 1027, 1031, 1035, 1038  
 #1 - 1025, 1027

\* HCl SWELLING WIND  
 #1 HCl type meter battery dead  
 #2 could not get to station #3 due to ongoing demo



2/2

Location	Date		Time		Det. Lim.		Type Meter		H2S		CO		Multi-Gas PHD-5		Gas		TV-100				
							CE-612	HE-504	HE-503	ppm	ppm	ppm	ppm	SO2	LEL	O2	ppm	ppm	ppm	ppm	ppm
M	1/24	11	10:42				ND	ND	10.2	ND	ND	ND	ND	ND	20.9	ND	ND	ND	3	ND	
L	1/24	01	10:47				ND	ND	ND	ND	ND	ND	ND	ND	20.9	ND	ND	ND	4	ND	
FILE																					
<p>Locations: A - Greenwisch + Bardley, B - Church + Day            C - Church + Liberty, G - Broadway + Liberty            D - Greenwisch + Albany, E - South End + Liberty            F - West + Jersey, H - Chase Plaza            I - Broadway + West, J - West + Warren            K - West + Albany, L - St. A.S. Trce</p>																					
<p>Comments: 1 - Liberty + West            2 - Greenwisch + Liberty            3 - Plaza across from Day</p>																					





on	Date		Time		Type Meters		Multi-Gas PHD-5		Multi-Gas PHD-5		Multi-Gas PHD-5		TVA-100			
	Date	Time	WD	CO2	H2SO4	HNO3	HCl	H2S	SO2	LEL	O2	CO	NO	HCN	FID	PHD
1	9-29-01	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
M	9-29-01	15:35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L	9-29-01	15:40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<p>ions: A - Greenwisch + Borsley, B - Church + Dex, M - Harrison Trce, N - Disc 25                  Church Liberty, C - Broadway + Liberty, P - South End + Albany, Q - C.G. Command Post                  Greenwisch + Albany, E - South End + Liberty                  West + Vesey, H - Chapel Plaza                  - Broadway + Vesey, J - West + Wagon                  - West + Albany, L - 8th + N. Trce                  notes:</p>																

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11



FILE

DRAFT GCMS Results for 09/29/01 DRAFT						
File name	NYC171	NYC172	NYC173	NYC174	NYC175	NYC176
Sample Location	Method Blank	Verizon Level E	Ambient Blank	Sample #1 9/29 11:47	Sample #2 9/29 11:52	9/29 Smoke Plume on Pile
Sample Number Sample Height Volume		10 mL	500 ML	100 mL	100 mL	100 mL
Methyl Isobutyl Ketone	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	21 ppb
cis-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Toluene	RL=20 ppb	23 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	1300 ppb
trans-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
2-Hexanone	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	28 ppb
Tetrachloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Dibromochloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dibromoethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	30 ppb
Ethylbenzene	RL=20 ppb	29 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	730 ppb
m&p-Xylenes	RL=20 ppb	32 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	48 ppb
o-Xylene	RL=20 ppb	39 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	54 ppb
Styrene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	550 ppb
Bromoform	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2,2-Tetrachloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
4-Ethyltoluene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	40 ppb
1,3,5-Trimethylbenzene	RL=20 ppb	86 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	21 ppb
1,2,4-Trimethylbenzene	RL=20 ppb	100 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,3-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,4-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Benzyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2,4-Trichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Hexachloro-1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb

RL=Reporting Limit (20 ppb)

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Monday, October 1, 2001**

**Most Recent Results (as of 6:00 p.m. 10/1):**

**Washington Market Community Park** - The local community board that covers this park located at Greenwich and Chambers Street took dust samples in the playground and sand box and found asbestos-containing material. The community board notified EPA on Friday, Sept. 28. The New York City Parks Department closed the park. On Saturday, EPA took additional samples of the playground soil and sand and began cleaning up the park using our HEPA filter vacuums. EPA finished its cleanup on Sunday, Sept. 30.

**Drums of Ethylene Glycol** - EPA is removing twenty 55-gallon drums of ethylene glycol found in Building 6 of the World Trade Center. EPA will ensure that the contents of the drums are appropriately recycled or disposed of at an approved hazardous waste facility.

**Washing Operations** - EPA is now operating and upgrading washing stations, previously operated by the National Guard, for personnel and trucks at the Fresh Kills Landfill in Staten Island where debris from the World Trade Center site is being searched and stored. These stations will be operational starting Wednesday, Oct. 3.

**Assisting Small Businesses Near World Trade Center** - EPA Region 2's Compliance Assistance staff conducted outreach, working with regional staff from the Small Business Administration, to provide information to impacted small businesses regarding assistance loans and cleanup options.

U.S. Environmental Protection Agency  
Air/Bulk Sampling Situation Report  
**Errata Sheet**

**Friday, September 28, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

NJ (September 25)

Should actually read that the samples were collected beginning on September 25 at 11 AM and ending on September 26 at 12 noon (specific times for each location are outlined on the data sheet).

**Saturday, September 29, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

NYC - ER (September 26, 12 noon to 12 midnight)

Previous report stated that all 16 samples were below the OSHA PCM standard and were also below the NYC reentry standard. It should actually read that 12 of 16 samples were above the NYC reentry standard for PCM.

Landfill Air Sampling Locations (Asbestos)

Previous report stated that 11 air samples taken on September 27 (7:30AM - 6:30PM) were below the established standards for all the methods analyzed. It should actually read that 4 of 11 samples were above the NYC reentry standard for PCM.

U.S. Environmental Protection Agency  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Monday, October 1, 2001 (3:00 pm)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Sept 28, 12 noon - 12 midnight)
  - 6 of 17 samples were above the NYC reentry standard for PCM. All 17 samples were below the TEM standard.
- NYC / ER (Sept 29, 12 midnight - 12 noon)
  - 7 of 16 samples were above the NYC reentry standard for PCM. 2 of the 16 samples were above the TEM standard (Locations E and K).
- NJ (Sept 29, 9:45AM - Sept 30, 10:30AM)
  - All 4 samples were below both the PCM and TEM standards.

Landfill Air Sampling Locations

- Fresh Kills (Sept 29, 7:00AM - 7:00PM) - Asbestos
  - All 11 samples were below both the PCM and TEM standards.
- Fresh Kills (Sept 28, 29) - Particulate Monitoring
  - Nothing of significance to report based on average daily concentrations.
  - No data collected on Sept. 27, 30, and October 1 due to weather conditions.

Ambient Air Sampling Locations (Metals)

- NYC / ER (Sept 27)
  - Ten samples collected.
  - 1 sample exceeded the National Ambient Air Quality Standard (1.5 ug/m<sup>3</sup> based on a 24 hour, 3 month period) for lead at Barclay/West Broadway, however does not exceed the NIOSH standard.
  - Lead level lower than sample previously taken at that location (and two other locations).
  - Chromium levels were identified at 9 locations above the EPA Removal Action guidance levels. However, all levels were below the removal action level adjusted to a 1-year exposure duration and do not exceed the most conservative NIOSH chromium standard (1 ug/m<sup>3</sup>).
  - Although the lead and chromium levels are elevated, they are not a short-term concern.
  - Regulatory standards and guidelines for lead and chromium are based on long-term exposure.

Ambient Air Sampling Locations (TAGA - volatile organics)

- NYC / ER (Sept 30)
  - Benzene exceeded OSHA TWA PEL (0.5 ppm) at two locations on the debris pile in the plume at ground level (across from Liberty/Greenwich).

**FILE**

- Benzyl chloride slightly exceeded OSHA TWA PEL (1.0 ppm) at one location on the debris pile in the plume at ground level (across from Liberty/Greenwich).
- Samples collected at the intersection of Liberty/Greenwich did not detect either of these compounds.
- All other results below occupational standards.

Direct Reading Instruments

- NYC / ER (Sept 30) - nothing of significance identified.

**FILE**



NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 09/28/01 1200 noon to 2400

Revision

Sampling Site	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	AF/ANF	Adjusted TEM f/cc	Structures (# >5µ)	S/mm <sup>2</sup>	S-f/cc*
9/28/01	02672	A	720	Air	7.64	0.064	0/0	<0.004	0	0	<0.0048
9/28/01	02673	B	720	Air	14.01	0.067	0/3	<0.004	0	0	<0.0048
9/28/01	02675	C	720	Air	24.2	0.013	0/1	<0.004	0	0	<0.0048
9/28/01	02675	D	720	Air	89.17	0.048	1/7	0.066	0	0	<0.0048
9/28/01	02678	E	720	Air	16.56	0.009	1/1	0.064	0	0	<0.0048
9/28/01	02679	F	720	Air	2.55	0.003	0/0	0.065	0	0	<0.0048
9/28/01	02679	F Dup	720	Air	2.55	0.003	0/0	0.065	0	0	<0.0048
9/28/01	02679	G	720	Air	26.3	0.015	0/1	<0.004	0	0	<0.0048
9/28/01	02676	H	720	Air	27.59	0.015	3/1	<0.004	0	0	<0.0048
9/28/01	02676	I	720	Air	32.67	0.019	0/0	<0.004	0	0	<0.0048
9/28/01	02685	J	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<0.0048
9/28/01	02684	K	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<0.0048
9/28/01	02683	L	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<0.0048
9/28/01	02677	M	720	Air	47.13	0.025	0/3	<0.004	0	0	<0.0048
9/28/01	02677	N	720	Air	47.13	0.025	0/3	<0.004	0	0	<0.0048
9/28/01	02682	O	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<0.0048
9/28/01	02682	S	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<0.0048

see notes

\*\* Amosite/Crocidolite Total

NS: Not sampled

AF/ANF: Asbestos fibers/ton asbestos fibers

Sample volume is below recommended limit of the method:

Structure (S) roughly equivalent to fiber (f)

NA: not analyzed due to overloading of particulates

- Sampling Locations:**
- A: NE corner of West Broadway & Barclay
  - B: SE corner of Church & Day St.
  - C: NE corner of Church & Day St.
  - C1: SW corner of Broadway & Liberty St.
  - D: East end of Albany St. at Greenwich St.
  - E: Western end of Liberty St. at South End Ave
  - F: Northern median strip of Vesey & West St
  - G: Church and Duane St.
  - H: South side of Chase Manhattan Plaza at Pine St.
  - I: SE corner of West St. & Broadway
  - J: NE corner of Warren & West St.
  - K: West St. & 4th St.
  - L: One walkway toward North Park rec area (south side of Stuyvesant High, access to TACA bus area)
  - M: Western end of Harrison St. at West St. (on tree next to ball field)
  - N: South side of Pier 25 (next to volleyball court)
  - P: NE corner of South End Ave. & Albany
  - Q: East by & West St. (center island) in proximity to USCG command post
  - R: TACA Bus Location
  - S: Rector & South End

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 4100, Revision 3, Issue 2, 8/15/94

NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)

Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-05-25-0-barev.xls

EPT: 10/01/01 2:00 PM



NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 09/29/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)	
					f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
9/29/01	02694	A	720	Air	0.005	0/1	<0.004	0	<8.89	<0.0048
9/29/01	02695	B	720	Air	0.013	0/5	<0.004	2*	8.89	<0.0048
9/29/01	02696	C1	2675	Air	0.014	0/0	<0.004	1**	37.78	0.0095
9/29/01	02697	D	720	Air	0.069	0/0	<0.004	5**	53.33	0.0285
9/29/01	02698	E	3556	Air	0.069	0/0	<0.004	0	<8.89	<0.0048
9/29/01	02699	F	720	Air	0.014	0/1	<0.004	0	<8.89	<0.0048
9/29/01	02700	G	2548	Air	0.006	0/1	<0.004	0	<8.89	<0.0048
9/29/01	02701	H	713	Air	0.011	0/1	<0.004	0	<8.89	<0.0048
9/29/01	02702	I	2030	Air	0.021	2/3	<0.004	3**	44.44	0.0238
9/29/01	02703	J	3949	Air	<7.0	0/0	<0.004	0	<8.89	<0.0048
9/29/01	02704	K	720	Air	<7.0	0/1	<0.004	0	<8.89	<0.0048
9/29/01	02705	L	720	Air	<7.0	0/0	<0.004	0	<8.89	<0.0048
9/29/01	02706	M	720	Air	0.030	0/3	<0.004	1**	8.89	0.0048
9/29/01	02707	N	720	Air	<7.0	0/2	<0.004	0	<8.89	<0.0048
9/29/01	02708	O	720	Air	0.006	1/0	<0.004	1**	17.78	0.0095
9/29/01	02709	Q (DUP)	720	Air	0.006	1/0	<0.004	1**	17.78	0.0095

See notes

\*\* Chrysoth

Sampling Locations:

- A: NE corner of West Broadway & Barbey
- B: SE corner of Church & Day St.
- C: Trinity (aka Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St.
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: NE corner of Wall St. & Broadway
- J: NE corner of Wall St. & West St.
- K: West St. & Albany in median
- L: On walkway toward North Park (ac area north side of Shoyesand High), access to TAGSA bus area
- M: Western end of Harrison St. at West St. (on free next to volleyball court)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barbey & West St. (center island) in proximity to USCG's command post
- R: TAGSA bus Location
- S: Reactor & South End

MS: Not completed

AF/NAF: Asbestos fibercotton asbestos fibers

\*Sample volume is below recommended limit of the method

\*\*Structure (S) roughly equivalent to fiber (f)

N/A: not analyzed due to overloading of particulates

ERT: 10/01/01 9:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-09-29-01A.x8

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NYC Emergency Response  
Asbestos Air Sampling Results, NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400 f/mm <sup>2</sup>	TEM by NIOSH 7400 f/cc	AF/NAF	Adjusted TEM f/cc	<5µ S (#)	TEM (AHERA) S/mm <sup>2</sup>	S-f/cc*
9/29/01	08846	Liberty Park	480	Air	8.92	0.007	0/1	<0.006	0	<7.75	<0.0062
9/29/01	08847	CITGO Terminal	480	Air	7.64	0.006	0/4	<0.006	0	<7.75	<0.0062
9/29/01	08848	FMC Terminal	480	Air	8.92	0.007	0/4	<0.006	0	<7.75	<0.0062
9/29/01	08849	Shell Terminal	480	Air	7.64	0.006	0/3	<0.006	0	<7.75	<0.0062

3/26/2011

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

**Sampling Location**  
Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

**Period in which samples were collected and retrieved**  
Sampling Times  
0946 (9/29/01) - 0652 (9/30/01)  
1028 (9/29/01) - 0928 (9/30/01)  
1106 (9/29/01) - 1009 (9/30/01)  
1153 (9/29/01) - 1038 (9/30/01)

ERT: 10/01/01 09:50 AM



NYC Response  
 Asbestos Air Sampling Results for Station Island Landfill  
 Sampling Date and Time: 09/29/01 0700 to 1900

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)	
					f/cc	f/cc	Adjusted TEM f/cc	Structures (#)	S-f/cc*	
9/29/01	01634	#1	325	Air	<7.0	<0.008	<0.008	0	<8.00	<0.0095
9/29/01	01645	#2	645	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0048
9/29/01	01646	#3	641	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0048
9/29/01	01647	#4	647	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0048
9/29/01	01648	#5	647	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0048
9/29/01	01649	#6	439	Air	<7.0	<0.006	<0.004	0	<8.00	<0.0048
9/29/01	01650	#7	630	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0048
9/29/01	23660	#8	644	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0048
9/29/01	23661	#9A	635	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0048
9/29/01	23662	#9B	646	Air	<7.0	<0.004	<0.004	3	<8.00	0.0143
9/29/01	23663	#10	675	Air	<7.0	<0.004	<0.004	0	<8.00	<0.0048

code 61012  
 NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/01/01 9:50 AM

FILE

Daily DataRam Particulate Monitoring Summary Sheet  
 Fresh Kills Landfill  
 September 28, 2001

Weather Info: Not reported.

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Ming Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199705	40.565119	2363	1	43	10:45:00	10	00:15:00	100	0.0	0.0	51.5	2031.0
2	-74.198202	40.566883	2361	1	44	31:00:00	10	00:15:00	100	0.0	0.0	16.1	726.6
3	-74.198685	40.570754	2224	1	51	12:45:00	10	00:15:00	100	0.0	0.0	19.4	530.2
4	-74.201280	40.569790	2352	1	51	12:45:00	10	00:15:00	100	0.0	0.0	23.9	361.8
5	-74.205873	40.568892	2012	1	51	12:45:00	10	00:15:00	100	0.0	0.0	15.1	1123.5
6	-74.207406	40.563818	2481	1	51	12:45:00	10	00:15:00	100	0.0	0.0	17.1	136.4
7	-74.205414	40.560434	2226	1	51	12:45:00	10	00:15:00	100	0.0	0.0	22.3	1047.0
8	-74.203019	40.561915	2480	1	51	12:45:00	10	00:15:00	100	0.0	0.0	35.3	708.0





Table 1 Results of the Analysis for Metals in Air  
WTC New York ER site

Client ID Location	2811 R EPAREAC AREA		2812 R EPAREAC AREA		2813 A BARCLAYWEST		2814 B CHURCHNEY		2815 F VESSEYWEST		2816 CI - LIBERTYBROADWAY	
	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³
Air Volume (L)	1502		1506		1146		1156		1204		1176	
Parameter	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
	Analysis Method											
Aluminum	U	0.83	U	0.83	5.9	1.1	4.2	1.1	5.4	1.0	1.3	1.1
Antimony	U	0.033	U	0.033	0.24	0.044	0.051	0.043	0.045	0.042	U	0.043
Arsenic	U	0.033	U	0.033	0.053	0.044	U	0.043	U	0.042	U	0.043
Barium	U	0.083	U	0.083	0.14	0.11	U	0.11	0.14	0.10	U	0.11
Beryllium	U	0.033	U	0.033	U	0.044	U	0.043	U	0.042	U	0.043
Cadmium	U	0.083	U	0.083	U	0.11	U	0.11	U	0.10	U	0.11
Calcium	U	1.7	U	1.7	75	2.2	49	2.2	48	2.1	9.3	2.1
Chromium	U	0.083	U	0.083	0.32	0.11	0.30	0.11	0.22	0.10	0.44	0.11
Cobalt	U	0.17	U	0.17	U	0.22	U	0.22	U	0.21	U	0.21
Copper	U	0.17	U	0.17	2.4	0.22	2.0	0.22	0.36	0.21	U	0.21
Iron	U	0.42	U	0.42	10	0.55	5.4	0.54	11	0.52	1.8	0.53
Lead	U	0.033	U	0.033	2.8	0.22	0.69	0.043	0.32	0.042	U	0.043
Magnesium	U	8.3	U	8.3	11	11	U	11	U	10	U	11
Manganese	U	0.083	U	0.083	0.19	0.11	0.16	0.11	0.23	0.10	U	0.11
Nickel	U	0.17	U	0.17	U	0.22	U	0.22	U	0.21	U	0.21
Potassium	U	33	U	33	U	44	U	43	U	42	U	43
Selenium	U	0.033	U	0.033	U	0.044	U	0.043	U	0.042	U	0.043
Silver	U	0.083	U	0.083	U	0.11	U	0.11	U	0.10	U	0.11
Sodium	U	8.3	U	8.3	U	11	U	11	U	10	U	11
Thallium	U	0.033	U	0.033	U	0.044	U	0.043	U	0.042	U	0.043
Vanadium	U	0.17	U	0.17	U	0.22	U	0.22	U	0.21	U	0.21
Zinc	U	0.17	U	0.17	5.4	0.22	2.5	0.22	1.0	0.21	0.29	0.21

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration (?=MDL) subtracted from all sample results

FILE

Table 1 Results of the Analysis for Metals in Air  
WTC New York ER site

Client ID Location	2817		2818		2819		2820	
	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
0- GREENWICH PLAZA 1184	1.9	1.1	1.5	1.1	1.6	1.1	U	1.0
ALBANY/SOUTH END	U	0.042	U	0.042	U	0.043	U	0.041
S. RECTOR PL /SOUTH END	U	0.042	U	0.042	U	0.043	U	0.041
EUBERTY /SOUTH END	U	0.11	U	0.11	U	0.11	U	0.10
1214	U	0.042	U	0.042	U	0.043	U	0.041
1156	U	0.11	U	0.11	U	0.11	U	0.10
1180	11	2.1	16	2.1	6.1	2.2	U	2.1
1180	0.25	0.11	0.32	0.11	0.12	0.11	0.12	0.10
1180	U	0.21	U	0.21	U	0.22	U	0.21
1180	U	0.21	U	0.21	U	0.22	U	0.21
1180	2.2	0.53	2.2	0.53	2.8	0.54	0.71	0.51
1180	U	0.042	0.053	0.042	U	0.043	U	0.041
1180	U	0.11	U	0.11	U	0.11	U	0.10
1180	U	0.11	U	0.11	U	0.11	U	0.10
1180	U	0.21	U	0.21	0.38	0.22	U	0.21
1180	U	0.42	U	0.42	U	0.43	U	0.41
1180	U	0.042	U	0.042	U	0.043	U	0.041
1180	U	0.11	U	0.11	U	0.11	U	0.10
1180	U	0.11	U	0.11	U	0.11	U	0.10
1180	U	0.042	U	0.042	U	0.043	U	0.041
1180	U	0.21	U	0.21	U	0.22	U	0.21
1180	0.33	0.21	0.33	0.21	0.27	0.22	U	0.21

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration (>=MDL) subtracted from all sample results



(732) 321-4200  
EPA Contract 68-C99-223

Project Name: NYC ED  
Project Number: 04-00236  
LM Contact: J. 0240 STREET Phone: 732-874-4700

No: 04050  
Sheet 01 of 01 (Do not copy)  
(For addl. samples use new form)

Sample Identification

BEAC	Sample No	Sampling Location	Matrix	Date Collected	# of Baffles	Container/Preservative	Requested	9/27/01	9/27/01	9/27/01	7/27/01
							9/27/01	9/27/01	9/27/01	9/27/01	9/27/01
877	02811	R- EPA/BEAC AREA	A	9/27/01	1	WHAIPAK / NONE	✓	1502	850	2119	751
878	02812	R- EPA/BEAC AREA	A				✓	1506	850	2119	753
879	02813	A- BUREAU WEST	A				✓	1146	916	1855	573
880	02814	B- BUREAU WEST	A				✓	1156	923	1910	578
881	02815	F- VESEY WEST	A				✓	1204	1090	2092	602
882	02816	D- BUREAU WEST	A				✓	1176	934	1920	588
883	02817	D- BUREAU WEST	A				✓	1184	940	1932	592
884	02818	P- ALBANY SOUTH END	A				✓	1180	957	1945	590
885	02819	S- BUREAU WEST	A				✓	1156	953	1954	578
886	02820	E- LIBERTY SOUTH END	A				✓	1214	1015	2011	607
887	02833	FIELD BLANK	A				✓	0	0	0	0
888	02834	LOT BLANK	A				✓	0	0	0	0
889		BS/BSD	A				✓	0	0	0	0

Notes:  
 AT- Air  
 AL- Animal Tissue  
 DL- Drain Liquids  
 CL- Clean Solids  
 GW- Groundwater  
 O- Oil  
 PR- Product  
 PL- Plant Tissue  
 PW- Public Water  
 S- Soil  
 SD- Sediment  
 SW- Surface Water  
 TX- TCLP Extract  
 W- Water  
 X- Other

Special Functions:  
 Ref. list # 6078 (Sample) - PS  
 611172 - 108 N101 - (Sample) AS  
 SKC LOT # 2182

SAMPLES TRANSFERRED FROM  
CHAIN OF CUSTODY #:

Received by	Date	Time	Received by	Date	Time
ALAN WILSON	9/28/01	1:00	ALAN WILSON	9/28/01	8:45

File name Sample Location Sample Number Sample Height Volume	DRAFT GCMS Results for 09/30/01 DRAFT				
	NYC179 Instrument Blank	NYC180 Tedlar Blank	NYC181 Ambient N. Park Pier Breathing level 0.5 mL	NYC182 Liberty & Greenwich Ground level 0.1 mL	NYC183 Liberty & Greenwich Ground level 0.01 mL
Precpylene	RL=20 ppb	RL=20 ppb	RL=20 ppb	4700 ppb	2700 ppb
Dichlorodifluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Dichlorotetrafluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	3300 ppb	1600 ppb
Vinyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Bromomethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	160 ppb	RL=20 ppb
Chloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	130 ppb	RL=20 ppb
Trichlorofluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Isopropyl Alcohol	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Acetone	RL=20 ppb	RL=20 ppb	RL=20 ppb	5500 ppb	3000 ppb
Trichlorotrifluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
3-Chloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Methylene Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
MTBE	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
trans-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Hexane	RL=20 ppb	RL=20 ppb	RL=20 ppb	430 ppb	220 ppb
1,1-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Vinyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
2-Butanone	RL=20 ppb	RL=20 ppb	RL=20 ppb	870 ppb	480 ppb
cis-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Ethyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloroform	RL=20 ppb	RL=20 ppb	RL=20 ppb	44 ppb	RL=20 ppb
Tetrahydrofuran	RL=20 ppb	RL=20 ppb	RL=20 ppb	260 ppb	150 ppb
1,1,1-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Cyclohexane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Carbon Tetrachloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Benzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	8000 ppb	5100 ppb
Heptane	RL=20 ppb	RL=20 ppb	RL=20 ppb	190 ppb	101 ppb
Trichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	38 ppb	RL=20 ppb
1,2-Dichloropropane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,4-Dioxane	RL=20 ppb	RL=20 ppb	RL=20 ppb	160 ppb	RL=20 ppb
Methyl Isobutyl Ketone	RL=20 ppb	RL=20 ppb	RL=20 ppb	75 ppb	RL=20 ppb
cis-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Toluene	RL=20 ppb	RL=20 ppb	RL=20 ppb	2700 ppb	1700 ppb
trans-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
2-Hexanone	RL=20 ppb	RL=20 ppb	RL=20 ppb	77 ppb	RL=20 ppb

FILE

Tetrachloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	64 ppb	RL=20 ppb
Dibromochloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dibromoethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	190 ppb	RL=20 ppb
Ethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	1900 ppb	1040 ppb
m&p-Xylenes	RL=20 ppb	RL=20 ppb	RL=20 ppb	102 ppb	689 ppb
o-Xylene	RL=20 ppb	RL=20 ppb	RL=20 ppb	102 ppb	RL=20 ppb
Styrene	RL=20 ppb	RL=20 ppb	RL=20 ppb	1300 ppb	670 ppb
Bromoform	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2,2-Tetrachloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
4-Ethyltoluene	RL=20 ppb	RL=20 ppb	RL=20 ppb	73 ppb	RL=20 ppb
1,3,5-Trimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	54 ppb	RL=20 ppb
1,2,4-Trimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	29 ppb	RL=20 ppb
1,3-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	20 ppb	RL=20 ppb
1,4-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	21 ppb	RL=20 ppb
Benzyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	540 ppb	1030 ppb
1,2-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	37 ppb	RL=20 ppb
1,2,4-Trichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Hexachloro-1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb

RL=Reporting Limit (20 ppb)

FILE

File name	DRAFT GCMS Results for 09/30/01 DRAFT					
	NYC184 Loc #1 West & Liberty	NYC185 Loc# 2 Greenwich & Liberty	NYC186 Loc #3 Tobin Plaza			
Sample Location						
Sample Number						
Sample Height						
Volume	Breathing level 0.25 mL	Breathing level 0.25 mL	Breathing level 0.25 mL			
Propylene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Dichlorodifluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Dichlorotetrafluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Chloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Vinyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Bromomethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Chloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Trichlorofluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Isopropyl Alcohol	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Acetone	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Trichloromethylfluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,1-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
3-Chloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Methylene Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb			
MTBE	RL=20 ppb	RL=20 ppb	RL=20 ppb			
trans-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Hexane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,1-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Vinyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb			
2-Butanone	RL=20 ppb	RL=20 ppb	RL=20 ppb			
cis-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Ethyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Chloroform	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Tetrahydrofuran	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,1,1-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Cyclohexane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Carbon Tetrachloride	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Benzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Heptane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Trichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,2-Dichloropropane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,4-Dioxane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Methyl Isobutyl Ketone	RL=20 ppb	RL=20 ppb	RL=20 ppb			
cis-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Toluene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
trans-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,1,2-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
2-Hexanone	RL=20 ppb	RL=20 ppb	RL=20 ppb			

FILE

Tetrachloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Dibromochloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,2-Dibromoethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Chlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Ethylbenzene	RL=20 ppb	RL=20 ppb	21 ppb			
m&p-Xylenes	RL=20 ppb	RL=20 ppb	RL=20 ppb			
o-Xylene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Styrene	RL=20 ppb	RL=20 ppb	25 ppb			
Bromoform	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,1,2,2-Tetrachloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
4-Ethyltoluene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,3,5-Trimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,2,4-Trimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,3-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,4-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Benzyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,2-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,2,4-Trichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Hexachloro-1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb			

RL=Reporting Limit (20 ppb)

FILE

Location	- DA - Lim		HF Trace Meters				Multi-Gas				Multi-Gas						
	Date	Time	WD	1100b CO12	2400b H2S04	2000b HNO3	2800b HCl	ppbv	ppbv	ppbv	ppbv	ppm	ppm	ppm	ppm	ppm	ppm
E	9/30/01	0858	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
#1	9/30/01	0903	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	9/30/01	0907	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	9/30/01	0910	E	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	9/30/01	0913	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	9/30/01	0915	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	9/30/01	0918	STILL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	9/30/01	0923	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C	9/30/01	0928	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
#2	9/30/01	0934	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
A	9/30/01	0940	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q	9/30/01	0952	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	9/30/01	0955	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J	9/30/01	0958	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	9/30/01	1005	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	9/30/01	1013	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Locations: A - Greenwich + Barclay, B - Church + Day  
 C - Church + Liberty, G - Broadway + Liberty  
 D - Greenwich + Albany, F - South End + Liberty  
 E - West + Vesey, H - Chase Plaza  
 I - Broadway + Wall, J - West + Warren  
 K - West + Albany, L - St. A.S. Tree  
 Comments: HF, CO12, HCl; TAKE METERS FID (OVA)  
 O2, HCN, CO; CAPTURED BY

[Handwritten note]

2/2

Location	Det. Lim		1000 Meters				Multi-Gas PHD-5				TVA-100		
	Date	Time	CO2	CO	H2O	H2S	SO2	LEL	O2	CO	NO	Gas	HCN
		WD	ppbv	ppbv	ppbv	ppm	ppm	%	%	ppm	ppm	ppm	ppm
M	9/30/1017	N	ND	ND	N/A	ND	ND	ND	20.9	0.9	N/A	ND	ND
L	9/30/1020	N	ND	ND	↓	ND	ND	ND	20.9	1.5	↓	ND	ND
* Could not monitor locktread #3 due to BLEDS DEMO													
Locations: A - Greenwisch + Bondley, B - Church + Day C - Church + Liberty, CI - Broadway + Liberty D - Greenwisch + Albany, E - South End + Liberty F - West + Verdy, H - Chase + R1234 I - Broadway + Wall, J - West + Warren K - West + Albany, L - St. H.S. + Tree													
Comments: M - Harrison Tree, N - Pier 25 P - South End + Albany, Q - C.G. Seaman + Fbs 1 - Liberty + West 2 - Greenwisch + Liberty 3 - Tree across from Day													

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Tuesday, October 2, 2001**

**Most Recent Results (as of 6:00 p.m. 10/2):**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 33 samples taken in and around the ground zero area from September 28 to September 29 (noon). Two samples around the World Trade Center showed levels above the 70 structures per millimeter squared, which is EPA's standard for allowing children to re-enter schools after asbestos removal activities. The locations for these two samples were Liberty Street and South End and West and Albany Streets.

EPA analyzed 34 samples taken in and around ground zero from September 29 to September 30. Two samples taken on September 29 showed levels above 70 structures per millimeter squared. The locations for these two samples were Liberty Street and South End and Rector and South End. Two samples taken on September 30 at Albany and Greenwich Streets and Albany and West Streets were also above the EPA school standard. All of the other samples were below the school re-entry standard.

Four air samples taken in New Jersey through September 30 were all less than the school re-entry standard.

This brings the total number of air samples collected and analyzed to 442. This figure is an adjusted and accurate number that reflects the total samples to date captured in our new database.

**Staten Island Landfill (Asbestos)**

**Air** - 49 air samples were taken from Sept. 29 to Oct. 1. All test results were below the AHERA standard used for allowing re-entry into schools.

**Dust** - Eight dust samples were taken on Oct. 1; all showed no detection of asbestos.

**Ambient Air Sampling:**

**Metals** - 10 samples were taken on September 27 within the vicinity of the emergency response operations. Of those, one sample at Barclay and West Broadway exceeded the National Ambient Air Quality Standard for lead, but did not exceed the National Institute of Occupational Safety and Health (NIOSH) standard. Chromium was found to be above the EPA action guideline at nine locations. However, when adjusted for a one year exposure, none of the levels exceed the most conservative NIOSH chromium standard or the EPA removal action guideline.

**Volatile Organic Compounds** - Eight samples were taken on September 30 from locations around the ground zero area. Two samples taken at ground level at Liberty and Greenwich



Streets exceeded the OSHA level (0.5 ppm) for benzene. One sample taken at ground level at Liberty and Greenwich had a benzyl chloride reading that slightly exceeded the OSHA level (1.0 ppm).

U.S. Environmental Protection Agency  
Air / Bulk / Wipe / Water Sampling Situation Report  
Tuesday, October 2, 2001 (11:00 pm)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC - ER (Sept 29, 12 noon - 12 midnight)
  - All 17 samples were below the NYC reentry standard for PCM.
  - 2 samples exceeded the TEM AHERA standard (Location E - Liberty/South End and Location S - Rector/South End).
- NYC / ER (Sept 29, 12 midnight - Sept 30, 12 noon)
  - 1 of 17 samples was above the NYC reentry standard for PCM (Location D).
  - 2 of the 17 samples were above the TEM AHERA standard (Location D - Albany/Greenwich and Location K - West/Albany median).

Landfill Air Sampling Locations

- Fresh Kills (Sept 29, 7:00AM - 7:00PM) - Asbestos
  - All 7 samples were below both the PCM and TEM AHERA standards.
  - No volume collected at 4 other locations.
- Fresh Kills (Sept 29, 6:00PM - Sept 30, 8:00AM) - Asbestos
  - 1 of 11 samples exceeded the NYC reentry standard for PCM (Location #8).
  - All samples below the OSHA standard and the TEM AHERA standard.
- Fresh Kills (Sept 30, 7:30AM - 6:30PM) - Asbestos
  - All 11 samples were below both the PCM and TEM AHERA standards.
- Fresh Kills (Oct 1, 8:00AM - 6:30PM) - Asbestos
  - All 9 samples were below both the PCM and TEM AHERA standards.
  - No volume collected at 3 other locations.

Landfill Bulk/Dust Samples

- Fresh Kills (Oct 1) - Asbestos
  - Asbestos was not detected in all 8 samples.

**FILE**

FILE

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 09/29/01 1200 noon to 2400

Sampling Date	Sample No	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/cc	AF/NAL	Asbestos TEM f/cc	Structures (#)	Summ <sup>3</sup>	S-f/cc*		
9/29/01	01742	A	720	Air	<7.0	<0.004	0/0	<0.004	1	0	8.89	0.0048
9/29/01	01783	B	720	Air	7.64	0.004	0/5	<0.004	1	0	8.89	0.0048
9/29/01	01784	C	720	Air	<7.0	<0.004	0/3	<0.004	2	1	26.67	0.0143
9/29/01	01797	D	720	Air	14.01	0.007	0/6	<0.004	2	0	17.78	0.0095
9/29/01	01801	E	720	Air	7.64	0.004	0/4	<0.004	7	2	80	0.0429
9/29/01	01862	F	720	Air	<7.0	<0.004	0/2	<0.004	3	0	26.67	0.0153
9/29/01	01863	G	720	Air	<7.0	<0.004	0/1	<0.004	1	0	8.89	0.0048
9/29/01	01756	H	720	Air	<7.0	<0.004	0/2	<0.004	2	0	17.78	0.0095
9/29/01	01791	I	720	Air	11.46	0.005	0/4	<0.004	4	0	35.56	0.0190
9/29/01	01867	J	720	Air	<7.0	<0.004	0/1	<0.004	0	0	<8.89	<0.0048
9/29/01	01886	K	720	Air	<7.0	<0.004	0/0	<0.004	0	1	8.89	0.0048
9/29/01	01895	L	720	Air	<7.0	<0.004	0/0	<0.004	1	0	<8.89	<0.0048
9/29/01	01800	M	720	Air	<7.0	<0.004	0/1	<0.004	1	0	8.89	0.0048
9/29/01	01801	N	720	Air	<7.0	<0.004	0/1	<0.004	3	1	35.56	<0.0048
9/29/01	01804	O	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.89	<0.0048
9/29/01	01789	S	720	Air	10.19	0.005	0/2	<0.004	5	0	59.33	0.0295
** Asbestos/Crysotile Total												

Sampling Locations:

- A: SE corner of West Broadway & Barclay
- B: SE corner of Church & City St.
- C: Trinity Is. k. Church & City St.
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St
- H: South side of Chas. Mantelton Plaza at Pine St.
- I: SE corner of Wall St & Broadway
- J: Corner of Warren & West St.
- K: West St & Albany
- L: On walkway toward North Pacific area, front side of Shawmut (high), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to building)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAT-A Bus Location
- S: Recla & South End

NS: Not sampled

AF/NAL: Asbestos fiber/ten asbestos fibers

Sample volume is below recommended limit of the method.

Structure (S) roughly equivalent to fiber (f)

NA: Not reported

NA: not analyzed due to overloading of particulates

ERT: 10/02/01 9:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 Somers, volume 1200 L, for 25 mm filter (TEM)

FILE

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 09/29/01 (2400) to 09/30/01 (1200)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		
					f/cc	AFINAF	Adjusted TEM f/cc	Structures (#)*	Summ†	S-f/cc*	
9/29-30/01	01821	A	689	Air	<7.0	<0.004	<0.004	0	0	<8.89	<0.0050
9/29-30/01	01820	B	720	Air	<7.0	<0.004	<0.004	0	0	<8.89	<0.0048
9/29-30/01	01819	C 1	720	Air	<7.0	<0.004	<0.004	0	0	<8.89	<0.0048
9/29-30/01	01815	D	720	Air	31.85	0.017	<0.004	6	4	88.88	0.0475
9/29-30/01	01811	E	720	Air	10.19	0.005	<0.004	0	0	<8.89	<0.0050
9/29-30/01	01823	F	720	Air	<7.0	<0.004	<0.004	0	1	8.89	<0.0048
9/29-30/01	01818	H	720	Air	<7.0	<0.004	<0.004	0	0	<8.89	<0.0048
9/29-30/01	01816	I	720	Air	<7.0	<0.004	<0.004	0	0	<8.89	<0.0048
9/29-30/01	01817	I/HP	720	Air	<7.0	<0.004	<0.004	0	0	<8.89	<0.0048
9/29-30/01	01814	J	720	Air	<7.0	<0.004	<0.004	0	0	<8.89	<0.0048
9/29-30/01	01817	K	720	Air	12.74	0.007	<0.004	6	2	71.11	0.0338
9/29-30/01	01827	L	720	Air	<7.0	<0.004	<0.004	0	0	<8.89	<0.0048
9/29-30/01	01826	M	720	Air	<7.0	<0.004	<0.004	0	0	<8.89	<0.0048
9/29-30/01	01825	N	720	Air	<7.0	<0.004	<0.004	0	0	<8.89	<0.0048
9/29-30/01	01817	P	720	Air	11.46	0.006	<0.004	2	1	26.67	0.0143
9/29-30/01	01822	Q	720	Air	<7.0	<0.004	<0.004	0	0	<8.89	<0.0048
9/29-30/01	01813	S	720	Air	<7.0	<0.004	<0.004	0	0	<8.89	<0.0048

ccair/ccair

Chrysothille

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: Trinity Park a. Church & Liberty
- CH: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Church & Southalan Plaza at Pine St.
- I: East end of West St & Broadway
- J: SE corner of West St & West St
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to ballpark)
- N: South side of Park 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA bus location
- S: Rector & South End

NI: Not sampled

AF/AFR: Asbestos fibers/fiber asbestos fibers

\*Sample volume is below recommended limit of the method.

\*Structures (S) Roughly equivalent to Fiber (F)

NA: not analyzed due to overloading of particulates

EFT: 10/02/01 9:50 AM

NIOSH 7400: Fibur Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 01/15/84

NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 803/5-81 Part 763 (AHERA)

Standard criteria: EPA 803/5-81 Part 763 (AHERA); 0.01 fiber/cc (PCM), 71 Summ†, volume 1200 L, for 25 mm filter (TEM)

FILT

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 09/29/01 0700 to 1900

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/cc	f/m <sup>3</sup>	AF/ANF	Adjusted TEM f/cc	Structures (S)	Structures (F)	S/fcc	S/m <sup>3</sup>
9/29/01	02161	#1	720	Air	<0.004	<7.0	0.0	<0.004	0	0	<8.89	<0.0048
9/29/01	02162	#2	720	Air	<0.004	<7.0	0.1	<0.004	0	0	<8.89	<0.0048
9/29/01	02163	#3	720	Air	<0.004	<7.0	0.0	<0.004	0	0	<8.89	<0.0048
9/29/01	02164	#4	720	Air	<0.004	<7.0	0.1	<0.004	0	0	<8.89	<0.0048
9/29/01	02165	#5	0	Air	**	<7.0	0.0	**	0	0	<8.0	**
9/29/01	02166	#6	720	Air	<0.004	<7.0	0.0	<0.004	0	0	<8.89	<0.0048
9/29/01	02167	#7	720	Air	<0.004	<7.0	0.0	<0.004	0	0	<8.89	<0.0048
9/29/01	02168	#8	720	Air	**	<7.0	0.0	**	0	0	<8.89	<0.0048
9/29/01	02170	#9	0	Air	**	<7.0	0.0	**	0	0	8.89	0.0048
9/29/01	02170	#9	720	Air	<0.004	<7.0	0.2	<0.004	1	0	8.89	0.0048
9/29/01	011641	#10	0	Air	**	<7.0	0.0	**	0	0	<8.0	**

code 040/98

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) Roughly equivalent to Fiber (F)  
NA: not analyzed due to overloading of Particulates  
\*\* No results available because no air volume were taken

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 1001/01 2:00 PM

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 09/29/01 1800 to 09/30/01 0800

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		
					f/ftm <sup>2</sup>	f/cc	AF/ANF	Adjusted TEM f/cc	Structures (#) <5µ	Structures (#) >5µ	S-f/cc*
9/29-30/2001	23651	#1	700	Air	<7.0	<0.004	0/1	<0.004	0	0	<0.0044
9/29-30/2001	23652	#2	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<0.0048
9/29-30/2001	23652	#3	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<0.0048
9/29-30/2001	23666	#4	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<0.0048
9/29-30/2001	23667	#5	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<0.0048
9/29-30/2001	23668	#6	720	Air	11.64	0.004	0/0	<0.004	0	0	<0.0048
9/29-30/2001	23669	#7	720	Air	11.03	0.007	0/0	<0.004	0	0	<0.0048
9/29-30/2001	23650	#8	720	Air	21.02	<0.004	0/0	<0.004	0	0	<0.0048
9/29-30/2001	23658	#9A	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<0.0048
9/29-30/2001	23657	#9B	700	Air	<7.0	<0.004	0/0	<0.004	0	0	<0.0048
9/29-30/2001	23656	#10	700	Air	7.11	<0.004	0/0	<0.004	0	0	<0.0048

6664 04013

NS: Not sampled

AF/ANF: Asbestos fibers/ftm<sup>2</sup> or non-asbestos fibers

Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to fiber (f)

NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94

NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 09/30/01 07:30 to 18:30

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7400		TEM (AHERA)		S-fiber*
					f/min <sup>2</sup>	f/cc	AF/ANF	Adjusted TEM f/cc	Structures (f) >5µ	S/mm <sup>2</sup>	
9/30/01	01654	#1	653	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0047
9/30/01	01652	#2	636	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0046
9/30/01	01661	#3	630	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0047
9/30/01	01660	#4	394	Air	<7.0	<0.007	0/0	<0.007	0	<8.00	<0.0078
9/30/01	01658	#5	614	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0050
9/30/01	01657	#6	614	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0050
9/30/01	01655	#7	545	Air	<7.0	<0.005	0/0	<0.005	0	<8.00	<0.0057
9/30/01	01655	#8	611	Air	<7.0	<0.004	0/0	<0.004	0	<8.00	<0.0050
9/30/01	01652	#9A	579	Air	<7.0	<0.005	0/0	<0.005	0	<8.00	<0.0053
9/30/01	01653	#9B	582	Air	<7.0	<0.005	0/0	<0.005	0	<8.00	<0.0053
9/10/01	01651	#10	564	Air	11.46	0.008	0/2	<0.005	0	<8.00	<0.0055

USEP 600.14

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overcounting of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/02/01 9:50 AM

FK-05-30-01a.xls

FILE

FILE

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/01/01 0800 to 1830

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>3</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc
10/1/01	01659	#1	0	Air	<7.0	**	<5	<5.67	**
10/1/01	01670	#2	533	Air	<7.0	<0.005	0	<5.67	<0.0048
10/1/01	01671	#3	532	Air	<7.0	<0.005	0	<5.67	<0.0046
10/1/01	01672	#4	NS	Air	<7.0	<0.005	0	<5.67	<0.0049
10/1/01	01673	#5	530	Air	<7.0	<0.005	0	<5.67	<0.0047
10/1/01	01674	#6	532	Air	<7.0	<0.005	0	<5.67	<0.0044
10/1/01	01675	#7	530	Air	<7.0	<0.005	0	<5.67	<0.0047
10/1/01	01667	#9A	493	Air	<7.0	<0.005	0	<5.67	<0.0052
10/1/01	01668	#9B	492	Air	<7.0	<0.005	0	<5.67	<0.0052
10/1/01	01668	#10	494	Air	<7.0	<0.005	0	<5.67	<0.0052

cc# 100101

\*\* No results because no air volumes were taken  
NS: Not sampled  
Sample volume is below recommended limit of the method  
\*Structure (S) Roughly equivalent to Fiber (F)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 5/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
Asbestos Bulk Sample Analysis Results

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
10/1/01	06884	LF SW Car pile	Dust	ND	
10/1/01	06885	IFS Bulk Steel	Dust	ND	
10/1/01	06886	LF Building 7 East	Dust	ND	
10/1/01	06887	LF Building 7 East	Dust	ND	
10/1/01	06888	LF Building 7 East	Dust	ND	
10/1/01	06889	LF WTC East pile	Dust	ND	
10/1/01	06890	LF WTC East pile	Dust	ND	
10/1/01	06891	LF WTC South pile	Dust	ND	
PLM Polarized Light Microscope by Method NY State ELAP 198.1					
ND: Not Detected					

ERT:10/2/01 9:50am

**FILE**

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Wednesday, October 3, 2001**

**Most Recent Results (as of 1:00 p.m. 10/3):**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 34 samples taken in and around the ground zero area from October 1 to October 2. All samples showed results less than the 70 structures per millimeter squared, which is EPA's standard for allowing children to re-enter schools after asbestos removal activities.

Four air samples taken in New Jersey on September 30 were all less than the school re-entry standard.

This brings the total number of air samples collected and analyzed to 480. This figure is an adjusted and accurate number that reflects the total samples to date captured in our new database.

**Staten Island Landfill (Asbestos)**

**Air** - 22 air samples were taken from Oct. 1 to Oct. 2. All test results were below the AHERA standard used for allowing re-entry into schools.

**Particulate Monitoring** - Samples taken on October 2, showed no significant results, based on average daily concentrations.

**Ambient Air Sampling:**

**PCBs** - 10 samples were taken on September 23 within the vicinity of the emergency response operations. Of these, eight results did not show detection of PCBs, of the two that had a measurable result these were below levels of concern.

**Dioxin** - 10 dioxin samples were taken on September 23 within the vicinity of the emergency response operations, all samples were at or above EPA's removal action guideline, which is based on a 30-year, 24 hour exposure risk scenario. These results are believed to be attributable to the plume still emanating from the fires within the World Trade Center debris pile. We expect that these levels measured will only persist for a few weeks until the fires are extinguished.

**Wipe Samples**

**Metals** - On September 28, 8 samples were collected indoors at the Borough of Manhattan Community College, 1 sample exceeded the HUD criteria for lead (50 micrograms per square foot). Other metals were detected at low concentrations. Also on September 28, 7 samples were collected indoors at Stuyvesant High School, lead results were below the HUD criteria

and other metals were detected at low concentrations.

**Ambient Air Samples**

VOCs - Sampling for volatile organic compounds (VOC) was conducted on Oct. 2. Benzene was detected in increasing concentrations from previous samples in the plume on the debris pile.

U.S. Environmental Protection Agency  
Air / Bulk / Wipe / Water Sampling Situation Report  
Wednesday, October 3, 2001 (2:00 pm)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 1, 12 noon - 12 midnight)
  - All 17 samples were below the TEM AHERA standard.
- NYC / ER (Oct 2 midnight - Oct 2, 12 noon)
  - All 17 samples were below the TEM AHERA standard.
- NJ (Sep 30, 9:00AM - 7:00 PM)
  - All 4 samples were below the TEM AHERA standard.

Fixed Ambient Air Sampling Locations (Silicates)

- NYC / ER (Sep 27, 12 noon - 7:00 PM)
  - All 10 samples (from 5 locations) were below the detection limit (0.01 mg/m<sup>3</sup>) for quartz, cristobalite, tridymite. The NIOSH standard is 0.05 mg/m<sup>3</sup>.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 1, 5:30 PM - Oct 2, 7:30 AM) - Asbestos
  - All 11 samples were below the TEM AHERA standards
- Fresh Kills (Oct 2, 8:00 AM - Oct 2, 6:00 PM) - Asbestos
  - All 11 samples were below the TEM AHERA standard.
- Fresh Kills (Oct 2) - Particulate Monitoring
  - Nothing of significance to report based on average daily concentrations.

Ambient Air Sampling Locations

- NYC / ER (Sep 23) - PCBs
  - Trace amounts detected in 2 of 10 samples well below levels of concern.
  - 8 samples did not detect any PCBs.
  - The most elevated concentration was detected adjacent to the collapsed courtyard near the SW corner of the former WTC No. 5.
  - All levels were below the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.
- NYC / ER (Sep 23) - Dioxin
  - No occupational standards available.
  - 5 of the 10 samples collected were above the EPA Removal Action guidelines (based on a 30-year exposure).

**FILE**

- All levels were below the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.
- The lowest levels were identified in 5 samples collected west of the WTC.
- Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for long-term (chronic exposure).
- The most elevated concentration was detected adjacent to the collapsed courtyard near the SW corner of the former WTC No. 5.
- Levels generally higher than previous round of sampling (Sep 16).

Wipe Samples (Metals)

- Borough of Manhattan Community College (Sep 28)
  - 8 samples collected indoors.
  - 1 sample collected from gym bleachers above the HUD criteria for lead (50 ug/ft<sup>2</sup>).
  - While no specific standards are available, all other metals were found at low concentrations.
- Stuyvesant High School (Sep 28)
  - 7 samples collected indoors.
  - Lead results are below the HUD criteria.
  - While no specific standards are available, all other metals were found at low concentrations.

Ambient Air Sampling Locations (TAGA - volatile organics)

- NYC / ER (Oct 2)
  - Benzene exceeded OSHA TWA PEL at three locations on the debris pile in the plume at ground level.
  - Benzene was not detected in three perimeter samples in the breathing zone.
  - Increased benzene levels noted from previous samples in plume on debris pile.

Direct Reading Instruments

- NYC / ER (Oct 1)
  - Nothing of significance reported.

**FILE**

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/01/01 12:00 to 24:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCMB by NIOSH 7400		TEM (AHERA)		S-fiber*	
					form <sup>a</sup>	fiber	Structures (H) -SH	Structures (H) -SH		
10/2/01	01832	A	365	Air	<7.0	<0.007	2**	0	16	0.0169
10/2/01	01833	B	720	Air	<7.0	<0.004	1**	0	8.90	<0.0048
10/2/01	01834	C,1	720	Air	7.64	0.004	0	0	<8.90	<0.0048
10/2/01	01837	D	720	Air	11.46	0.006	0	0	<8.90	<0.0048
10/2/01	01841	E	720	Air	12.74	0.007	0	0	<8.90	<0.0048
10/2/01	01842	F	720	Air	<7.0	<0.004	0	0	<8.90	<0.0048
10/2/01	01835	H	384	Air	10.19	0.010	0	0	<8.00	<0.0081
10/2/01	01836	I	720	Air	8.92	0.005	0	0	<8.90	<0.0048
10/2/01	01831	J	720	Air	7.64	0.004	0	0	<8.90	<0.0048
10/2/01	01838	K	720	Air	10.19	0.005	0	0	<8.90	<0.0048
10/2/01	01842	L	720	Air	7.64	0.004	0	0	<8.90	<0.0048
10/2/01	01846	M	720	Air	7.64	0.004	0	0	<8.90	<0.0048
10/2/01	01847	N	720	Air	7.64	0.004	0	0	<8.90	<0.0048
10/2/01	01840	P	720	Air	7.64	0.004	0	0	<8.90	<0.0048
10/2/01	01843	O	720	Air	<7.0	<0.004	0	0	<8.90	<0.0048
10/2/01	01844	Q DUP	720	Air	7.64	0.004	0	0	<8.90	<0.0048
10/2/01	01839	S	720	Air	8.92	0.005	0	0	<8.90	<0.0048

cc# 04000

\*\* Chrysotile

- Sampling Locations:
- A. NE corner of West Broadway & Barclay
  - B. SE corner of Church & Bay St.
  - C. SW corner of Church & Bay St.
  - C1. SW corner of Broadway & Liberty St.
  - D. East end of Liberty St. at Greenwich St.
  - E. Western end of Liberty St. at South End Ave
  - F. Northern median strip of Vesey & West St.
  - G. Church and Duane St.
  - H. South side of Chase Manhattan Plaza at Pine St.
  - I. SE corner of Wall St. & Broadway
  - J. NE corner of Warren & West St.
  - K. West St. & Albany in median strip
  - L. On walkway toward Beatt Park near area (north side of Stuyvesant High), access to TACSA bus area
  - M. Western end of Pine 25 (next to wheelchair ramp)
  - N. Stuyvesant High
  - P. NE corner of South End Ave. & Albany
  - Q. Barclay & West St. (easter island) in proximity to USCC command post
  - R. TACSA bus location
  - S. Rector & South End

- NIH Not sampled
- A/F/N/P: Asbestos fibers/shell asbestos fibers
  - Temp: volume is below detection limit of the method.
  - S: Structure (S) roughly equivalent to fiber (f)
  - NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 840CR Part 763 (AHERA)  
 Standard criteria: EPA 840CR Part 763 (AHERA); 0.01 fiber/cc (f/cm), 70 Short, volume 1200 L, for 25 mm filter (TEM)

FL-10-02-31A.XIS

ERT: 10/03/01 9:50 AM

FILE

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/02/01 (0001) to 10/02/01 (1200)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/min²	f/cc	Structures (#) >5µ	S/mm²
10/2/01	02502	A	720	Air	<7.0	<0.004	0	<8.89
10/2/01	02503	B	720	Air	8.92	0.005	0	<8.89
10/2/01	02504	C 1	720	Air	12.74	0.007	0	8.89
10/2/01	02507	D	720	Air	11.46	0.006	0	<8.89
10/2/01	02511	E	720	Air	9.92	0.005	1**	8.89
10/2/01	02512	F	720	Air	7.54	0.004	0	<8.89
10/2/01	02508	I	720	Air	7.0	<0.004	0	<8.89
10/2/01	02509	J	720	Air	7.64	0.004	0	<8.89
10/2/01	02508	K	720	Air	7.64	0.004	0	<8.89
10/2/01	02517	L	720	Air	10.19	0.005	0	<8.89
10/2/01	02516	M	720	Air	<7.0	<0.004	0	<8.89
10/2/01	02515	N	720	Air	<7.0	<0.004	0	<8.89
10/2/01	02514	N DUP	720	Air	8.92	0.005	0	<8.89
10/2/01	02510	P	720	Air	8.92	0.005	0	<8.89
10/2/01	02513	Q	720	Air	<7.0	<0.004	0	<8.89
10/2/01	02509	S	720	Air	<7.0	<0.004	0	<8.89

cc: r00089

NS: Not sampled  
 AHERA: Asbestos fibers/Non-asbestos fibers  
 S/mm²: Below recommended limit of the method.  
 Structures (#) >5µ: Roughly equivalent to Fiber (#)  
 N/A: Not analyzed due to overloading of particulates

- Sampling Locations:  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Day St  
 C: Trinity (a.k.a. Church) & Liberty  
 C1: SW corner of Broadway & Liberty St  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Alley in median strip  
 L: West side of West Broadway at West St.  
 M: Western end of Greenwich St. at West St. (on tree next to building)  
 N: South side of Pier 25 (next to volleyball court)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCC command post  
 R: TAGA Bus Location  
 S: Rector & South End

ERT: 10/03/01 9:50 AM

NIOSH 7400: Filter Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy  
 Asbestos Filter Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm², volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/min <sup>2</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	<5µ	>5µ	S/mm <sup>2</sup>	
9/30/01	08851	Liberty Park	480	Air	<7.0	<0.006	0/1	<0.006	0	0	<6.15	<0.0049
9/30/01	08852	CITGO Terminal	480	Air	<7.0	<0.006	0/1	<0.006	0	0	<6.15	<0.0049
9/30/01	08853	FMC Terminal	480	Air	<7.0	<0.006	0/1	<0.006	0	0	<6.15	<0.0049
9/30/01	08853	Shell Terminal	480	Air	<7.0	<0.006	0/0	<0.006	0	0	<6.15	<0.0049

08/08/13

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA), 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

**Sampling Location**  
Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

**Period in which samples were collected and retrieved**  
Sampling Times  
0855 (9/30/01) - 1655 (9/30/01)  
0830 (9/30/01) - 1730 (9/30/01)  
1010 (9/30/01) - 1810 (9/30/01)  
1040 (9/30/01) - 1840 (9/30/01)

ERT: 10/03/01 09:50 AM

DEP-09-30-01.xls



NYC

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 09/27/01 12:00 to 19:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	Quartz mg/m <sup>3</sup>	Crystalline mg/m <sup>3</sup>	Triclinic mg/m <sup>3</sup>
9/27/01	02821	A area	900	Air	<0.01	<0.01	<0.01
9/27/01	02826	A respirable	1000	Air	<0.01	<0.01	<0.01
9/27/01	02822	B area	900	Air	<0.01	<0.01	<0.01
9/27/01	02827	B respirable	1000	Air	<0.01	<0.01	<0.01
9/27/01	02823	C area	NS				
9/27/01	02828	D area	900	Air	<0.01	<0.01	<0.01
9/27/01	02825	D respirable	1000	Air	<0.01	<0.01	<0.01
9/27/01	02825	E area	900	Air	<0.01	<0.01	<0.01
9/27/01	02830	E respirable	1000	Air	<0.01	<0.01	<0.01
9/27/01		F	NS				
9/27/01		G	NS				
9/27/01		H	NS				
9/27/01		I	NS				
9/27/01		J	NS				
9/27/01		K	NS				
9/27/01		L	NS				
9/27/01		M	NS				
9/27/01		N	NS				
9/27/01		O	NS				
9/27/01		Q DUP	NS				
9/27/01	02824	S area	900	Air	<0.01	<0.01	<0.01
9/27/01	02829	S respirable	1000	Air	<0.01	<0.01	<0.01

NS: Not sampled

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Ley St.
- C: Trinity (i.e. Church & Liberty)
- D: SW corner of Broadway & Liberty St.
- E: Eastern end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St.
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: NE corner of Wall St. & Broadway
- J: NE corner of Broadway & Broadway
- K: West St. & Albany in median strip
- L: On walkway toward North Peak rec area north side of Shwayasant High, access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to volleyball court)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- R: TAGA & West St. (for island) in proximity to USCG command post
- S: Rector & South End

NCSH 7500: Silica crystalline by XRD

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/01/01 17:30 to 10/02/01 07:30

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*	
10/2/01	23670	#1	700	Air	<7.0	<0.004	0	<8.89	<0.0049
10/2/01	23671	#2	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/2/01	23672	#3	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/2/01	23673	#4	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/2/01	23674	#5	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/2/01	23675	#6	423.3	Air	<7.0	<0.004	0	<8.89	<0.0048
10/2/01	23676	#7	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/2/01	23677	#8	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/2/01	23678	#9A	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/2/01	23679	#9B	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/2/01	23680	#10	720	Air	<7.0	<0.004	0	<8.89	<0.0048

cc# 04214

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 1763 (AHERA)  
 Standard criteria: EPA 40CFR Part 1763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, or 25 mm filter (TEM)

ERT: 10/03/01 9:50 AM

PK-10-02-01.xls

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/02/01 0800 to 10/02/01 1800

Sampling Date	Sample No.	Sample Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Structures (f) <5µ	S/m <sup>3</sup> >5µ
10/2/01	23684	#1	633	Air	<7.0	<0.004	0	<8.00
10/2/01	23685	#2	629	Air	<7.0	<0.004	0	<8.00
10/2/01	23695	#3	627	Air	<7.0	<0.004	0	<8.00
10/2/01	23697	#4	624.5	Air	<7.0	<0.004	0	<8.00
10/2/01	23686	#5	623.4	Air	<7.0	<0.004	0	<8.00
10/2/01	23689	#9	613	Air	<7.0	<0.004	0	<8.00
10/2/01	01676	#7	645.2	Air	<7.0	<0.004	0	<8.00
10/2/01	01680	#8A	619.4	Air	7.64	0.005	0	<8.00
10/2/01	23650	#9B	628.6	Air	9.55	0.006	0	<8.00
10/2/01	23691	#10	596.3	Air	<7.0	<0.005	0	<8.00

604204216

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/03/01 9:50 AM



474

Daily DataRam Particulate Monitoring Summary Sheet  
 Fresh Kills Landfill  
 October 2, 2001

Weather Info: Unknown.

Location	Longitude	Latitude	DataRam ID	Tag #	Logge of Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	MingConc ug/m3	AvgConc ug/m3	MaxConc ug/m3
1	-74.199795	40.565139	2224	1	45	11:15:00	10	00:15:00	100	0.0	0.0	47.7	368.0
2	-74.198302	40.566883	2363	1	44	11:00:00	10	00:15:00	100	0.0	0.0	26.9	98.2
3	-74.198685	40.570024	2294	1	44	11:00:00	10	00:15:00	100	0.0	0.0	25.3	215.4
4	-74.201380	40.569790	2401	1	44	11:00:00	10	00:15:00	100	0.0	0.0	23.9	156.0
5	-74.205873	40.568892	2012	1	44	11:00:00	10	00:15:00	100	0.0	0.0	21.6	1228.7
6	-74.207406	40.563818	2226	1	44	11:00:00	10	00:15:00	100	0.0	0.0	21.2	144.0
7	-74.205414	40.560434	2152	1	44	11:00:00	10	00:15:00	100	0.0	0.0	20.5	89.9
8	-74.203019	40.501915	2480	1	44	11:00:00	10	00:15:00	100	0.0	0.0	24.7	162.8



**NAC Response**  
**At-Site Sampling - Modified Method 840 PCB results**  
 Sampling Date 09/23/01

Sample No	01021	01022	01023	01024	01025	01026	01027	01028	01029	01030	01031	01032	01033	01034	01035
Sampling Location	Method Blank	Method Blank	Method Blank	Method Blank	Method Blank	Method Blank	Method Blank	Method Blank	Method Blank	Method Blank	Method Blank	Method Blank	Method Blank	Method Blank	Method Blank
Volume (l)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Result	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL
Sum of PCBs	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Sum of PCBs	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Sum of PCBs	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Sum of PCBs	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Sum of PCBs	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- Sampling Locations:**
- A. NE corner of West Boulevard & Gordley
  - B. SE corner of Church & Dry St
  - C. Trinity Park, Church & Trinity
  - D. East end of Liberty St. at Greenwood St
  - E. West end of Liberty St. at South End Ave
  - F. West end of Liberty St. at Vasey & West St
  - G. Church and Duane St
  - H. South side of Chase Manhattan Plaza at Pine St
  - I. SE corner of Market & Broadway
  - J. NE corner of Warren & West St
  - K. West St & Albany in median strip
  - L. On St. & Albany in median strip
  - M. West end of Harrison St. at West St (on east side of Shryveshaft right, access to TACA bus area)
  - N. South end of Harrison St. at West St (on west side of Shryveshaft right, access to TACA bus area)
  - O. West end of Harrison St. at West St (on west side of Shryveshaft right, access to TACA bus area)
  - P. NE corner of 5th St
  - Q. Barclay & West St (center island) in proximity to USCG command post
  - R. TACA Bus Location
  - S. Racor & South End



THE

- I. SE corner of Wall St. & Broadway
- J. NE corner of Warren & West St.
- K. West St. & Albany in median strip
- L. Broadway and North Park sec. area (north side of Surveasant High), access to TACA bus area
- M. Broadway and North Park sec. area (north side of Surveasant High), access to TACA bus area
- N. South side of Park 25 (west to waterball court)
- O. NE corner of South End Ave. & Albany
- P. Broadway & West St. (center island) in proximity to USCG command post
- Q. TACA & Eastman
- R. Victor & South End









Table 1 Results of the Analysis for Metals in Wipes  
WTC New Yorker

Check ID Location	Media Blank #1 Lab	Media Blank #2 Lab	Media Blank #3 Lab	A.B04682 MCC Floor/L Deck	A.B04693 MCC Theater/Front	A.B04694 MCC S.Bldg INE	
Parameter	Analysis Method	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe
Aluminum	ICAP	9.5	2.5	12	2.5	70	2.5
Antimony	AA-Fur	U	0.10	U	0.10	0.11	0.10
Arsenic	AA-Fur	U	0.10	U	0.10	U	0.10
Barium	ICAP	2.6	0.25	1.9	0.25	0.85	0.25
Beryllium	ICAP	U	0.10	U	0.10	U	0.10
Cadmium	ICAP	U	0.25	U	0.25	U	0.25
Calcium	ICAP	230	5.0	180	5.0	1700	5.0
Chromium	ICAP	U	0.25	U	0.25	0.44	0.25
Cobalt	ICAP	U	0.50	U	0.50	1.6	0.50
Copper	ICAP	U	0.50	U	0.50	0.74	0.50
Iron	ICAP	15	1.3	16	1.3	15	1.3
Lead	AA-Fur	0.15	0.10	0.32	0.10	1.8	0.10
Magnesium	ICAP	31	25	28	25	54	25
Manganese	ICAP	1.5	0.25	1.4	0.25	13	0.25
Mercury	AA-cold vapor	U	0.01	U	0.01	U	0.01
Nickel	ICAP	U	0.50	U	0.50	U	0.50
Potassium	ICAP	U	100	U	100	U	100
Selenium	AA-Fur	U	0.10	U	0.10	U	0.10
Silver	ICAP	U	0.25	U	0.25	U	0.25
Sodium	ICAP	980	25	950	25	280	25
Thallium	AA-Fur	U	0.10	U	0.10	U	0.10
Vanadium	ICAP	U	0.50	U	0.50	U	0.50
Zinc	ICAP	4.1	0.50	6.3	0.50	31	0.50

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average media blank (Σ = MDL) subtracted from all sample results

MCC, Manhattan Borough Community College

FILE

Table 1 Results of the Analysis for Metals in Wipes  
WTC New York ER

Client ID	A.B04695	A.B04696	A.B04697	A.B04698	A.B04699	A.B04700
Location	MCC S.Bldg E Wg MCC N Park Ent	MCC C7M Bleacher	MCC C7M NENT	MCC C7M Floor 2	MCC C7M Floor 3	SFS C7M Floor 3
Parameter	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe
Analysis Method	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe
Aluminum	U	2.5	570	2.5	59	2.5
Antimony	U	0.10	0.79	0.10	U	0.10
Arsenic	U	0.10	0.13	0.10	U	0.10
Barium	U	0.25	1.2	0.25	9.4	0.25
Beryllium	U	0.10	U	0.10	U	0.10
Bismuth	U	0.25	U	0.25	U	0.25
Calcium	180	5.0	1000	5.0	6900	5.0
Chromium	U	0.25	0.94	0.25	4.4	0.25
Cobalt	U	0.50	U	0.50	1.1	0.50
Copper	U	0.50	3.0	0.50	9.8	0.50
Iron	U	1.3	840	1.3	690	1.3
Lead	U	0.10	2.3	0.10	9.7	0.10
Magnesium	U	25	79	25	570	25
Manganese	4.2	0.25	9.0	0.25	28	0.25
Mercury	U	0.01	U	0.01	U	0.01
Nickel	U	0.50	0.77	0.50	2.4	0.50
Potassium	U	100	150	100	220	100
Selenium	U	0.10	U	0.10	U	0.10
Silver	U	0.25	U	0.25	U	0.25
Sodium	U	25	U	25	U	25
Thallium	U	0.10	U	0.10	U	0.10
Vanadium	U	0.50	U	0.50	1.2	0.50
Zinc	12	0.50	28	0.50	110	0.50

MCC: Manhattan Borough Community College

SFS: Shuysen High School

MDL denotes Method Detection Limit

U denotes less than the MDL (not detected)

Average media blank (> MDL) subtracted from all sample results

558

558

Table 1 Results of the Analysis for Metals in Wipes  
WTC New York ER

Client ID Location	A.B04401 SHS Wait 7	A.B04402 Elevator	A.B04403 SHS T BENT	A.B04404 SHS MP	A.B04405 SHS CSEGL	A.B04406 SHS GRN ENT
Parameter	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe
Aluminum	3.2	2.5	35	2.5	210	2.5
Antimony	U	0.10	U	0.10	0.27	0.10
Arsenic	U	0.10	U	0.10	0.10	0.10
Barium	U	0.25	U	0.25	2.3	0.25
Beryllium	U	0.10	U	0.10	U	0.10
Cadmium	U	0.25	U	0.25	U	0.10
Calcium	U	5.0	660	5.0	2500	5.0
Chromium	U	0.25	3.3	0.25	1.2	0.25
Copper	U	0.50	U	0.50	U	0.50
Cobalt	U	0.50	0.73	0.50	3.9	0.50
Iron	3.2	1.3	31	1.3	360	1.3
Lead	U	0.10	0.75	0.10	2.0	0.10
Magnesium	U	0.25	88	0.25	230	0.25
Manganese	U	0.01	1.2	0.01	U	0.01
Mercury	U	0.50	U	0.50	1.3	0.50
Nickel	U	0.50	U	0.50	U	0.50
Potassium	U	100	110	100	100	100
Selenium	U	0.10	U	0.10	U	0.10
Silver	U	0.25	U	0.25	U	0.25
Sodium	U	25	U	25	U	25
Thallium	U	0.10	U	0.10	U	0.10
Vanadium	U	0.50	U	0.50	U	0.50
Zinc	1.3	0.50	55	0.50	39	0.50

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)

Average media blank (= MDL) subtracted from all sample results

SHS: Stuyveson High School

7E

Table 1 Results of the Analysis for Metals in Wipes  
WTC New York ER

Client ID Location	Analysis Method	Conc µg/wipe	MDL µg/wipe
ALB04407 TB	ICAP	U	2.5
	AA-Fur	U	0.10
	AA-Fur	U	0.10
	ICAP	U	0.25
	ICAP	U	0.10
	ICAP	U	0.25
	ICAP	U	5.0
	ICAP	U	0.25
	ICAP	U	0.50
	ICAP	U	0.50
	ICAP	1.4	1.3
	AA-Fur	U	0.10
	ICAP	U	2.5
	ICAP	2.1	0.25
	AA-cold vapor	U	0.01
	ICAP	U	0.50
	ICAP	U	100
	AA-Fur	U	0.10
	Silver	U	0.25
	ICAP	U	2.5
	AA-Fur	U	0.10
	ICAP	U	0.50
	ICAP	U	0.50

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average media blank (>= MDL) subtracted from all sample results

TB: Trip Blank

NYC-WIC-EK

School Indoor Wipes

Date	Time	Sample ID	Sample Location	Analytes	Sample #
9/28/01	14:30	MCC – Gym Bleachers	BMCC - 2 <sup>nd</sup> Level, North Side Gym Bleachers	Metals, Hg PCB	04697 04681
9/28/01	14:40	MCC – Gym N. Ent.	BMCC - 2 <sup>nd</sup> Level, North Side Gym Access Door	Metals, Hg PCB, Dioxin	04698 04682
9/28/01	14:50	MCC – Gym Floor 2 Key	BMCC - 2 <sup>nd</sup> Level, North Side Gym Top of Key – Basketball Court	Metals, Hg PCB	04699 04683
9/28/01	15:15	MCC – S. Building IN E	BMCC – 2 <sup>nd</sup> Level, South Bldg. East Side Entrance	Metals, Hg PCB, Dioxin	04694 04678
9/28/01	15:25	MCC – S. Bldg., E. Wall	BMCC – 2 <sup>nd</sup> Level, South Bldg. East Wall, Near Entry Door	Metals, Hg PCB	04695 04679
9/28/01	15:35	MCC – Theater 1 Front	BMCC – 2 <sup>nd</sup> Level, South Bldg. Directly in Front of Theater 1	Metals, Hg PCB	04693 04677
9/28/01	15:50	MCC – Floor 1 L. Dock	BMCC – 1 <sup>st</sup> Level, North Bldg. Loading Dock Area Access Pt.	Metals, Hg PCB	04692 04676
9/28/01	15:55	MCC – N Park Ent.	BMCC – 1 <sup>st</sup> Level, North Bldg. Far North Entrance (Parking)	Metals, Hg PCB	04696 04680
9/28/01	16:20	SHS – CSE GL	SHS – Ground Floor Chambers St. Main Entrance Foyer	Metals, Hg PCB, Dioxin	04405 04689
9/28/01	16:35	SHS – GF N Ent.	SHS – Ground Floor North End Hallway	Metals, Hg PCB	04406 04690
9/28/01	16:40	SHS - MP	SHS – Chambers St. Entrance Mezzanine Platform	Metals, Hg PCB	04404 04688
9/28/01	16:50	SHS – TB Ent.	SHS – 2 <sup>nd</sup> Floor, Just Outside South Theater Balcony Ent.	Metals, Hg PCB	04403 04687
9/28/01	17:00	SHS - Elevator	SHS – 2 <sup>nd</sup> Floor, Escalator. Smooth area where handles are located	Metals, Hg PCB	04402 04686
9/28/01	17:10	SHS – Gym Floor 3	SHS – 3 <sup>rd</sup> Floor Gym, biased sample, dusty area of floor	Metals, Hg PCB	04700 04684
9/28/01	17:20	SHS – Wall 7	SHS – 3 <sup>rd</sup> Floor Gym, East Side Wall sample, Under #7	Metals, Hg PCB	04401 04685
9/28/01		Trip Blank	Trip Blank	Metals, Hg PCB, Dioxin	04407 04691

NYC-WTC-ER

School Indoor Wipes

9/29/01	10:00	PS-234-1-1	PS-234 - Greenwich St. (East) Entrance, Ground Floor	Metals, Hg PCB, Dioxin	04601 04601
9/29/01	10:15	PS-234-1-2	PS-234 - North Entrance Foyer, Ground Floor	Metals, Hg PCB	04602 04602
9/29/01	10:25	PS-234-1-3W	PS-234 - Ground Floor, South Wall, Entrance to Cafeteria, across from Elevator	Metals, Hg PCB	04603 04603
9/29/01	10:40	PS-234-2-1	PS-234 - 2 <sup>nd</sup> Floor, Outside Stairwell #2, North side of Hall.	Metals, Hg PCB, Dioxin	04604 04604
9/29/01	10:45	PS-234-2-1 Rep	PS-234 - 2 <sup>nd</sup> Floor, Stairwell #2 REPLICATE	Metals, Hg PCB, Dioxin	04605 04605
9/29/01	10:58	PS-234-2-2	PS-234 - 2 <sup>nd</sup> Floor, Outside Stairwell #1, Foyer	Metals, Hg PCB	04606 04606
9/29/01	11:05	PS-234-2-3W	PS-234 - 2 <sup>nd</sup> Floor, Foyer, So. Wall Between Rms. 223-225	Metals, Hg PCB	04607 04607
9/29/01	11:18	PS-234-3-1	PS-234 - 3 <sup>rd</sup> Floor, Outside Stairwell #2, North side of Hall.	Metals, Hg PCB	04608 04608
9/29/01	11:25	PS-234-FB	PS-234 - Field Blank	Metals, Hg PCB, Dioxin	04609 04609
9/29/01		PS-234-TB	PS-234 - Trip Blank	Metals, Hg PCB, Dioxin	04610 04610

Contract: LA99-223 Project Number: LA99-230 No.        Sheet 01 of         
 LM Contact: J. B. ... (for addit to       ) Phone: 504-349-2400 Original Copy

92901

IC	Sample Identification			Date Collected	# of Balls	Manufacturer	Analyzes Requested
	Sample No	Sampling Location	Matrix				
05	A04692	MCC FIBER L BASK	X	9/28/90	1	SLS, INC./VPC	ZAL X A
06	A04693	MCC ↓					X
07	B04693	MCC SHOWER/FIBER					X
08	A04694	MCC BATH 3/16					X
09	A04695	MCC SINK ENAIL					X
10	B04695	MCC ↓					X
11	A04696	MCC HALL ENT					X
12	B04696	MCC ↓					X
13	A04697	MCC SHOWER					X
14	B04697	MCC ↓					X
15	A04698	MCC GYM HALL					X
16	B04698	MCC ↓					X
17	A04699	MCC GYM ENTR					X
18	B04699	MCC ↓					X
19	A04700	MCC GYM FLOOR					X
20	B04700	MCC ↓					X
21	A04701	MCC WALL 7					X
22	B04701	MCC ↓					X

Special Instructions: # - ZAL metals excluding Hg

ANALYZES REQUESTED FROM CHAIN OF CUSTODY #:

Requisition	Relinquish to	Date	Relinquished by	Received by	Date	Time
781, 782	BY [Signature]	9/29/90	C. B. ...			

Legend:  
 PW: Fresh Water  
 SW: Seawater  
 SI: Sludge  
 SO: Solids  
 DL: Drain Liquor  
 GS: Groundwater  
 TX: TCLP Extract  
 M: M  
 H: H  
 U: U  
 V: V  
 X: Other type Sample



No:   
 Sheet 01 of 01 (Do not copy)   
 (for addnl. samples use new form)

Project Number: 67-000336   
 LM Contact: W. B. ... Phone: 321-6220

409-233

Sample Identification				Analyzers Requested		
Sample No.	Sampling Location	Matrix	Date Collected	# of Bins	Sampler/Preserver	Analyzer
114	SHS 4117	X	9/28/01	1	40-404/455	TALS
115	Eleventh St					X
116	SHS TBENT					X
117	SHS 4103					X
118	SHS 4104					X
119	SHS 4105					X
120	SHS 4106					X
	TP					X
	TB					X

Special Instructions: \_\_\_\_\_

SAMPLES TRANSFERRED FROM \_\_\_\_\_

CHAIN OF CUSTODY #: \_\_\_\_\_

- Matrix:
- AW - Fouling Water
  - BL - Bottom Sludge
  - BU - Drum Liquor
  - CS - Drum Solids
  - GW - Groundwater
  - DI - Oil
  - MS - Muds
  - FW - Fresh Water
  - SW - Surface Water
  - ICLP - Inlet Cooling Pond
  - W - Water
  - W - Other

Transferred by	Date	Received by	Date	Transferred by	Date	Retrieved by	Date	Time
<i>[Signature]</i>	9/28/01	<i>[Signature]</i>	9/28/01	<i>[Signature]</i>	9/28/01	<i>[Signature]</i>	9/28/01	7:15

File name Sample Location Sample Number Sample Height Volume	DRAFT GCMS Results for 10/02/01 DRAFT				
	NYC201 Ambient N. Park Pier 2894 Breathing level 250 mL	NYC202 Instrument Blank	NYC203 Middle N. Tower A 2891 Ground level 50 mL	NYC204 Middle N. Tower B 2892 Ground level 20 ml	NYC205 Middle N. Tower C 2893 Ground level 20 mL
Propylene	RL=20 ppb	RL=20 ppb	32000	10000	25000
Dichlorodifluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Dichlorotetrafluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloromethane	RL=20 ppb	RL=20 ppb	28000	4500	14000
Vinyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Bromomethane	RL=20 ppb	RL=20 ppb	400	210	480
Chloroethane	RL=20 ppb	RL=20 ppb	2200	330	880
Trichlorofluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Isopropyl Alcohol	RL=20 ppb	RL=20 ppb	32000	RL=20 ppb	RL=20 ppb
Acetone	RL=20 ppb	RL=20 ppb	32000	11000	24000
Trichlorotrifluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
3-Chloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Methylene Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
MTBE	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
trans-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Hexane	RL=20 ppb	RL=20 ppb	2600	570	1100
1,1-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Vinyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
2-Butanone	RL=20 ppb	RL=20 ppb	10900	2200	6000
cis-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Ethyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloroform	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Tetrahydrofuran	RL=20 ppb	RL=20 ppb	4900	1400	2700
1,1,1-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Cyclohexane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Carbon Tetrachloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	350	RL=20 ppb	RL=20 ppb
Benzene	RL=20 ppb	RL=20 ppb	42000	16000	31000
Heptane	RL=20 ppb	RL=20 ppb	1700	370	700
Trichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichloropropane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,4-Dioxane	RL=20 ppb	RL=20 ppb	540	710	790
Methyl Isobutyl Ketone	RL=20 ppb	RL=20 ppb	680	160	RL=20 ppb
cis-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Toluene	RL=20 ppb	RL=20 ppb	16000	6700	12000
trans-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
2-Hexanone	RL=20 ppb	RL=20 ppb	890	230	550

FILE

	NYC 201	NYC 202	NYC 203	NYC 204	NYC 205
Tetrachloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Dibromochloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dibromoethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chlorobenzene	RL=20 ppb	RL=20 ppb	360	250	280
Ethylbenzene	RL=20 ppb	RL=20 ppb	14000	7300	12000
m&p-Xylenes	RL=20 ppb	RL=20 ppb	1200	360	850
o-Xylene	RL=20 ppb	RL=20 ppb	930	330	680
Styrene	RL=20 ppb	RL=20 ppb	9900	5800	7900
Bromoform	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,1,2-Tetrachloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
4-Ethyltoluene	RL=20 ppb	RL=20 ppb	690	220	520
1,3,5-Trimethylbenzene	RL=20 ppb	RL=20 ppb	490	250	520
1,2,4-Trimethylbenzene	RL=20 ppb	RL=20 ppb	390	150	390
1,3-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	30	46
1,4-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Benzyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichlorobenzene	RL=20 ppb	RL=20 ppb	23	52	67
1,2,4-Trichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	29
Hexachloro-1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb

RL=Reporting Limit (20 ppb)

FILE

DRAFT GCMS Results for 10/02/01 DRAFT			
File name	NYC206	NYC207	NYC208
Sample Location	Loc #1 West & Liberty	Loc# 2 Greenwich & Liberty	Loc #3 Tobin Plaza
Sample Number	2895	2896	2897
Sample Height	Breathing level	Breathing level	Breathing level
Volume	250 mL	250 mL	250 mL
Propylene	RL=20 ppb	RL=20 ppb	RL=20 ppb
Dichlorodifluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb
Dichlorotetrafluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb
Vinyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb
Bromomethane	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb
Trichlorofluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb
Isopropyl Alcohol	RL=20 ppb	RL=20 ppb	RL=20 ppb
Acetone	49	RL=20 ppb	RL=20 ppb
Trichlorotrifluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb
3-Chloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb
Methylene Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb
MTBE	RL=20 ppb	RL=20 ppb	RL=20 ppb
trans-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb
Hexane	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb
Vinyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb
2-Butanone	RL=20 ppb	RL=20 ppb	RL=20 ppb
cis-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb
Ethyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloroform	RL=20 ppb	RL=20 ppb	RL=20 ppb
Tetrahydrofuran	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,1-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb
Cyclohexane	RL=20 ppb	RL=20 ppb	RL=20 ppb
Carbon Tetrachloride	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb
Benzene	RL=20 ppb	RL=20 ppb	RL=20 ppb
Heptane	RL=20 ppb	RL=20 ppb	RL=20 ppb
Trichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichloropropane	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,4-Dioxane	25	RL=20 ppb	RL=20 ppb
Methyl Isobutyl Ketone	RL=20 ppb	RL=20 ppb	RL=20 ppb
cis-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb
Toluene	RL=20 ppb	RL=20 ppb	RL=20 ppb
trans-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb
2-Hexanone	RL=20 ppb	RL=20 ppb	RL=20 ppb

FILE

	NYC 206	NYC 207	NYC 208			
Tetrachlorobene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Dibromochloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,2-Dibromoethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Chlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Ethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
m&p-Xylenes	RL=20 ppb	RL=20 ppb	RL=20 ppb			
o-Xylene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Styrene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Bromoform	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,1,2,2-Tetrachloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb			
4-Ethyltoluene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,3,5-Trimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,2,4-Trimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,3-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,4-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Benzyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,2-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
1,2,4-Trichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb			
Hexachloro-1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb			

RL=Reporting Limit (20 ppb)

FILE

0.17-0.18% / 1.2  
 0.18-0.20%

Location	Date	Time	WD	1-Dev. Lim				Tape Meters				ANALYZER							Mini Gas PID-5				Methi	Gas	HCN	ppm	FID	ppm	O <sub>2</sub>	ppm	NO	ppm							
				CO	H <sub>2</sub>	S	HC1	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	LEL	%	AN											O <sub>2</sub>	ppm	CO	ppm			
E	10/16	1045	S	ND	ND	ND	ND	ppbv	ppbv	ppbv	ppbv	ppm	ppm	ppm	ppm	ppm	ppm	%	20.8	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
#1	10/10	1019	STILL	ND	ND	ND	ND	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.8	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
P	10/10	1023	STILL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.8	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
S	10/10	1025	STILL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.8	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
K	10/10	1029	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.8	1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
D	10/10	1032	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.8	7.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	10/10	1037	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.9	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	10/16	1042	E	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.9	1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1	10/16	1046	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.9	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	10/10	1056	UNMEAS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.9	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
#2	10/11	1059	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.9	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
#3	10/10	1104	E	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.9	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
A	10/10	1108	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.9	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	10/10	1113	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.9	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q	10/10	1117	UNMEAS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.9	2.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J	10/10	1121	STILL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.9	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Locations: A - Greenwisch + Albany, B - Church Dey  
 C - Church + Liberty, G1 - Broadway + Liberty  
 D - Greenwisch + Albany, E - South End + Liberty  
 F - West + West, H - Chase Plaza  
 I - Broadway + West, J - West + West  
 K - West + Albany, L - St. P.S. Tree  
 Comments: M: METERS: CO<sub>2</sub>, HC1  
 CARBON: CO<sub>2</sub>, HC1  
 ANALYZER: 50, PFD, O<sub>2</sub>, LEL  
 \*3: Just below lower steps - no data

Location	Date		WD	Tape Meters			HCl			Multi-Gas P11D-5				TVA-100				
	Date	Time		CO12	SO2	HN05	ppbv	ppbv	ppbv	ppm	SO2	LEL	%	CO	ppm	ppm	ppm	ppm
N	10/01/01	1125	N	ND			ND		ND	0.2	ND	20.9	1.0	ND	ND	ND	ND	ND
M	10/01/01	1130	N	ND			ND		ND	0.1	ND	20.9	0.4	ND	ND	ND	ND	ND
L	10/01/01	1142	W	ND	Y		ND		ND	0.1	ND	20.9	0.4	ND	ND	ND	ND	ND

Location	Notes
A - Greenwich + Bardsley	B - Church + Day
C - Church + Liberty	D - Broadway + Liberty
E - Greenwich + Albany	F - South End + Liberty
G - West + Vesey	H - Chase 1929
I - Broadway + Wall	J - West + Jackson
K - West + Albany	L - Stuy. H.S. Trees

Location	Notes
M - Harrison Tree	N - Piccadilly
P - South End + Albany	Q - C.G. (Amasa Post)
R - Liberty + West	S - Greenwich + Liberty
T - Place across from Day	

Comments:

Location	Date, Time		Tape Meters		Multi-Gas PPM-5				Multi-Gas PPM-5		Multi-Gas PPM-5		Multi-Gas PPM-5		Multi-Gas PPM-5								
	Date	Time	CO	HCN	SO2	LEL	DA	ND	LEL	CO	HCN	SO2	LEL	DA	ND	LEL	CO	HCN	SO2	LEL	DA	ND	
E	10/1/01	1433	ND	ND	ND	2*	20.8	ND	0.1	ND	ND	2*	20.8	ND	0.1	ND	ND	ND	ND	ND	ND	ND	ND
#1	10/1/01	1439	ND	ND	ND	2*	20.8	ND	ND	ND	ND	2*	20.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	10/1/01	1443	ND	ND	ND	2*	20.8	ND	0.7	ND	ND	2*	20.8	ND	0.7	ND	ND	ND	ND	ND	ND	ND	ND
S	10/1/01	1446	ND	ND	ND	2*	20.8	ND	0.5	ND	ND	2*	20.8	ND	0.5	ND	ND	ND	ND	ND	ND	ND	ND
K	10/1/01	1448	ND	ND	ND	2*	20.8	ND	0.9	ND	ND	2*	20.8	ND	0.9	ND	ND	ND	ND	ND	ND	ND	ND
D	10/1/01	1450	ND	ND	ND	2*	20.8	ND	4.4	ND	ND	2*	20.8	ND	4.4	ND	ND	ND	ND	ND	ND	ND	ND
I	10/1/01	1454	ND	ND	ND	2*	20.8	ND	1.1	ND	ND	2*	20.8	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND
H	10/1/01	1458	ND	ND	ND	2*	20.9	ND	0.3	ND	ND	2*	20.9	ND	0.3	ND	ND	ND	ND	ND	ND	ND	ND
C1	10/1/01	1503	ND	ND	ND	2*	20.9	ND	ND	ND	ND	2*	20.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	10/1/01	1509	ND	ND	ND	2*	20.9	ND	1.7	ND	ND	2*	20.9	ND	1.7	ND	ND	ND	ND	ND	ND	ND	ND
#2	10/1/01	1513	ND	ND	ND	2*	20.9	ND	ND	ND	ND	2*	20.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
A	10/1/01	1519	ND	ND	ND	2*	20.9	ND	2.9	ND	ND	2*	20.9	ND	2.9	ND	ND	ND	ND	ND	ND	ND	ND
Q	10/1/01	1522	ND	ND	ND	2*	20.9	ND	0.4	ND	ND	2*	20.9	ND	0.4	ND	ND	ND	ND	ND	ND	ND	ND
F	10/1/01	1525	ND	ND	ND	2*	20.9	ND	0.2	ND	ND	2*	20.9	ND	0.2	ND	ND	ND	ND	ND	ND	ND	ND
J	10/1/01	1531	ND	ND	ND	2*	20.9	ND	1.5	ND	ND	2*	20.9	ND	1.5	ND	ND	ND	ND	ND	ND	ND	ND
N	10/1/01	1536	ND	ND	ND	2*	20.9	ND	0.5	ND	ND	2*	20.9	ND	0.5	ND	ND	ND	ND	ND	ND	ND	ND

Locations: A - Greenwiche + Bagley; B - Church + Day  
 C - Church + Liberty; D - Be aban + Liberty  
 E - West + Vestal; F - Ch + E Pl + G  
 I - Prosser + Wall; J - West + Wren  
 K - West + Albany; L - Sh + Hs + Jce  
 Comments: TAPE METERS: CO, O2, HCN  
 CARBON MONOXIDE: CO, O2, HCN  
 MULTIGAS: H2, SO2, HCL, HF, O2  
 #1 - LIBERTY + WEST  
 #2 - GREENWICH + LIBERTY  
 #3 - ALBANY + WEST  
 #4 - ALBANY + WEST

Multi-Gas PPM-5: #3 COULD NOT CALIBRATE SAMPLE DUE TO POSSIBLE INTERFERENCE OF H2O



12 0:13 pm

Location	Date		Time		Day		Tape Meters					Multi-Gas P11D-5					Multi		TVA-100						
	Date	Time	WD	WD	CO	CO2	SO2	NO	NO2	HCN	HCI	SO2	ppm	LEL	%	CO	ppm	NO	ppm	HCN	ppm	FID	FID	ppm	ppm
A	10/10/15	1538	W		ND	ND	ND	ND	ND	ND	ND	0.3	2*	20.7	1.2				ND	ND	ND	ND	ND	ND	ND
B	10/10/15	1540	W		ND	ND	ND	ND	ND	ND	ND	0.2	2*	20.9	1.8				ND	ND	ND	ND	ND	ND	ND
C																									
D																									
E																									
F																									
G																									
H																									
I																									
J																									
K																									

Locations: A - Greenwich + Barclay, B - Church + Day  
 C - Church + Liberty, D - Broadway + Liberty  
 E - Greenwich + Albany, F - South End + Liberty  
 G - West + Vesey, H - Church + Plaza  
 I - Broadway + Wall, J - West + Warren  
 K - West + Albany, L - Stuyvesant + Essex

Comments:

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Thursday, October 4, 2001**

**Most Recent Results (as of 1:00 p.m. 10/4):**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 34 samples taken in and around the ground zero area from October 2 to October 3. All samples showed results less than the 70 structures per millimeter squared, which is EPA's standard for allowing children to re-enter schools after asbestos removal activities.

Four air samples taken in New Jersey on October 1 were all less than the school re-entry standard.

This brings the total number of air samples collected and analyzed to 515.

**Dust** - 8 samples were taken on October 3 at various sites in lower Manhattan, all results either showed no detection of asbestos or asbestos present at concentrations of less than 1%.

**Staten Island Landfill (Asbestos)**

**Air** - 11 air samples were taken from Oct. 2 to Oct. 3. All test results were below the AHERA standard used for allowing re-entry into schools.

**Dust** - Eight samples taken on October 3 were analyzed for asbestos. All results either showed no detection of asbestos or asbestos present at concentrations of less than 1%.

**Ambient Air Sampling:**

**Metals** - 10 samples were taken on October 2 within the vicinity of the emergency response operations. Of these, chromium results for 4 samples exceeded EPA's removal action guideline, which is based on a 30-year, 24 hour exposure risk scenario. However, when this guideline is adjusted for a one year exposure duration, none of the levels exceed the adjusted removal action guideline. All levels were less than the most conservative NIOSH chromium standard.

**Ambient Air Samples**

**VOCs** - Sampling for volatile organic compounds (VOC) was conducted on Oct. 3. Benzene was detected at three locations above the OSHA limit in the plume on the debris pile. Benzene was not detected at three perimeter locations.

**PM 2.5** - Particulate monitoring was conducted from September 26 to October 2 at Pace

University and the Borough of Manhattan Community College. Particulate monitoring was also conducted at an additional location, the U.S. Coast Guard building, located in Battery Park on October 2. All 24-hour average values were below the National Ambient Air Quality Standards for all stations.

#### **Emergency Dredging Permit Request**

The City needs to provide additional emergency ferry terminal capacity at alternate locations due to the loss of the use of the ferry terminal at the World Financial Center and the PATH station at the former World Trade Center. The City has requested that the Corps of Engineers issue an emergency dredging permit for Pier 79 (39<sup>th</sup> St. and Hudson St.) to ensure the appropriate draft for ferry boats. Under the current plan, the material to be dredged would be stabilized at the CTI facility in New Jersey and disposed of at the Pennsylvania Ave landfill site in New York. There is currently an on-going pilot project at this landfill to study the use of conditioned dredged material as landfill cover. EPA is in agreement with this proposal. In addition, NYC is contemplating a temporary ferry terminal at Pier A in Battery Park in lower Manhattan. For this ferry terminal, the city would need to temporarily install piles to secure a floating facility.

U.S. Environmental Protection Agency  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Thursday, October 4, 2001 (11:00 am)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 2, 12 noon - 12 midnight)
  - All 17 samples were below the TEM AHERA standard.
- NYC / ER (Oct 2 midnight - Oct 3, 12 noon)
  - All 17 samples were below the TEM AHERA standard.
- NJ (Oct 1, 11:30AM - 9:00 PM)
  - All 4 samples were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations (Asbestos)

- Fresh Kills (Oct 2, 6:00 PM - Oct 3, 8:00 AM)
  - All 11 samples were below the TEM AHERA standards

Ambient Air Sampling Locations

- NYC / ER (Oct 2) - Metals
  - Chromium levels identified in 4 of 10 samples (Locations A, B, D, and S) exceed the EPA removal action level guidelines (based on a 30-year exposure).
  - All chromium levels are below the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.
  - All chromium levels are below the most conservative NIOSH chromium standard.
  - Although the chromium levels are elevated, they are not a short-term concern.

Bulk/Dust Samples (Asbestos)

- NYC / ER (Oct 3)
  - Asbestos was either not detected or present at concentrations less than 1% (chrysotile) in all 8 samples.
- Fresh Kills (Oct 3)
  - Asbestos was either not detected or present at concentrations less than 1% (chrysotile) in all 8 samples.

Ambient Air Sampling Locations (TAGA - volatile organics)

- NYC / ER (Oct 3)
  - Benzene exceeded OSHA TWA PEL at three locations on the debris pile in the plume at ground level.
  - Benzene was not detected in three perimeter samples in the breathing zone.

**FILE**

Ambient Air Sampling Locations (Particulate monitoring - PM2.5)

- NYC / ER (Sep 26 - Oct 2)
  - Pace University (Site 1) / Manhattan Boro Community College (Site 2)
  - All 24-hour average values were below the National Ambient Air Quality Standard for PM2.5 (65 ug/m<sup>3</sup>) for both stations.
  - Site 1 24-hr average concentration range for this period was 5.2 ug/m<sup>3</sup> to 42.4 ug/m<sup>3</sup>.
  - Site 2 24-hour average concentration range for this period was 9.4 ug/m<sup>3</sup> to 22.00 ug/m<sup>3</sup>.
- NYC / ER (Oct 2)
  - Coast Guard Building - Battery Park (Site 3)
  - The 24-hour average value (16.55 ug/m<sup>3</sup>) was below the National Ambient Air Quality Standard for PM2.5 (65 ug/m<sup>3</sup>).

Direct Reading Instruments

- NYC / ER (Oct 2)
  - Nothing of significance reported.

**FILE**

NYC Response  
Asbestos Air Sampling Results at Fleet Locations  
Sampling Date and Time: 10/02/01 (12:00) to 10/02/01 (24:00)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/cc	f/mm <sup>2</sup>	Structures (#)*	S-f/cc*
10/2/01	01851	A	720	Air	0.005	8.92	0	17.78
10/2/01	01852	B	720	Air	<0.004	<7.0	2**	0.0035
10/2/01	01853	C-1	720	Air	<0.004	<7.0	0	<0.004B
10/2/01	01855	D	720	Air	0.005	10.19	2**	26.67
10/2/01	01858	E	720	Air	<0.004	<7.0	0	<0.004B
10/2/01	01859	F	720	Air	0.010	19.11	0	<0.004B
10/2/01	01857	H	720	Air	12.74	7.64	0	<0.004B
10/2/01	01854	I	720	Air	0.004	7.64	0	<0.004B
10/2/01	01856	J	720	Air	0.005	10.56	1**	9.83
10/2/01	01856	K	720	Air	0.004	7.64	1**	9.83
10/2/01	01855	L	720	Air	0.004	7.01	0	<0.004B
10/2/01	01853	M	720	Air	<0.004	<7.0	0	<0.004B
10/2/01	01854	N	720	Air	<0.004	<7.0	0	<0.004B
10/2/01	01854	O	720	Air	0.005	8.95	0	<0.004B
10/2/01	01851	P	720	Air	<0.004	<7.0	0	<0.004B
10/2/01	01859	S	720	Air	<0.004	<7.0	0	<0.004B

loc# 63089

Sampling Locations:  
 A: corner of West Broadway & Bursley  
 B: SE corner of West Broadway & Bursley  
 C: Trinity (B & A Church) & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St.  
 G: Church and Chime St.  
 H: SE corner of West St. & Broadway  
 I: SE corner of West St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Shuyvazand Light), access to TAGA bus area  
 M: Western end of Harrison St. at West St. (on lee next to bulkhead)  
 N: South side of Pier 25 (next to volleyball court)  
 O: Intersection of East Ave. & Albany  
 P: TAGA Bus Location  
 Q: TAGA Bus Location  
 R: TAGA Bus Location  
 S: Reuler & South End

NS: Not sampled  
 AF/ANS: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 Structure (S) roughly equivalent to liter (l)  
 NA: not analyzed due to overloading of particulates

E(RT: 10/04/01 9:50 AM)

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 765 (AHERA)  
 Standard criteria: EPA 40CFR Part 765 (AHERA): 0.01 fiber/cc (PCM), 70 Structures / 70 Structures, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/03/01 (0001) to 10/03/01 (1200)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCR by NIOSH 7400		TEM (AHERA)	
					f/ftm <sup>3</sup>	f/cc	Structures (#)*	S-f/cc*
10/2/01	01873	A	720	Air	26.75	0.014	0	17.78
10/2/01	01874	B	720	Air	54.78	0.029	0	0.0048
10/2/01	01875	C-1	720	Air	13.0	0.008	0	8.89
10/2/01	01876	D	720	Air	57.0	<0.004	0	<0.0048
10/2/01	01883	F	720	Air	29.3	0.018	0	<0.0048
10/2/01	01876	H	720	Air	<7.0	<0.004	0	<0.0048
10/2/01	01877	I	720	Air	8.92	0.005	0	<0.0048
10/2/01	01871	J	720	Air	15.29	0.008	0	<0.0048
10/2/01	01872	J DUP	720	Air	12.74	0.007	1**	8.89
10/2/01	01879	K	720	Air	7.64	0.004	0	<0.0048
10/2/01	01887	L	720	Air	7.01	<0.004	0	<0.0048
10/2/01	01886	M	720	Air	9.92	0.005	0	<0.0048
10/2/01	01885	P	720	Air	5.69	<0.004	0	<0.0048
10/2/01	01884	O	720	Air	21.65	0.012	0	<0.0048
10/3/01	01881	S	720	Air	7.01	<0.004	0	<0.0048

cc: JAV99

Sampling Locations:

- A: NE corner of West Broadway & Barday
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty St.
- C-1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. & Greenwich St.
- E: West end of Albany St. & Greenwich St.
- F: Northern median strip of West Broadway Ave
- F: Northern median strip of West Broadway Ave
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA (rec area)
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- R: TAGA (rec area)
- S: Rectory & South End

NS: Not sampled  
AF/NF: Asbestos fibers/non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) Roughly equivalent to Fiber (F)  
NR: Not requested  
NA: not analyzed due to overloading of particulates

\*\* Chrysler

ERT: 10/04/01 9:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 f/ftm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

FILE

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	<5µ	>5µ
10/1/01	08856	Liberty Park	480	Air	<7.0	<0.006	0	<6.16
10/1/01	08857	CITGO Terminal	480	Air	<7.0	<0.006	0	<6.15
10/1/01	08858	FMC Terminal	480	Air	<7.0	<0.006	0	<6.16
10/1/01	08859	Shell Terminal	480	Air	<7.0	<0.006	0	<6.15

SI-CR-0003

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1130 (10/01/01) - 1930 (10/01/01)
CITGO Terminal	1230 (10/01/01) - 2030 (10/01/01)
FMC Terminal	1305 (10/01/01) - 2105 (10/01/01)
Shell Terminal	1320 (10/01/01) - 2120 (10/01/01)

ERT: 10/04/01 09:50 AM





NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/02/01 1800 to 10/03/01 0800

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/min <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>
10/3/01	01681	#1	573	Air	<7.0	<0.005	<5µ	<8.00
10/3/01	01682	#2	720	Air	<7.0	<0.004	0	<8.89
10/3/01	01683	#3	720	Air	8.92	0.005	0	<8.89
10/3/01	01684	#4	720	Air	<7.0	<0.004	0	<8.89
10/3/01	01685	#5	720	Air	<7.0	<0.004	0	<8.89
10/3/01	01686	#6	720	Air	<7.0	<0.004	0	<8.89
10/3/01	01687	#7	720	Air	<7.0	<0.004	0	<8.89
10/3/01	01688	#8	693.6	Air	<7.0	<0.004	0	8.99
10/3/01	01689	#9A	720	Air	<7.0	<0.004	1**	<8.89
10/3/01	01690	#9B	720	Air	<7.0	<0.004	0	<8.89
10/3/01	01691	#10	720	Air	<7.0	<0.004	0	<8.89

cc=cm<sup>3</sup> L=litre

\*\* Chrysotile

NI: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to fiber (f).  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/04/01 9:50 AM

Table 1 Results of the Analysis for Metals in Air  
WTC New York ER

Samples Collected 10/02/01

Client ID Location Air Volume (L)	Media Blank #1 Lab	Media Blank #2 Lab	Media Blank #3 Lab	Field Blank 0	Lot Blank 0	00993 TAGA 962	
Parameter	Analysis Method	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Aluminum	ICAP	U	1.3	U	1.3	U	1.3
Antimony	AA-Fur	U	0.05	U	0.05	U	0.052
Arsenic	AA-Fur	U	0.05	U	0.05	U	0.052
Barium	ICAP	U	0.13	U	0.13	U	0.13
Beryllium	ICAP	U	0.05	U	0.05	U	0.052
Cadmium	ICAP	U	0.13	U	0.13	U	0.13
Calcium	ICAP	3.7	2.5	4.0	2.5	U	2.6
Chromium	ICAP	0.68	0.13	0.74	0.13	0.29	0.13
Cobalt	ICAP	U	0.25	U	0.25	U	0.26
Copper	ICAP	U	0.25	U	0.25	U	0.26
Iron	ICAP	U	0.63	U	0.63	U	0.65
Lead	AA-Fur	U	0.05	U	0.05	U	0.06
Magnesium	ICAP	U	13	U	13	U	13
Manganese	ICAP	U	0.13	U	0.13	U	0.13
Nickel	ICAP	U	0.25	U	0.25	U	0.26
Potassium	ICAP	U	50	U	50	U	52
Selenium	AA-Fur	U	0.05	U	0.05	U	0.052
Silver	ICAP	U	0.13	U	0.13	U	0.13
Sodium	ICAP	U	13	U	13	U	13
Thallium	AA-Fur	U	0.05	U	0.05	U	0.052
Vanadium	ICAP	U	0.25	U	0.25	U	0.26
Zinc	ICAP	0.49	0.25	0.47	0.25	U	0.26

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration (≅=MDL) subtracted from all sample results

Table 1 Results of the Analysis for Metals in Air  
WTC New York ER

Client ID	00994	00995	00996	00997	00998	00999	
Location	TAGA 962	A-BARCLAY ST. & WEST BROADWAY 960	B-CHURCH & DEY ST. 1008	LOC 3 - SW SIDE OF WTC 5 960	C1-LIBERTY ST. & BROADWAY 962	D-GREENWICH & ALBANY ST. 960	
Air Volume (L)	962	960	1008	960	962	960	
Parameter	Analysis Method	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Aluminum	ICAP	U	1.3	2.5	1.3	1.6	1.3
Antimony	AA-Fur	U	0.052	0.29	0.052	U	0.052
Arsenic	AA-Fur	U	0.052	U	0.052	U	0.052
Barium	ICAP	U	0.13	U	0.13	U	0.13
Beryllium	ICAP	U	0.052	U	0.052	U	0.052
Cadmium	ICAP	U	0.13	U	0.13	U	0.13
Calcium	ICAP	U	2.6	29	2.6	12	2.6
Chromium	ICAP	U	0.13	0.15	0.13	U	0.13
Cobalt	ICAP	U	0.26	U	0.26	U	0.26
Copper	ICAP	U	0.26	0.47	0.26	U	0.26
Iron	ICAP	1.1	0.65	7.0	0.65	0.82	0.26
Lead	AA-Fur	0.07	0.05	0.28	0.05	0.25	0.05
Magnesium	ICAP	U	13	U	13	U	13
Manganese	ICAP	U	0.13	0.13	0.13	0.16	0.13
Nickel	ICAP	U	0.26	U	0.26	U	0.26
Potassium	ICAP	U	52	U	52	U	52
Selenium	AA-Fur	U	0.052	U	0.052	U	0.052
Silver	ICAP	U	0.13	U	0.13	U	0.13
Sodium	ICAP	U	13	U	13	U	13
Thallium	AA-Fur	U	0.052	U	0.052	U	0.052
Vanadium	ICAP	U	0.26	U	0.26	2.1	0.26
Zinc	ICAP	U	0.26	0.83	0.26	U	0.26

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration (≈MDL) subtracted from all sample results

Table 1 Results of the Analysis for Metals in Air  
WTC New York ER

Client ID	01000	01001	01002
Location	P. ALBANY ST. & SOUTHEND AVE. 1008	S. RECTOR PLACE & SOUTHEND AVE. 966	E. LIBERTY ST. & SOUTHEND AVE. 964
Air Volume (L)	1008	966	964
Parameter	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>
Analysis Method	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Aluminum	1.6	1.2	1.6
Antimony	U	0.05	U
AA-Fur	U	0.05	U
AA-Fur	U	0.05	U
Barium	U	0.12	U
ICAP	U	0.13	U
Beryllium	U	0.05	U
ICAP	U	0.052	U
Cadmium	U	0.12	U
ICAP	U	0.13	U
Calcium	12	2.5	8.4
ICAP	U	2.6	2.6
Chromium	U	0.12	U
ICAP	U	0.13	U
Cobalt	U	0.25	U
ICAP	U	0.26	U
Copper	U	0.25	U
ICAP	2.9	0.62	2.4
Iron	0.07	0.05	0.06
Lead	U	0.05	U
AA-Fur	U	12	U
ICAP	U	13	U
Magnesium	U	0.12	U
ICAP	U	0.13	U
Manganese	U	0.25	U
ICAP	U	0.26	U
Nickel	U	50	U
ICAP	U	52	U
Potassium	U	0.05	U
ICAP	U	0.052	U
Selenium	U	0.12	U
ICAP	U	0.13	U
Silver	U	12	U
Sodium	U	0.05	U
ICAP	U	0.052	U
Thallium	U	0.25	U
ICAP	U	0.26	U
Vanadium	U	0.25	U
ICAP	U	0.26	U
Zinc	U	0.25	U

MDL denotes Method Detection Limit

U denotes less than the MDL (not detected)

Average Media Blank concentration ( $\bar{x}$  = MDL) subtracted from all sample results



NYC Response  
Asbestos Bulk Sample Analysis Results  
Sampling Date: 10/03/01

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
10/3/01	06167	LF W Car Ale	solid	ND	
10/3/01	06168	LF N Bulk Steel	solid	ND	
10/3/01	06169	LF SW Building 7	solid	ND	
10/3/01	06170	LF SW Building 7	solid	ND	
10/3/01	06171	LF SW Building 7	solid	ND	
10/3/01	06172	LF WTC West	solid	ND	
10/3/01	06173	LF WTC West	solid	ND	
10/3/01	06174	LF WTC West	solid	ND	
10/3/01	06223	Vac Truck Sample	solid	< 1% Chrysotile	
10/3/01	03826	Washington Carlisle	solid	ND	
10/3/01	03827	Washington & Rector	solid	< 1% Chrysotile	
10/3/01	03828	Washington & Rector	solid	ND	
10/3/01	03830	70 Greenwich	solid	< 1% Chrysotile	
10/3/01	03829	Washington & Rector	solid	< 1% Chrysotile	
10/3/01	03831	70 Greenwich	solid	< 1% Chrysotile	
10/3/01	03832	70 Greenwich	solid	< 1% Chrysotile	

USE 04226

PLM Polarized Light Microscope by Method NY State ELAP 198.1  
ND: None Detected

ERT: 10/04/01 9:50 AM

DRAFT GC/MS Results for 10/03/01 DRAFT

File name	NYC211	NYC212	NYC213	NYC214	NYC215
Sample Location	Instrument Blank	Tedar Bag Blank	Ambient	Plume North Center of Tower	Plume North Tower, Middle
Sample Number			10461	10463	10465
Sample Height			Breathing Ht.	ground	ground
Volume		100 mL	100 mL	50 mL	50mL

Compound	NYC211	NYC212	NYC213	NYC214	NYC215
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120,000 ppbv	130,000 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	34 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	18,600 ppbv	118,000 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	161 ppbv	1100 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1300 ppbv	380 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	740 ppbv	1,500 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	260 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	330 ppbv	1,200 ppbv
Acetone	RL=20 ppbv	24 ppbv	54 ppbv	21,000 ppbv	36,000 ppbv
Trichlorofluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methylvine Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
trans-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,300 ppbv	12,000 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	15,400 ppbv	10,000 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	77 ppbv	188 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2,600 ppbv	5,100 ppbv
1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	100 ppbv	220 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	28,000 ppbv	38,000 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	910 ppbv	1,600 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	122 ppbv	31 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	910 ppbv	1,800 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1480 ppbv	1950 ppbv
o-1,5-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	15,000 ppbv	18,000 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	620 ppbv	970 ppbv
Tetrahydroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	27 ppbv	41 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dibromochloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	370 ppbv	540 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	15,000 ppbv	18,000 ppbv
m&o-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,000 ppbv	1,500 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	750 ppbv	1,100 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	9,500 ppbv	14,000 ppbv
Bromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	580 ppbv	920 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	630 ppbv	960 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	400 ppbv	620 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	38 ppbv	51 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
o-Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	73 ppbv	94 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	21 ppbv	23 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED

DRAFT GC/MS Results for 10/03/01 DRAFT

File name	NYC217	NYC218	NYC219	NYC216
Sample Location	Location #1 West & Liberty 10467	Location #2 Greenwich & Liberty 10462	Location #3 Austin Tobin Plaza 10466	Plume South Tower, Middle 10464 ground 50mL
Sample Number	Breathing Ht.	Breathing Ht.	Breathing Ht.	
Sample Height	100 mL	100 mL	100 mL	
Volume				
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2,500 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	900 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	21 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	34 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	58 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Isopropyl Alcohol	56 ppbv	29 ppbv	RL=20 ppbv	96 ppbv
Acetone	110 ppbv	82 ppbv	82 ppbv	3,100 ppbv
Trichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
MTEB	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	130 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	690 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
trahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	320 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	14,300 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	82 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	120 ppbv	69 ppbv	32 ppbv	130 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	42 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,700 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	57 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	60 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	74 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,700 ppbv
m&p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	100 ppbv
O-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	90 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1770 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	64 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	61 ppbv
4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	47 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	26 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

FILE

<u>10/1/01</u>	<u>PACE</u>	<u>COAST</u> <u>GUARD</u>	<u>BMCC</u>
PM2.5 concentrations in micrograms/cubic meter			
<u>TIME</u>	<u>MASS</u>	<u>MASS</u>	<u>MASS</u>
0:00	4.699		6.3
1:00	3.352		4.887
2:00	3.557		7.446
3:00	3.641		5.202
4:00	2.902		8.12
5:00	4.086		7.907
6:00	4.218		7.228
7:00	4.718		8.268
8:00	6.71		9.556
9:00	7.469		10.1
10:00	7.03		12.11
11:00	4.392		5.217
12:00	7.225		9.546
13:00	11		15.02
14:00	5.876		12.06
15:00	18.56		13.4
16:00	15		18.07
17:00	15.73		17.53
18:00	14.57	5.2	21.65
19:00	22.62	16.28	21.32
20:00	22.12	6.886	21.31
21:00	26.94	11.21	21.25
22:00	28.85	10.8	18.66
23:00	57.45	15.79	20.79
24hr ave	12.61		12.62



<u>10/2/01</u>	<u>PACE</u>	<u>COAST GUARD</u>	<u>BMCC</u>
PM2.5 concentrations in micrograms/cubic meter			
<u>TIME</u>	<u>MASS</u>	<u>MASS</u>	<u>MASS</u>
0:00	53.39	14.27	17.76
1:00	54.54	15.79	18.94
2:00	17.22	13.33	20.91
3:00	9	12.7	25.16
4:00	11.94	13.08	19.79
5:00	11.54	10.5	24.17
6:00	11.17	10.42	21.96
7:00	13.58	13.13	20.57
8:00	19.94	18.6	21.91
9:00	23.31	17.57	22.6
10:00	25.93	20.01	25.23
11:00	25.68	21.05	20.41
12:00	31.92	18.45	25.62
13:00	26.72	13.37	18.4
14:00	22.26	12.74	17.99
15:00	24.31	13	16.23
16:00	20.06	12.25	18.03
17:00	21.25	13.66	17
18:00	38.17	15.45	19.38
19:00	36.11	22.06	23.22
20:00	23.09	24.02	28.86
21:00	23.41	25.97	27.7
22:00	27.43	25.56	28.07
23:00	35.49	20.3	27.15
24hr ave	25.31	16.55	22.00

PM<sub>2.5</sub> Ambient Air Monitoring in micrograms/cubic meter

<u>Pace</u>	24-hour averages	<u>MBCC</u>
42.4	09/26/01	12.2
29.8	09/27/01	17.9
12.9	09/28/01	14.5
7.2	09/29/01	12.6
5.2	09/30/01	9.4

calculated from NYSDEC spreadsheet

Location	Date		Time		WD		Tape Meters				Multi-Gas PID-5				Multi-Gas		TVA-100						
	10/2/01	10/2/01	0814	0817	0820	0826	0828	0835	0840	0844	0850	0855	1002	1005	1012	1020	1027	CO	NO	HCN	CO <sub>2</sub>	PM10	
E	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Locations: A - Greenwisch + Parsley, B - Church + Day  
 C - Church + Liberty, G - Broadway + Liberty  
 D - Greenwisch + Albany, E - South End + Liberty  
 F - West + Vesey, H - Chase Plaza  
 I - Broadway + Wall, J - West + Warren  
 K - West + Albany, L - Ely, N.Y. Tree  
 Comments: COMMENTS: CO, KCN  
 ANALYSE: ANALYSE: CO, HCN, LEL, PID, P2  
 OPER: OPER: CO, HCN, LEL, PID, P2  
 M - Harrison Tree, N - Pier 25  
 P - South End + Albany, Q - C.G. Semmes (Bus)  
 1 - Liberty + West  
 2 - Greenwisch + Liberty  
 3 - Plaza across from Day  
 TAPE METERS: CO, HCN, LEL, PID, P2

Location	Date	Time	Day	Dist. Lim.	Tape Meters				Multi-Gas PHD-5						TVA-100			
					CO12 ppbv	H2S04 ppbv	IN03 ppbv	HCl ppbv	H2S ppm	SO2 ppm	NO ppm	CO ppm	NO ppm	NO ppm	HCN ppm	Gas ppm	FID ppm	PID ppm
M	10-20	1031	STLC		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	10-20	1035	STLC		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L	10-20	1040	STLC		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
					<p>Locations: A - Greenwich + Barely, B - Church + Day            C - Church + Liberty, G - Broadway + Liberty            D - Greenwich + Albany, E - South End + Liberty            F - West + Vesey, H - Chase Plaza            M - Broadway + Wall, I - West + Warren            N - West + Albany, L - 5th + N.S. Trees</p> <p>Comments:</p>													

Station	Date	Time	Tape Meters				Multi-Gas PHD-5				Multi		TVA-100			
			CO	H2S	SO2	HCl	ppm	%	LEL	ppm	ppm	ppm	ppm	ppm	ppm	
1	10/02	1520	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2	1530		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	1540		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4	1545		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5	1550		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6	1500		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7	1605		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8	1610		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9	1615		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10	1620		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11	1625		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	1630		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	1635		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	1640		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
15	1645		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
16	1650		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Locations: A - Greenwisch - Bardley, B - Church + Day, M - Harrison Trce, N - Dick a S  
 Church Liberty, C1 - Broadway + Liberty, P - South End + Albany, Q - C.G. Seaman Rd  
 Greenwisch + Albany, E - South End + Liberty, R1 - Liberty + West  
 West + Neasey, H - Chase Plaza, R2 - Greenwisch + Liberty  
 Broadway + Wall, I - West Warren, R3 - Plaza across from Day  
 West + Albany, L - S.W. Trce

U.S. Environmental Protection Agency  
Air/Bulk Sampling Situation Report  
**Errata Sheet (Oct. 5, 2001)**

**Wednesday, September 26, 2001**

Ambient Sampling and Rector Street Runoff Sampling

The metals data for the water samples collected on September 20, 2001 was incorrectly reported in units of mg/l. The concentration units should actually be in units of ug/l. An updated report and revised data table are provided as an attachment to replace the previous report.

**Sunday, September 30, 2001**

Landfill Air Sampling Locations (Asbestos)

Fresh Kills (Sep 28, 6:00PM - Sep 29, 7:00AM)

Previous data sheet was not explicit on the time and date of sample collection. A revised table is provided as an attachment to replace the previous table. Note: the analytical data reported on the previous data sheet remains the same.

**Tuesday, October 2, 2001**

Landfill Air Sampling Locations (Asbestos)

Previous data sheets submitted on this date had incorrect dates and times. The entire data set is thus revised and provided as an attachment to replace the previous tables. In addition, the cover summary sheet for Oct 3, 2001 is revised and also provided as an attachment to replace the previous cover sheet. The revisions are highlighted on the replacement cover sheet. A summary of the revised dates is provided below. Note: the analytical data reported on the previous data sheets remains the same.

- Fresh Kills (Sep 29, 7:00PM - Sep 30, 7:00AM)
- Fresh Kills (Sep 30, 7:30AM - 6:30PM)
- Fresh Kills (Sep 30, 6:00PM - Oct 1, 8:00AM)
- Fresh Kills (Oct 1, 8:00AM - 6:30PM)

**Wednesday, October 3, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Oct 1, 12 noon - 12 midnight)

Previous data sheet was not explicit on the time and date of sample collection. A revised table is provided as an attachment to replace the previous table. Note: the analytical data reported on the previous data sheet remains the same.

**FILE**

October 3, 2001 (3:19pm)Corrected Units Metals Table - ug/LPreliminary ResultsPCBs, Metals, PAHs, TSSNew York City/ World Trade Center Sampling ActivitiesAmbient Sampling & Rector Street Runoff Resampling**Preliminary Results Summary:**

**Runoff:** *(Previously Reported)* PCB congeners (DL 0.0052 ug/L) were reported as not detected by the EPA Region 2 Lab. Additional samples for Dioxins/Furans, PCB congeners (High Resolution GC/MS) and PAHs are being performed by the NYSDEC contract lab, with results expected next week.

*(Previously Reported)* Asbestos concentrations have decreased significantly (55 MFL) from the sample collected on 09/14 (10,000 MFL). Metal concentrations are also significantly attenuated. Two PAHs were reported at very low concentrations. TSS was at the same concentration as the ambient Hudson River background sample.

**Ambient:** PCB congeners (DL 0.0052 ug/L) and PAHs (DLs  $\leq$  1.0 ug/L) were reported as not detected by the EPA Region 2 Lab. Additional samples for Dioxins/Furans, PCB congeners (High Resolution GC/MS) and PAHs are being performed by the NYSDEC contract lab, with results expected next week. Asbestos was reported as less than the detection limit in all samples.

*(Previously Reported)* Metals concentrations were below levels of concern, and generally decrease between the Hudson River background location and the Hudson River WTC sampling locations, likely due to dilution. PAHs were not detected. TSS was slightly elevated in the East River sample relative to the Hudson River samples.

**EPA Personnel:**

Street Runoff - Stephen Hale, Erwin Smieszek, Towana Joseph  
Ambient Sampling - Warren McHose, Helen Grebe, Dick Coleates,  
Kathleen Savino

**Sampling Date:** September 20, 2001**Sampling Time:** Afternoon - during rainstorms/ Samples arrived Edison 6 - 7:30 PM**Location:** Hudson River and East River**Sample Matrix:** Water**Analytes , Laboratory:***Region 2 Edison - Metals), TSS, PAHs, PCB congeners**NYS DEC Contractor (Axis) - PCB congeners, PAHs, Dioxins/Furans**Contract (Raj Singhvi coordinating, Ambient sample asbestos***FILE**

*NYSDOH/Wadsworth (Dr. J. Webber), Runoff sample asbestos*

**Runoff Sampling:** Samples of runoff from the location at the foot of Rector St. previously sampled on 09/14/01 during rain storm/street washdown. No washdown was being conducted during this sampling event, and flow from the discharge pipe was very low. The EPA Whaler supported the sampling.

**Ambient Sampling:** Ambient samples were collected from three locations in the Hudson River; directly west of Ground Zero, north of Ground Zero, south of Ground Zero. A reference (background) sample was collected near the George Washington Bridge. A sample was collected in the East River east of South Street Seaport. The EPA Clean Waters supported the sampling.

HR-Background	40 50.210 N 073 57.384 W
HR-North WTC	40 43.427 N 074 01.272 W
HR-West WTC	40 42.903 N 074 01.332 W
HR-South WTC	40 42.133 N 074 01.417 W
ER-South St.	40 42.210 N 074 00.071 W

**Preliminary Results:**09/25/01

**PCB Congeners:** PCB congeners were analyzed in the EPA Region 2 laboratory. The 71 PCB congeners analyzed were reported as not detected (DL 0.0052 ug/L). Additional samples for Dioxins/Furans, PCB congeners (High Resolution GC/MS) and PAHs are being performed by the NYSDEC contract lab (Axys), with results expected next week.

**Asbestos:** Asbestos was analyzed by the EPA REAC contract laboratory. Asbestos is reported as non-detect in all samples, with detection limits of < 1.53 MFL in Hudson River Samples, and < 7.65 MFL in the East River sample. The East River sample may be re-analyzed.

09/24/01

**Asbestos:** Asbestos in the runoff sample was analyzed at the NYSDOH Wadsworth Laboratories. Asbestos has decreased significantly relative to the concentration reported by the same lab for the runoff sample collected on 09/14/01.

**Metals:** Metals were analyzed in the Region II laboratory. No metals were detected at levels of concern. For most detected metals, concentrations were greatest in the background George Washington Bridge sample. Rector St. Runoff concentrations are elevated relative to the background sample, but since the flow was very low, no significant impact is expected.

**FILE**



- PAHs:** PAHs were analyzed in the EPA Region 2 Laboratory. No PAHs were detected in the ambient Hudson and East River Samples. Two (2) PAHs, Fluoranthene and pyrene, were detected in the runoff sample at a concentrations less than 1 ug/L, respectively.
- TSS:** TSS in the Hudson River samples were around 18 mg/L for the background and WTC area Hudson River samples, and 28 mg/L for the East River sample. TSS was 18 mg/L for the Rector St. Runoff sample.

**FILE**



Metals in Hudson and East Rivers and Rector St. Runoff (ug/L)

Metal	Hudson River Background (GH Bridge)		Hudson River North WTC		Hudson River West WTC		Hudson River South WTC		East River (South St)		Rector St. Runoff (Rector St) 09/14/01		Rector St. Runoff %GW Bridge Background		Midtown Pumping Station		Newtown Creek STP Effluent	
	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.2	ND	ND
Aluminum	410	240	ND	ND	ND	ND	ND	ND	420	640,000	156,098	1,500	366	ND	300	ND	ND	
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	140	3,500	19	475	ND	ND	ND	ND	ND	
Barium	23	18	17	17	17	17	17	17	8,600	37,391	60	261	ND	38	ND	27	ND	
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	78	78,250	ND	ND	ND	ND	ND	ND	ND	
Calcium	260,000	290,000	280,000	290,000	290,000	290,000	290,000	290,000	2,115	240,000	92	64,000	ND	ND	35,000	ND	ND	
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	180	9,000	ND	ND	ND	ND	ND	ND	ND	
Cobalt	ND	ND	ND	ND	ND	ND	ND	ND	160	160,000	ND	ND	ND	ND	ND	ND	ND	
Chromium	ND	ND	ND	ND	ND	ND	ND	ND	3,000	100,000	23	767	ND	ND	ND	ND	ND	
Copper	ND	ND	ND	ND	ND	ND	ND	ND	4,000	8,000	29	116	46	41	ND	ND	ND	
Iron	390	230	200	200	200	200	200	200	440	320,000	8,205	1,500	385	730	540	ND	ND	
Potassium	260,000	300,000	300,000	310,000	310,000	310,000	310,000	310,000	100,000	38	6,200	2	47,000	25,000	ND	ND	ND	
Magnesium	860,000	820,000	960,000	990,000	990,000	990,000	990,000	990,000	0.38	8,400	1	130,000	61,000	ND	ND	ND	ND	
Manganese	56	40	40	40	40	40	40	40	32,000	57,143	53	95	100	74	ND	ND	ND	
Sodium	7,200,000	8,300,000	8,300,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	100,000	1	9,500	0	1,100,000	530,000	ND	ND	ND	
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	910	36,400	8	300	ND	ND	ND	ND	ND	
Lead	ND	ND	ND	ND	ND	ND	ND	ND	5,200	29,714	31	177	8	ND	ND	ND	ND	
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	56	1,600	ND	ND	ND	ND	ND	ND	ND	
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	470	6,714	34	486	ND	ND	ND	ND	ND	
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	100	1,000	ND	ND	ND	ND	ND	ND	ND	
Vanadium	ND	ND	ND	ND	ND	ND	ND	ND	790	15,800	ND	ND	ND	ND	ND	ND	ND	
Zinc	ND	ND	ND	ND	ND	ND	ND	ND	49,000	24,500	150	3,000	94	80	ND	ND	ND	
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	9	9,000	ND	ND	ND	ND	ND	ND	ND	

\* % of background detection limit used for calculation when background sample is Not Detected (ND)



NYC Response  
 Asbestos Air Sampling Results for Freshkill Landfill  
 Sampling Date and Time: 09/28/01 1800 to 09/29/01 0700

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
9/28 - 9/29	06656	#1	717	Air	<7.0	<0.004	0/2	<0.004	0	<8.89	<0.0048
9/28 - 9/29	06657	#2	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.89	<0.0048
9/28 - 9/29	06658	#3	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.89	<0.0048
9/28 - 9/29	06659	#4	320	Air	<7.0	<0.008	0/0	<0.008	0	<8.89	<0.0095
9/28 - 9/29	06660	#5	700	Air	<7.0	<0.004	0/0	<0.004	0	<8.89	<0.0048
9/28 - 9/29	07141	#6	240	Air	<7.0	<0.011	0/0	<0.011	0	<8.89	<0.0126
9/28 - 9/29	07142	#7	720	Air	<7.0	<0.004	0/0	<0.004	1**	8.89	0.0048
9/28 - 9/29	07143	#8	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.89	<0.0048
9/28 - 9/29	07144	#9A	700	Air	<7.0	<0.004	0/1	<0.004	0	<8.89	<0.0048
9/28 - 9/29	07145	#9B	273.4	Air	<7.0	<0.010	0/0	<0.010	0	<8.89	<0.0113
9/28 - 9/29	07146	#10	720	Air	<7.0	<0.004	0/0	<0.004	0	<8.89	<0.0048

cont 06/24

NS: Not sampled  
 AF/NAF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method.  
 \*Structure (S) Roughly equivalent to Fiber (F)  
 NA: not analyzed due to overloading of particulates

\*\* Chrysotile

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 09/30/01 9:50 AM  
 Revised: ERT: 10/04/01 3:30 PM

U.S. Environmental Protection Agency  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Tuesday, October 2, 2001 (11:00 pm) - Revised Oct 5, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Sept 29, 12 noon - 12 midnight)
  - All 17 samples were below the NYC reentry standard for PCM.
  - 2 samples exceeded the TEM AHERA standard (Location E - Liberty/South End and Location S - Rector/South End).
- NYC / ER (Sept 29, 12 midnight - Sept 30, 12 noon)
  - 1 of 17 samples was above the NYC reentry standard for PCM (Location D).
  - 2 of the 17 samples were above the TEM AHERA standard (Location D - Albany/Greenwich and Location K - West/Albany median).

Landfill Air Sampling Locations

- Fresh Kills (Sep 29, 7:00PM - Sep 30, 7:00AM)
  - All 7 samples were below both the PCM and TEM AHERA standards.
  - No volume collected at 4 other locations.
- Fresh Kills (Sep 30, 7:30AM - 6:30PM)
  - All 11 samples were below both the PCM and TEM AHERA standards.
- Fresh Kills (Sep 30, 6:00PM - Oct 1, 8:00AM)
  - 1 of 11 samples exceeded the NYC reentry standard for PCM (Location #8).
  - All samples below the OSHA standard and the TEM AHERA standard.
- Fresh Kills (Oct 1, 8:00AM - 6:30PM)
  - All 9 samples were below both the PCM and TEM AHERA standards.
  - No volume collected at 3 other locations.

Landfill Bulk/Dust Samples

- Fresh Kills (Oct 1) - Asbestos
  - Asbestos was not detected in all 8 samples.

FILE



NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 09/29/01 1900 to 09/30/01 0700

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/cc	Adjusted TEM f/cc	Structures (#)	S- f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#)	S- f/cc
9/29 - 9/30	02161	#1	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.89	<0.0048
9/29 - 9/30	02162	#2	720	Air	<7.0	<0.004	0/1	<0.004	0	0	<8.89	<0.0048
9/29 - 9/30	02163	#3	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.89	<0.0048
9/29 - 9/30	02164	#4	720	Air	<7.0	<0.004	0/1	<0.004	0	0	<8.89	<0.0048
9/29 - 9/30	02165	#5	0	Air	<7.0	**	0/0	**	0	0	<8.0	**
9/29 - 9/30	02166	#6	0	Air	<7.0	**	0/0	**	0	0	<8.0	**
9/29 - 9/30	02167	#7	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.89	<0.0048
9/29 - 9/30	02168	#8	720	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.89	<0.0048
9/29 - 9/30	02169	9A	0	Air	<7.0	**	0/0	**	0	0	<8.0	**
9/29 - 9/30	02170	9B	720	Air	<7.0	<0.004	0/2	<0.004	0	0	8.89	0.0048
9/29 - 9/30	01641	P10	0	Air	<7.0	**	0/0	**	0	0	<8.0	**

cccr04028

NS: Not sampled  
 AF/NAF: Asbestos fibers/Non asbestos fibers  
 Structures (#): Number of fibers exceeding limit of the method.  
 S- f/cc: Structures (S) per cubic centimeter of filter (F)  
 NA: not analyzed due to clogging of particulates  
 \*\*: No results available because no air volume were taken

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/min<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/01/01 2:00 PM  
 Revised: ERT 10/04/01 3:30 PM



NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 09/30/01 0730 to 1630

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM by NIOSH 7402		TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	AF/NAF	Adjusted TEM f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
9/30/01	01654	#1	653	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0047
9/30/01	01662	#2	636	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0048
9/30/01	01661	#3	609	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0051
9/30/01	01660	#4	394	Air	<7.0	<0.007	0/0	<0.007	0	0	<8.00	<0.0078
9/30/01	01658	#5	614	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0050
9/30/01	01657	#6	614	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0050
9/30/01	01656	#7	545	Air	<7.0	<0.005	0/0	<0.005	0	0	<8.00	<0.0050
9/30/01	01655	#8	511	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0050
9/30/01	01654	#9	510	Air	<7.0	<0.004	0/0	<0.004	0	0	<8.00	<0.0050
9/30/01	01653	#8A	562	Air	<7.0	<0.005	0/0	<0.005	0	0	<8.00	<0.0053
9/30/01	01651	#10	564	Air	11.46	0.009	0/2	<0.005	0	0	<8.00	<0.0055

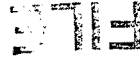
USEP 00014

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ENT: 10/02/01 9:50 AM

FK-09-30-01a.xls



NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 09/30/01 1800 to 10/01/01 0800

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400 f/min <sup>2</sup>	TEM by NIOSH 7400 AF/RAF f/cc	Adjusted TEM f/cc	Structures (#) -Sp	TEM (AHERA) S/mm <sup>2</sup>	S-f/cc*
9/30 - 10/01	23651	#1	700	Air	<7.0	<0.004	0/1	0	<6.0	<0.0048
9/30 - 10/01	23653	#2	720	Air	<7.0	<0.004	0/0	0	<8.89	<0.0048
9/30 - 10/01	23652	#3	720	Air	<7.0	<0.004	0/0	0	<8.89	<0.0048
9/30 - 10/01	23656	#4	720	Air	<7.0	<0.004	0/0	0	<8.89	<0.0048
9/30 - 10/01	23657	#5	720	Air	<7.0	<0.004	0/0	0	<8.89	<0.0048
9/30 - 10/01	23658	#6	720	Air	7.64	0.004	0/0	0	<8.89	<0.0048
9/30 - 10/01	23659	#7	720	Air	14.01	0.007	0/0	0	<8.89	<0.0048
9/30 - 10/01	23650	#8	720	Air	21.02	0.011	0/9	1	6.89	0.0048
9/30 - 10/01	23658	#9A	720	Air	<7.0	<0.004	0/0	0	<8.89	<0.0048
9/30 - 10/01	23657	#9B	700	Air	<7.0	<0.004	0/0	0	<8.89	<0.0048
9/30 - 10/01	23656	#10	700	Air	7.01	<0.004	0/0	0	<8.89	<0.0048

cccr0403

NS: Not sampled  
AF/RAF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*S: slightly elevated fiber (f)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
NIOSH 7402: Asbestos Analysis of Air samples by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/1/01 2:00 PM  
Revised: ERT: 10/4/01 3:30 PM

NYC  
Asbestos

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/01/01 0900 to 1830

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/min*	f/cc	Structures (#)	<5µ	>5µ	S-f/cc	
10/1/01	01660	#1	0	Air	<7.0	**	0	0	0	<6.67	**
10/1/01	01670	#2	532	Air	<7.0	<0.005	0	0	0	<6.67	<0.0048
10/1/01	01671	#3	532	Air	<7.0	<0.005	0	0	0	<6.67	<0.0046
10/1/01	01672	#4	NS	NS	<7.0	<0.005	0	0	0	<6.67	<0.0049
10/1/01	01673	#5	550	Air	<7.0	<0.005	0	0	0	<6.67	<0.0044
10/1/01	01674	#6	582	Air	<7.0	<0.005	0	0	0	<6.67	<0.0044
10/1/01	01675	#7	NS	NS	<7.0	<0.005	0	0	0	<6.67	<0.0047
10/1/01	01667	#9A	493	Air	<7.0	<0.005	0	0	0	<6.67	<0.0052
10/1/01	01668	#9B	492	Air	<7.0	<0.005	0	0	0	<6.67	<0.0052
10/1/01	01668	#10	494	Air	<7.0	<0.005	0	0	0	<6.67	<0.0052

cont# 100101

\*\* No results because no air volumes were taken  
NS: Not sampled  
Sample volume is below recommended limit of the method  
\*Structure (S) Roughly equivalent to Fiber (F)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA-100-FR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fibers/cc (PCM), 70 Slmin\*, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/02/01 9:50 AM





NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/1/01 12:00 to 2:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (#)	S-f/cc*	
10/1/01	01832	A	265	Air	<7.0	<0.007	2**	0	0.169
10/1/01	01833	B	720	Air	<7.0	<0.004	1**	0	8.89
10/1/01	01834	C-1	720	Air	7.64	0.004	0	0	<0.0048
10/1/01	01837	D	720	Air	11.48	0.006	0	0	<0.0048
10/1/01	01841	E	720	Air	17.74	0.007	0	0	<0.0048
10/1/01	01842	F	720	Air	<7.0	<0.004	0	0	<0.0048
10/1/01	01835	H	720	Air	10.59	0.005	0	0	<0.0048
10/1/01	01836	I	720	Air	10.52	0.005	0	0	<0.0048
10/1/01	01831	J	720	Air	7.64	0.004	0	0	<0.0048
10/1/01	01838	K	720	Air	10.19	0.005	0	0	<0.0048
10/1/01	01847	L	720	Air	7.64	0.004	0	0	<0.0048
10/1/01	01846	M	720	Air	<7.0	<0.004	0	0	<0.0048
10/1/01	01845	N	720	Air	7.64	0.004	0	0	<0.0048
10/1/01	01840	P	720	Air	7.64	0.004	1**	0	8.89
10/1/01	01843	Q	720	Air	<7.0	<0.004	0	0	<0.0048
10/1/01	01842	Q DUP	720	Air	7.64	0.004	0	0	<0.0048
10/1/01	01839	S	720	Air	8.92	0.005	0	0	<0.0048

NS: Not sampled  
AF/ANF: Asbestos fibers/fiber asbestos fibers  
Sample volume is below recommended limit of the method.  
\*: Structure (S) roughly equivalent to fiber (f)

NA: not analyzed due to overloading of particulates

ERT: 10/03/01 9:50 AM  
Revised

- Sampling Locations:**  
A: NE corner of West Broadway & Barclay  
B: SE corner of Church & Dey St.  
C: Trinity (a.k.a. Church & Liberty  
C1: SW corner of Broadway & Liberty St.  
D: East end of Albany St. at Greenwich St.  
E: Western end of Liberty St. at South End Ave  
F: Eastern end of Liberty St. at South End Ave  
G: Church and Duane St.  
H: South side of Chase Manhattan Plaza at Pine St.  
I: SE corner of Wall St. & Broadway  
J: NE corner of Warren & West St.  
K: West St. & Albany in median strip  
L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area  
M: Western end of Houston St. at West St. (on tree next to bulkhead)  
N: South side of Pier 25 (next to volleyball court)  
P: NE corner of South End Ave. & Albany  
Q: Barclay & West St. (either island) in proximity to USCG command post  
R: TAGA Bus Location  
S: Rear & South End

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/04  
NIOSH 7402: Asbestos Analysis of Air Samples by Transmission Electron Microscopy  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)  
FL-10-01-01.cold FL-10-02-01A.xls

**U.S. Environmental Protection Agency (EPA)  
Daily Environmental Monitoring Summary  
Friday, October 5, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 16 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

The following is a summary of the sampling results available on the date indicated.

**Most Recent Results (as of 11:00 a.m. 10/5):**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 16 samples taken in and around ground zero area on October 3. All samples showed results less than the 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities (Link to map). One sample was not analyzed due to overloading of particulates. This brings the total number of air samples collected and analyzed for lower Manhattan to 526, with 27 samples above the standard.

Eight air samples taken in New Jersey from October 2 and 3 were all less than the school re-entry standard. The total samples taken for New Jersey is 70, with zero above the standard.

**Dust** - Two samples were taken on October 4 at 140 West Street in lower Manhattan; results showed no detection of asbestos. The total number of dust samples taken for lower Manhattan is 138, with 34 over 1%.

**Staten Island Landfill**

**Air (Asbestos)** - Ten air samples were taken on October 3. All test results were below the AHERA standard used for allowing re-entry into schools.

**Particulates** - EPA detected a rise in the average concentration of particulates at several locations on October 4. Changes in average levels are monitored to determine if dust suppression is necessary.

U.S. Environmental Protection Agency  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Friday, October 5, 2001 (2:00 pm)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 3, 12 noon - 12 midnight)
  - All 16 samples were below the TEM AHERA standard.
  - 1 other sample was not analyzed due to overloading of particulates.
- NJ (Oct 2)
  - All 4 samples were below the TEM AHERA standard.
- NJ (Oct 3)
  - All 4 samples were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 3, 7:00 AM - Oct 3, 7:00 PM) - Asbestos
  - All 10 samples were below the TEM AHERA standard.
  - No volume collected at 1 other location.
- Fresh Kills (Oct 3/4) - Particulate Monitoring
  - Increased average concentration readings noted at several locations on Oct 4.

Bulk/Dust Samples (Asbestos)

- NYC / ER (Oct 4)
  - Asbestos was not detected in bulk samples collected from 140 West St. on both the 18<sup>th</sup> and 33<sup>rd</sup> floor roofs.

Direct Reading Instruments

- NYC / ER (Oct 3)
  - Nothing of significance reported.

**FILE**

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/03/01 (1200) to 10/03/01 (2400)

Sampling Date	Sample No.	Sample Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fcc*
					f/m <sup>3</sup>	f/cc	Structures (f) <sup>†</sup>	S/m <sup>3</sup>	
10/3/01	01901	A	720	Air	8.28	0.004	NA	0	0.0043
10/3/01	01902	B	720	Air	<7.0	<0.004	1**	0	<0.0043
10/3/01	01903	C	720	Air	<7.0	<0.004	0	0	<0.0043
10/3/01	01904	D	620	Air	<7.0	<0.004	0	0	<0.0050
10/3/01	01910	E	720	Air	<7.0	<0.004	1**	17.8	0.0085
10/3/01	01911	F	720	Air	<7.0	<0.004	0	0	<0.0043
10/3/01	01905	I	720	Air	<7.0	<0.004	0	0	<0.0043
10/3/01	01904	I	720	Air	<7.0	<0.004	1**	0	0.0043
10/3/01	01913	J	720	Air	<7.0	<0.004	0	0	<0.0043
10/3/01	01907	K	720	Air	<7.0	<0.004	0	0	<0.0043
10/3/01	01917	L	720	Air	<7.0	<0.004	0	0	<0.0043
10/3/01	01916	M	720	Air	<7.0	<0.004	0	0	<0.0043
10/3/01	01915	N	720	Air	<7.0	<0.004	0	0	<0.0043
10/3/01	01915	N	720	Air	<7.0	<0.004	0	0	<0.0043
10/3/01	01915	N	720	Air	<7.0	<0.004	0	0	<0.0043
10/3/01	01912	O	720	Air	7.64	0.004	0	0	<0.0043
10/3/01	01909	S	720	Air	<7.0	<0.004	0	0	<0.0043

000004127 \*\* Chrysoth

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of West Broadway & Liberty
- C: Trinity (aka Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of West St. & Broadway
- J: SE corner of Warren & West St.
- K: ME St. & South End Ave
- L: On walkway between North Park (north side of Shuyesant High), across to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to Dunklehead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (corner island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

NS: Not sampled  
Sample volume is below recommended limit of the method.  
Structure (S) Roughly equivalent to Fiber (f)  
NA: not analyzed  
N/A: not analyzed due to overloading of particulates

ERT: 10/05/01 9:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/19/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEF)

FILE

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM ( AHERA)			
					f/mm <sup>2</sup>	f/cc	<5µ	>5µ	S/mm <sup>2</sup>	S-f/cc*
10/2/01	00341	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/2/01	00342	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/2/01	00343	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/2/01	00344	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

CG-ER115

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1250 (10/02/01) - 2050 (10/02/01)
CITGO Terminal	1350 (10/02/01) - 2150 (10/02/01)
FMC Terminal	1425 (10/02/01) - 2225 (10/02/01)
Shell Terminal	1445 (10/02/01) - 2245 (10/02/01)

ERT: 10/05/01 09:50 AM



NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	<5µ	>5µ	S/mm <sup>2</sup>	S-f/cc*
10/3/01	00346	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/3/01	00347	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/3/01	00348	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/3/01	00349	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

CGE04116

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1200 (10/03/01) - 2000 (10/03/01)
CITGO Terminal	1300 (10/03/01) - 2100 (10/03/01)
FMC Terminal	1405 (10/03/01) - 2205 (10/03/01)
Shell Terminal	1435 (10/03/01) - 2235 (10/03/01)

ERT: 10/05/01 09:50 AM



NYC response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/30/01 0700 to 10/30/01 1900

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		Structures (S)		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	<5µ	>5µ	S/mm <sup>2</sup>	S-f/cc*
10/30/01	23594	#1	630	Air	12.1	0.007	1**	0	0	0.0049
10/30/01	23595	#2	624.8	Air	<7.0	<0.004	0	0	<8.00	<0.0049
10/30/01	23596	#3	621.3	Air	7.01	0.004	0	0	<8.00	<0.0050
10/30/01	23597	#4	619	Air	<7.0	<0.004	0	1**	0	0.0050
10/30/01	23598	#5	617.8	Air	<7.0	<0.004	0	0	<8.00	<0.0055
10/30/01	23599	#6	487	Air	<7.0	<0.006	0	0	<8.00	<0.0070
10/30/01	01721	#7	652.8	Air	<7.0	<0.004	0	0	<8.00	<0.0047
10/30/01	01722	#8	616	Air	<7.0	<0.004	0	0	<8.00	<0.0050
10/30/01	01723	#9A	604.6	Air	21.66	0.014	2**	0	16	0.0102
10/30/01	01724	#9B	0	Air	<7.0	<0.004	0	0	<8.00	<0.0050
10/30/01	01725	#10	609	Air	12.74	0.008	0	0	<7.27	<0.0046

ccsf 04217

\*\* Chrysotile

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/19/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/05/01 9:50 AM



**Daily DataRam Particulate Monitoring Summary Sheet**  
**Fresh Kills Landfill**  
**October 3, 2001**

Weather Info: Unknown.

Location	Longitude	Latitude	DataRam ID	Tag #	Logge d Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	MingConc ug/m3	AvgConc ug/m3	MaxConc ug/m3
1	-74.199795	40.565139	2295	1	52	13:00:00	10	00:15:00	100	0.0	19.8	60.9	409.8
2	-74.198262	40.566883	2010	1	52	13:00:00	10	00:15:00	100	0.0	0.0	71.2	464.4
3	-74.198685	40.570054	2011	1	51	12:45:00	10	00:15:00	100	0.0	0.1	55.3	405.9
4	-74.201380	40.569790	2224	1	51	12:45:00	10	00:15:00	100	0.0	12.6	58.1	225.0
5	-74.205873	40.568802	2294	1	51	12:45:00	10	00:15:00	100	0.0	13.6	46.0	179.5
6	-74.207406	40.563818	2480	1	51	12:45:00	10	00:15:00	100	0.0	13.6	48.8	204.7
7	-74.205414	40.560434	2363	1	51	12:45:00	10	00:15:00	100	0.0	0.0	47.7	724.8
8	-74.203019	40.561915	2012	1	51	12:45:00	10	00:15:00	100	0.0	0.1	43.6	161.3





**Daily DataRam Particulate Monitoring Summary Sheet**  
**Fresh Kills Landfill**  
**October 4, 2001**

Weather Info: Unknown.

Location	Longitude	Latitude	DataRam ID	Tag #	Logge d Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	MinConc ug/m3	AvgConc ug/m3	MaxConc ug/m3
1	-74 199795	40.565139	2480	1	40	10:00:00	10	00:15:00	100	0.0	0.0	132.9	1626.5
2	-74 198262	40.566883	2294	1	48	12:00:00	10	00:15:00	100	0.0	0.0	84.2	14276.0
3	-74 198685	40.570854	2295	1	48	12:00:00	10	00:15:00	100	0.0	0.0	51.5	4545.6
4	-74 201380	40.569790	2011	1	48	12:00:00	10	00:15:00	100	0.0	0.0	77.1	27441.0
5	-74 205873	40.568892	2363	1	47	11:45:00	10	00:15:00	100	0.0	0.0	26.9	1506.7
6	-74 207406	40.56818	2226	1	35	08:45:00	10	00:15:00	100	0.0	13.5	41.1	24330.9
7	-74 205414	40.560434	2224	1	47	11:45:00	10	00:15:00	100	0.0	9.3	38.0	817.0
8	-74 203019	40.561915	2012	1	47	11:45:00	10	00:15:00	100	0.0	0.0	39.7	1115.8
9	-74 201433	40.564822	2152	1	38	09:30:00	10	00:15:00	100	0.0	0.0	110.2	2457.5



NYC Response  
Asbestos Bulk Sample Analysis Results  
Sampling Date: 10/04/01

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
10/04/01	03833	140 West 33rd	solid	ND	
10/04/01	03834	140 West 18th	solid	ND	

00204232

PLM Polarized Light Microscope by Method NY State ELAP 198.1  
ND: None Detected

ERT: 10/05/01 9:50 AM

Location	Date	Time	WD	Tape Meters				Multi-Gas PHD-5										Multi Gas		TV				
				COC12 ppbv	H2SO4 ppbv	H2O ppbv	H2C ppbv	H2S ppm	SO2 ppm	LEL %	O2 %	CO ppm	NO ppm	HCN ppm	FID ppm									
S	10-3-01	1415	Still	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
A	10-3-01	1420	South	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	10-3-01	1428	South	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C-1	10-3-01	1432	West	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	10-3-01	1440	North	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	10-3-01	1448	Still	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	10-3-01	1450	West	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	10-3-01	1500	Still	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	10-3-01	1506	Still	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C	10-3-01	1508	East	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
#1	10-3-01	1515	West	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	10-3-01	1517	North	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	10-3-01	1525	South	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q	10-3-01	1530	Still	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	10-3-01	1540	Still	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
M	10-3-01	1544	Still	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L	10-3-01	1550	Still	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

#24 #3 STATION WERE UNEXCESSABLE BECAUSE OF DEMO.

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Saturday, October 6, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 17 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 3:30 p.m 10/6)**

**Air: Fixed Monitors in New Jersey:**

**Asbestos** - Four air samples taken in New Jersey on October 4 showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of samples collected and analyzed in New Jersey to 74, with zero above the standard.

**Staten Island Landfill**

**Air (Asbestos)** - 33 air samples were taken from October 4 through October 5. All test results were below the AHERA standard used for allowing re-entry into schools.

**Particulates** - EPA detected a rise in the average concentration of particulates at several locations on October 4 and 5<sup>th</sup>, mostly in the areas of the landfill where the screening of debris is being conducted. EPA continues to emphasize that workers follow dust suppression procedures (wetting down debris) as specified in the site health and safety plan.

**Ambient Air Sampling:**

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on October 4 from stations at Pace University, Borough of Manhattan Community College and the U.S. Coast Guard Building located at Battery Park. All of the 24-hour averages were below the stringent National Ambient Air Quality Standard of 65 ug/m<sup>3</sup>.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 5. Benzene was detected above the OSHA limit at three locations in the plume of the debris pile. Benzene was not detected at four perimeter locations.

**Wipe Samples:**

**PCBs** - On September 28, at that request of the Ground Zero Elected Officials Task Force, EPA

U.S. Environmental Protection Agency  
Air / Bulk / Wipe / Water Sampling Situation Report  
Saturday, October 6, 2001 (2:00 pm)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 4)
  - Results pending.
- NJ (Oct 4)
  - All 4 samples were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 3, 7:00 PM - Oct 4, 7:00 AM) - Asbestos
  - Results pending.
- Fresh Kills (Oct 4, 7:00 AM - 7:00 PM) - Asbestos
  - All 12 samples were below the TEM AHERA standard.
- Fresh Kills (Oct 4, 6:00 PM - Oct 5, 8:00 AM) - Asbestos
  - All 11 samples were below the TEM AHERA standard.
  - No volume collected at 1 other location.
- Fresh Kills (Oct 5) - Particulate Monitoring
  - Increased average concentration readings noted at several locations.

Wipe Samples (PCBs)

- Borough of Manhattan Community College (Sep 28)
  - PCBs were not detected in any of the 8 samples collected indoors.
- Stuyvesant HS (Sep 28)
  - PCBs were not detected in any of the 7 samples collected indoors.

Wipe Samples (Dioxin)

- Borough of Manhattan Community College / Stuyvesant HS / P.S. 234 (Sep 28, 29)
  - Dioxin was not detected in any of the 6 samples collected indoors at these schools.

**FILE**

Ambient Air Sampling Locations (Particulate monitoring - PM<sub>2.5</sub>)

- NYC / ER (Oct 4)
  - Pace University (Site 1) - 24-hr average concentration for this period was 38.19 ug/m<sup>3</sup>.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was 32.90 ug/m<sup>3</sup>.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was 35.04 ug/m<sup>3</sup>.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

Ambient Air Sampling Locations (TAGA - volatile organics)

- NYC / ER (Oct 5)
  - Benzene exceeded OSHA TWA PEL at 3 locations in the plume on the debris pile.
  - Benzene was not detected in 4 perimeter samples collected in the breathing zone.

**FILE**



NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ-5µ S (#)	>5µ S/mm <sup>2</sup>	S-f/cc*	
10/4/01	02021	Liberty Park	480	Air	<7.0	<0.006	0	0	<7.75	<0.0062
10/4/01	02022	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<7.75	<0.0062
10/4/01	02023	FMC Terminal	480	Air	<7.0	<0.006	0	0	<7.75	<0.0062
10/4/01	02024	Shell Terminal	480	Air	<7.0	<0.006	0	0	<7.75	<0.0062

cc:ER/ASZ

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1230 (10/04/01) - 2030 (10/04/01)
CITGO Terminal	1330 (10/04/01) - 2130 (10/04/01)
FMC Terminal	1410 (10/04/01) - 2210 (10/04/01)
Shell Terminal	1440 (10/04/01) - 2240 (10/04/01)

ERT: 10/06/01 09:50 AM



NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/04/01 (0700 to 1800)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-f/cc*	
					f/m <sup>3</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>		
10/4/01	18052	#1	651.4	Air	<7.0	<0.004	0	0	<7.75	<0.0045
10/4/01	18053	#2	660.3	Air	10.19	0.006	0	0	<7.75	<0.0045
10/4/01	18054	#3	660.7	Air	7.01	0.004	0	0	<7.75	<0.0045
10/4/01	18055	#4	659	Air	8.92	0.005	0	0	<7.75	<0.0045
10/4/01	01708	#5	659.9	Air	12.74	0.007	0	0	<7.75	<0.0045
10/4/01	01709	#6	657	Air	13.38	0.008	0	0	<7.75	<0.0045
10/4/01	01710	#7	655	Air	<7.0	<0.004	0	0	<7.75	<0.0045
10/4/01	01728	#8	655	Air	<7.0	<0.004	0	0	<7.75	<0.0045
10/4/01	01729	#9A	651.9	Air	14.65	0.009	0	0	<7.75	<0.0045
10/4/01	01730	#9B	638.9	Air	<7.0	<0.004	0	0	<7.75	<0.0045
10/4/01	01711	#9C	682.2	Air	<7.0	<0.004	0	0	<7.75	<0.0045
10/4/01	01712	#10	619	Air	<7.0	<0.004	0	0	<7.75	<0.0045

total f/m<sup>3</sup>

NS: Not sampled  
 Sample volume is below recommended limit of the method.  
 \*Structure (S): roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/16/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
 Standard criteria: EPA 40 CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 Structures<sup>2</sup>, volume 1200 L, for 26 min filter (TEM)

ERT: 10/06/01 9:50 AM





NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/04/01 1800 to 1806/01 0800

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/m <sup>3</sup>	f/cc	Structures (#)	S-1/cc*		
10/01	01715	#1	720	Air	<7.0	-0.004	1**	0	8.89	0.0048
10/01	01716	#2	720	Air	<7.0	-0.004	0	0	-8.89	<0.0048
10/01	01717	#3	720	Air	<7.0	-0.004	1**	0	8.89	0.0048
10/01	01718	#4	720	Air	<7.0	-0.004	0	0	-8.89	<0.0048
10/01	01719	#5	720	Air	<7.0	-0.004	0	0	-8.89	<0.0048
10/01	01720	#6	720	Air	<7.0	-0.004	0	0	-8.89	<0.0048
10/01	02501	#7	720	Air	<7.0	-0.004	0	0	-8.89	<0.0048
10/01	02502	#8	720	Air	<7.0	-0.004	0	0	-8.89	<0.0048
10/01	02503	#9A	720	Air	9.95	0.006	2**	0	17.78	0.0065
10/01	02504	#9B	720	Air	<7.0	-0.004	1**	0	8.89	0.0048
10/01	02505	#9C	No volume reported	Results not available						
10/01	02506	#10	720	Air	<7.0	-0.004	0	0	-8.89	<0.0048

ccaf 0420

\*\* Chrysotile

NS: Not sampled  
Sample name is below recommended limit of the method.  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates

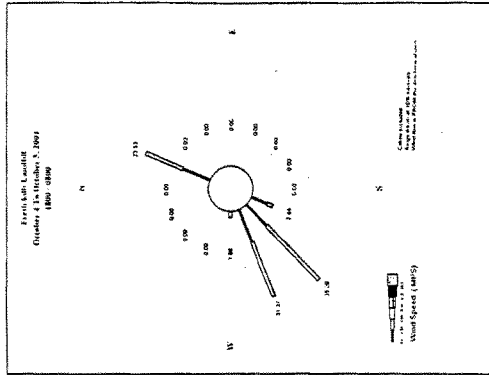
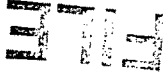
NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fibers/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 26 mm filter (TEM)

ERT: 10/06/01 9:50 AM

**Daily DataRam Particulate Monitoring Summary Sheet  
Fresh Kills Landfill  
October 5, 2001**

Loc	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Period	Cal Factor	STEL ug/m3	Min Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.563119	2224	1	51	12:45:00	10	00:15:00	100	0.0	3.8	74.2	3392
2	-74.198462	40.560883	2152	1	51	12:45:00	10	00:15:00	100	0.0	0.0	55.7	778.5
3	-74.198685	40.570034	2295	1	51	12:45:00	10	00:15:00	100	0.0	2.3	58.6	4662
4	-74.201380	40.569790	2480	1	51	12:45:00	10	00:15:00	100	0.0	0.1	74.9	342.1
5	-74.205873	40.568892	2363	1	51	12:45:00	10	00:15:00	100	0.0	1.5	94.2	16885.6
6	-74.207406	40.563818	2011	1	51	12:45:00	10	00:15:00	100	0.0	0.0	41.3	1647.8
7	-74.205414	40.569434	2294	1	51	12:45:00	10	00:15:00	100	0.0	0.1	49.7	637.7
8	-74.203019	40.561915	2012	1	51	12:45:00	10	00:15:00	100	0.0	0.7	51.1	172.0
9	-74.204433	40.564822	2276	1	51	12:45:00	10	00:15:00	100	0.0	0.0	89.8	18152.9

620

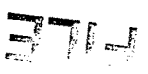


41

NIC Response  
Watershed  
Sampling Date 09/28/01

Sample No. Collection	WG5212 LP Method Blank	AQ4676 MCC Fluor L. Dock		AQ4677 MCC Transfer, Front		AQ4678 MCC S. Bldg RHE		AQ4679 MCC S. Bldg Eval		AQ4680 MCC WPAK ENT		AQ4681 MCC Gymn Stadiums		AQ4682 MCC Gymn Ent	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Analyte	ug	ug	MDL	ug	MDL	ug	MDL	ug	MDL	ug	MDL	ug	MDL	ug	MDL
Sum of PCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Sum of HCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Sum of PCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Sum of HCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Sum of PCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Sum of HCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Area implied was 10 cm x 10 cm = 100 cm²



**NYC Response**  
**Modified Method 808 PCB results**  
**Sampling Date 09/28/01**

Sample No	AO4683 MCC Operator 2 Key		AO4684 S15 Opn 100 3		AO4685 S15 Mill 1		AO4686 Elevator		AO4687 S15 TB Cit		AO4688 S15 RCP		AO4689 S15 ECL		AO4690 S15 CBL		AO4691 0
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
Sample Area cm <sup>2</sup>	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	0
Sum of PCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	0
Sum of HxCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	0
Sum of TeCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	0
Sum of PCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	0
Sum of HxCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	0
Sum of TeCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	0
Sum of PCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	0
Sum of HxCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	0
Sum of TeCBs	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	0
Total	0																

Area windws 10 cin x 10 cin = 100 cm<sup>2</sup>



NYC-WTC-ER

School Indoor Wipes

Date	Time	Sample ID	Sample Location	Analytes	Sample #
9/28/01	14:30	MCC – Gym Bleachers	BMCC - 2 <sup>nd</sup> Level, North Side Gym Bleachers	Metals, Hg PCB	04697 04681
9/28/01	14:40	MCC – Gym N. Ent.	BMCC - 2 <sup>nd</sup> Level, North Side Gym Access Door	Metals, Hg PCB, Dioxin	04698 04682
9/28/01	14:50	MCC – Gym Floor 2 Key	BMCC - 2 <sup>nd</sup> Level, North Side Gym Top of Key – Basketball Court	Metals, Hg PCB	04699 04683
9/28/01	15:15	MCC – S. Building IN E	BMCC – 2 <sup>nd</sup> Level, South Bldg. East Side Entrance	Metals, Hg PCB, Dioxin	04694 04678
9/28/01	15:25	MCC – S. Bldg., E. Wall	BMCC – 2 <sup>nd</sup> Level, South Bldg. East Wall, Near Entry Door	Metals, Hg PCB	04695 04679
9/28/01	15:35	MCC – Theater 1 Front	BMCC – 2 <sup>nd</sup> Level, South Bldg. Directly in Front of Theater 1	Metals, Hg PCB	04693 04677
9/28/01	15:50	MCC – Floor 1 L. Dock	BMCC – 1 <sup>st</sup> Level, North Bldg. Loading Dock Area Access Pt.	Metals, Hg PCB	04692 04676
9/28/01	15:55	MCC – N Park Ent.	BMCC – 1 <sup>st</sup> Level, North Bldg. Far North Entrance (Parking)	Metals, Hg PCB	04696 04680
9/28/01	16:20	SHS – CSE GL	SHS – Ground Floor Chambers St. Main Entrance Foyer	Metals, Hg PCB, Dioxin	04405 04689
9/28/01	16:35	SHS – GF N Ent.	SHS – Ground Floor North End Hallway	Metals, Hg PCB	04406 04690
9/28/01	16:40	SHS - MP	SHS – Chambers St. Entrance Mezzanine Platform	Metals, Hg PCB	04404 04688
9/28/01	16:50	SHS – TB Ent.	SHS – 2 <sup>nd</sup> Floor, Just Outside South Theater Balcony Ent.	Metals, Hg PCB	04403 04687
9/28/01	17:00	SHS - Elevator	SHS – 2 <sup>nd</sup> Floor, Escalator. Smooth area where handles are located	Metals, Hg PCB	04402 04686
9/28/01	17:10	SHS – Gym Floor 3	SHS – 3 <sup>rd</sup> Floor Gym, biased sample, dusty area of floor	Metals, Hg PCB	04700 04684
9/28/01	17:20	SHS – Wall 7	SHS – 3 <sup>rd</sup> Floor Gym, East Side Wall sample, Under #7	Metals, Hg PCB	04401 04685
9/28/01		Trip Blank	Trip Blank	Metals, Hg PCB, Dioxin	04407 04691

$\Phi = 0.04$

Paradigm Analytical Labs

Method 1613 - QC BLANK Results  
 MBLK-6211 LMB

Analytical Data Summary Sheet

Analyte	Amount (ng)	EDL (ng)	EMPC (ng)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	ND	0.0054				
1,2,3,7,8-PeCDD	ND	0.0027				
1,2,3,4,7,8-HxCDD	ND	0.0051				
1,2,3,6,7,8-HxCDD	ND	0.0047				
1,2,3,7,8,9-HxCDD	ND	0.0047				
1,2,3,4,6,7,8-HpCDD	ND	0.0062				
OCDD	ND	0.0198				
2,3,7,8-TCDF	ND	0.0033				
1,2,3,7,8-PeCDF	ND	0.0021				
2,3,4,7,8-PeCDF	ND	0.0019				
1,2,3,4,7,8-HxCDF	ND	0.0019				
1,2,3,6,7,8-HxCDF	ND	0.0017				
2,3,4,6,7,8-HxCDF	ND	0.0020				
1,2,3,7,8,9-HxCDF	ND	0.0024				
1,2,3,4,6,7,8-HpCDF	ND	0.0028				
1,2,3,4,7,8,9-HpCDF	ND	0.0044				
OCDF	ND	0.0115				
Total TCDDs	ND	0.0054				
Total PeCDDs	ND	0.0027				
Total HxCDDs	ND	0.0048				
Total HoCDDs	ND	0.0062				
Total TCDFs	ND	0.0033				
Total PeCDFs	ND	0.0020				
Total HxCDFs	ND	0.0020				
Total HoCDFs	ND	0.0055				
ITEF TEQ (ND=0)	0.0000		0.0000			
ITEF TEQ (ND=1/2)	0.0053		0.0053			

0.010  
 0.005  
 0.010  
 0.005  
 0.10

Sample Information	
Matrix:	Wipe
Laboratory Information	
Sample ID:	WG6211-1
Batch ID:	WG6211
Filename:	b01oct01e-3
Retch:	b01oct01e-1
Begin ConCal:	b01oct01e-1
Extraction Date:	29-Sep-01
Analysis Date:	01-Oct-01
Initial Cal:	m1613-b061600a

$\bar{d} = 0.04$

Paradigm Analytical Labs

Method 1613	LOCATION
B04678	MCC S. Bldg 11VE
Lockheed-Martin	

Analytical Data Summary Sheet

Analyte	Amount (ng)	EDL (ng)	EMPC (ng)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	ND ✓	0.0073				
1,2,3,7,8-PeCDD	ND ✓	0.0032				
1,2,3,4,7,8-HxCDD	ND ✓	0.0053				
1,2,3,6,7,8-HxCDD	ND ✓	0.0050				
1,2,3,7,8,9-HxCDD	ND ✓	0.0049				
1,2,3,4,6,7,8-HpCDD	0.0074 ✓					
OCDD	EMPC ✓	0.0191	0.0278 ✓	38:26 42:04	0.95 1.06	*
2,3,7,8-TCDF	ND ✓	0.0040				
1,2,3,7,8-PeCDF	ND ✓	0.0026				
2,3,4,7,8-PeCDF	EMPC ✓	0.0025	0.0028 ✓	32:56	1.27	
1,2,3,4,7,8-HxCDF	ND ✓	0.0030				
1,2,3,6,7,8-HxCDF	ND ✓	0.0027				
2,3,4,6,7,8-HxCDF	ND ✓	0.0032				
1,2,3,7,8,9-HxCDF	ND ✓	0.0040				
1,2,3,4,6,7,8-HpCDF	EMPC ✓	0.0029	0.0036	37:20	0.85	
1,2,3,4,7,8,9-HpCDF	ND ✓	0.0046				
OCDF	ND ✓	0.0106				
Total TCDDs	0.0664 ✓					
Total PeCDDs	0.0409 ✓		0.0472			
Total HxCDDs	0.0209 ✓					
Total HpCDDs	0.0074 ✓					
Total TCDFs	ND ✓	0.0040				
Total PeCDFs	0.0104 ✓		0.0025			
Total HxCDFs	0.0044 ✓		0.0006			
Total HpCDFs	ND ✓	0.0036	0.0036			
ITEF TEQ (ND=0)	0.0001		0.0016			
ITEF TEQ (ND=1/2)	0.0055		0.0063			

CCMDL  
 0.01  
 0.05  
 0.05  
 0.10  
 0.01  
 0.05  
 0.10

<u>Client Information</u>		<u>Sample Information</u>	
Project Name:	NYC WTC ER (R1A00236)	Matrix:	Wipe
Sample ID:	B04678		
<u>Laboratory Information</u>			
Project ID:	G381-32	Batch ID:	WG6211
Sample ID:	28576		
Collection Date/Time:	28-Sep-01	Filename:	b01oct01e-4
Receipt Date:	29-Sep-01	Batch:	b01oct01e-1
Extraction Date:	29-Sep-01	Begin ConCal:	b01oct01e-1
Analysis Date:	01-Oct-01	Initial Cal:	m1613-b061600a



1.1 = 0.04

Paradigm Analytical Labs

Method 1613 <b>B04682</b> Lockheed-Martin	LOCATION MCC Gym N Ent
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Analytical Data Summary Sheet						
Analyte	Amount (ng)	EDL (ng)	EMPC (ng)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	ND	0.0035				
1,2,3,7,8-PeCDD	ND	0.0035				
1,2,3,4,7,8-HxCDD	ND	0.0097				
1,2,3,6,7,8-HxCDD	ND	0.0067				
1,2,3,7,8,9-HxCDD	ND	0.0067				
1,2,3,4,6,7,8-HpCDD	ND	0.0057				
OCDD	0.0196 J			42:04	0.87	A
2,3,7,8-TCDF	ND	0.0027				
1,2,3,7,8-PeCDF	ND	0.0027				
2,3,4,7,8-PeCDF	ND	0.0019				
1,2,3,4,7,8-HxCDF	ND	0.0059				
1,2,3,6,7,8-HxCDF	ND	0.0037				
2,3,4,6,7,8-HxCDF	ND	0.0043				
1,2,3,7,8,9-HxCDF	ND	0.0049				
1,2,3,4,6,7,8-HpCDF	ND	0.0025				
1,2,3,4,7,8,9-HpCDF	ND	0.0057				
OCDF	ND	0.0077				
Total TCDDs	ND	0.0035				
Total PeCDDs	ND	0.0035				
Total HxCDDs	ND	0.0067				
Total HpCDDs	ND	0.0057				
Total TCDFs	ND	0.0027				
Total PeCDFs	ND	0.0020				
Total HxCDFs	ND	0.0042				
Total HpCDFs	ND	0.0050				
ITEF TEQ (ND=0)	0.0000		0.0000			
ITEF TEQ (ND=4)	0.0055		0.0055			

(CFL) 2.0  
 0.01  
 0.05  
 0.10  
 0.01  
 0.05  
 0.1

Client Information		Sample Information	
Project Name:	NYC WTC ER (R1A00236)	Matrix:	Wipe
Sample ID:	B04682		
Laboratory Information			
Project ID:	G381-32	Batch ID:	WG6211
Sample ID:	28580		
Collection Date/Time:	28-Sep-01	Filename:	b01oct01e-5
Receipt Date:	29-Sep-01	Retchk:	b01oct01e-1
Extraction Date:	29-Sep-01	Begin ConCal:	b01oct01e-1
Analysis Date:	01-Oct-01	Initial Cal:	m1613-b061600a

$\bar{x} = 0.04$

Paradigm Analytical Labs

Method 1613	LOCATIONS
B04689	
Lockheed-Martin	S15 CS E6L

Analytical Data Summary Sheet

Analyte	Amount (ng)	EDL (ng)	EMPC (ng)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	ND ✓	0.0036				
1,2,3,7,8-PeCDD	ND ✓	0.0019				
1,2,3,4,7,8-HxCDD	ND ✓	0.0050				
1,2,3,6,7,8-HxCDD	ND ✓	0.0046				
1,2,3,7,8,9-HxCDD	ND ✓	0.0045				
1,2,3,4,6,7,8-HpCDD	0.0063 J			38:27	0.96	A
OCDD	0.0377 J			42:04	0.84	A
2,3,7,8-TCDF	ND ✓	0.0034				
1,2,3,7,8-PeCDF	ND ✓	0.0019				
2,3,4,7,8-PeCDF	ND ✓	0.0017				
1,2,3,4,7,8-HxCDF	ND ✓	0.0021				
1,2,3,6,7,8-HxCDF	ND ✓	0.0019				
2,3,4,6,7,8-HxCDF	ND ✓	0.0024				
1,2,3,7,8,9-HxCDF	ND ✓	0.0028				
1,2,3,4,6,7,8-HpCDF	ND ✓	0.0018				
1,2,3,4,7,8,9-HpCDF	ND ✓	0.0027				
OCDF	ND ✓	0.0058				
Total TCDDs	0.0332 ✓					
Total PeCDDs	0.0217 ✓		0.0242			
Total HxCDDs	ND ✓	0.0060				
Total HpCDDs	0.0117 ✓					
Total TCDFs	ND ✓	0.0034				
Total PeCDFs	ND ✓	0.0018				
Total HxCDFs	ND ✓	0.0023				
Total HpCDFs	ND ✓	0.0022				
ITEF TEQ (ND=0)	0.0001		0.0001			
ITEF TEQ (ND=1/2)	0.0042		0.0042			

0.01  
0.05  
0.10  
0.01  
0.05  
0.1

<u>Client Information</u>		<u>Sample Information</u>	
Project Name:	NYC WTC ER (R1A00236)	Matrix:	Wipe
Sample ID:	B04689		
<u>Laboratory Information</u>			
Project ID:	G381-32	Batch ID:	WG6211
Sample ID:	28587	Filename:	b01oct01e-6
Collection Date/Time:	28-Sep-01	Retchik:	b01oct01e-1
Receipt Date:	29-Sep-01	Begin ConCal:	b01oct01e-1
Extraction Date:	29-Sep-01		
Analysis Date:	01-Oct-01	Initial Cat:	m1613-b061600a

$\bar{x} = 0.04$

Paradigm Analytical Labs

Method 1613	LOCATION
B04691	TB
Lockheed-Martin	

Analytical Data Summary Sheet

Analyte	Amount (ng)	EDL (ng)	EMPC (ng)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	ND	0.0043				
1,2,3,7,8-PeCDD	ND	0.0032				
1,2,3,4,7,8-HxCDD	ND	0.0057				
1,2,3,6,7,8-HxCDD	ND	0.0055				
1,2,3,7,8,9-HxCDD	ND	0.0034				
1,2,3,4,6,7,8-HpCDD	ND	0.0034				
OCDD	ND	0.0406				
2,3,7,8-TCDF	ND	0.0027				
1,2,3,7,8-PeCDF	ND	0.0036				
2,3,4,7,8-PeCDF	ND	0.0016				
1,2,3,4,7,8-HxCDF	ND	0.0021				
1,2,3,6,7,8-HxCDF	ND	0.0019				
2,3,4,6,7,8-HxCDF	ND	0.0024				
1,2,3,7,8,9-HxCDF	ND	0.0027				
1,2,3,4,6,7,8-HpCDF	ND	0.0019				
1,2,3,4,7,8,9-HpCDF	ND	0.0029				
OCDF	ND	0.0099				
Total TCDDs	ND	0.0043				
Total PeCDDs	ND	0.0022				
Total HxCDDs	ND	0.0055				
Total HpCDDs	ND	0.0034				
Total TCDFs	ND	0.0027				
Total PeCDFs	ND	0.0016				
Total HxCDFs	ND	0.0023				
Total HpCDFs	ND	0.0024				
TEQ (ND=0)	0.0000		0.0000			
TEQ (ND=1/2)	0.0046		0.0046			

Q.M.D.L.  
ng  
0.01  
0.05  
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0.10  
0.01  
0.05  
↓  
0.1

<u>Client Information</u>		<u>Sample Information</u>	
Project Name:	NYC WTC ER (R1A00236)	Matrix:	Wipe
Sample ID:	B04691		
<u>Laboratory Information</u>			
Project ID:	G381-32	Batch ID:	WG6211
Sample ID:	28589		
Collection Date/Time:	28-Sep-01	Filename:	b01oct01e-7
Receipt Date:	29-Sep-01	Retchk:	b01oct01e-1
Extraction Date:	29-Sep-01	Begin ConCal:	b01oct01e-1
Analysis Date:	01-Oct-01	Initial Cal:	m1613-b061600a

(12) 321-42"  
EPA Contract 99-223

Project Name: NYCT ITRER  
Project Number: 2836  
LM Contact: JTB, LSE Phone: 233-321-4000

No: C.15  
Sheet 01 of 01 (Do not copy)  
(for admin. sampler use new form)

Sample No.	Sample Description	Sample Location	Matrix	Date Collected	# of Bottles	Collector/Preparator	Analysis Requested	Remarks
A04676	/	MCC. FLOOR	X	9/28/07	1	402-11-1847C	HS	
A04677	/	MCC. FLOOR	X		1			
A04678	/	MCC. FLOOR	X		1			
B04679	/	MCC. FLOOR	X		1			
A04680	/	MCC. FLOOR	X		1			
A04681	/	MCC. FLOOR	X		1			
A04682	/	MCC. FLOOR	X		1			
B04683	/	MCC. FLOOR	X		1			
A04684	/	MCC. FLOOR	X		1			
A04685	/	MCC. FLOOR	X		1			
A04686	/	MCC. FLOOR	X		1			
A04687	/	MCC. FLOOR	X		1			
A04688	/	MCC. FLOOR	X		1			
B04689	/	MCC. FLOOR	X		1			
A04690	/	MCC. FLOOR	X		1			
A04691	/	MCC. FLOOR	X		1			

Matrix:  
 A-LH Air  
 A-LI Aerial Inflow  
 DL-Isoam Liquids  
 DS-Fume Solids  
 GS-Groundwater  
 O-GA Other Gas  
 PR-Product  
 PT-Plant Tissue  
 PW-Portable Water  
 S-Soil  
 SF-Sediment  
 SL-Slime  
 SW-Surface Water  
 TX-TXCF Extract  
 W-Water  
 X-Clothes  
 Y-Paper

Special Instructions:  
 Area 10 can be = 100m<sup>2</sup>  
 Solvent used = 0-TN-HANX  
 Wipe Type - Sterile Gauge  
 3" x 3" (17.0g) JTY  
 Lot # MAY 74 327

Received by	Date	Reason	Date	Time	Received by	Date	Time
<i>[Signature]</i>	9/28/07		9/28/07	10:42			

ANALYST: [Signature]  
 Date: 9/28/07  
 Time: 10:42  
 Received by: [Signature]  
 Date: [Blank]  
 Time: [Blank]





NYC-WTC-ER

School Indoor Wipes

9/29/01	10:00	PS-234-1-1	PS-234 - Greenwich St. (East) Entrance, Ground Floor	Metals, Hg PCB, Dioxin	04601 04601
9/29/01	10:15	PS-234-1-2	PS-234 - North Entrance Foyer, Ground Floor	Metals, Hg PCB	04602 04602
9/29/01	10:25	PS-234-1-3W	PS-234 - Ground Floor, South Wall, Entrance to Cafeteria, across from Elevator	Metals, Hg PCB	04603 04603
9/29/01	10:40	PS-234-2-1	PS-234 - 2 <sup>nd</sup> Floor, Outside Stairwell #2. North side of Hall.	Metals, Hg PCB, Dioxin	04604 04604
9/29/01	10:45	PS-234-2-1 Rep	PS-234 - 2 <sup>nd</sup> Floor, Stairwell #2 REPLICATE	Metals, Hg PCB, Dioxin	04605 04605
9/29/01	10:58	PS-234-2-2	PS-234 - 2 <sup>nd</sup> Floor, Outside Stairwell #1, Foyer	Metals, Hg PCB	04606 04606
9/29/01	11:05	PS-234-2-3W	PS-234 - 2 <sup>nd</sup> Floor, Foyer, So. Wall Between Rms. 223-225	Metals, Hg PCB	04607 04607
9/29/01	11:18	PS-234-3-1	PS-234 - 3 <sup>rd</sup> Floor, Outside Stairwell #2. North side of Hall.	Metals, Hg PCB	04608 04608
9/29/01	11:25	PS-234-FB	PS-234 - Field Blank	Metals, Hg PCB, Dioxin	04609 04609
9/29/01		PS-234-TB	PS-234 - Trip Blank	Metals, Hg PCB, Dioxin	04610 04610

Method 1613 - QC BLANK Results  
 MBLK-6214 LMB

Analytical Data Summary Sheet

Analyte	Amount (ng)	EDL (ng)	EMPC (ng)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	ND	0.0100				
1,2,3,7,8-PeCDD	ND	0.0042				
1,2,3,4,7,8-HxCDD	ND	0.0075				
1,2,3,6,7,8-HxCDD	ND	0.0071				
1,2,3,7,8,9-HxCDD	ND	0.0070				
1,2,3,4,6,7,8-HpCDD	ND	0.0025				
OCDD	ND	0.0230				
2,3,7,8-TCDF	ND	0.0044				
1,2,3,7,8-PeCDF	ND	0.0028				
2,3,4,7,8-PeCDF	ND	0.0025				
1,2,3,4,7,8-HxCDF	ND	0.0026				
1,2,3,6,7,8-HxCDF	ND	0.0025				
2,3,4,6,7,8-HxCDF	ND	0.0029				
1,2,3,7,8,9-HxCDF	ND	0.0036				
1,2,3,4,6,7,8-HpCDF	ND	0.0033				
1,2,3,4,7,8,9-HpCDF	ND	0.0046				
OCDF	ND	0.0122				
Total TCDDs	ND	0.0100				
Total PeCDDs	ND	0.0042				
Total HxCDDs	ND	0.0071				
Total HpCDDs	ND	0.0025				
Total TCDFs	ND	0.0044				
Total PeCDFs	ND	0.0026				
Total HxCDFs	ND	0.0029				
Total HpCDFs	ND	0.0040				
ITEF TEQ (ND=0)	0.0000		0.0000			
ITEF TEQ (ND=1/2)	0.0087		0.0087			

QADL  
 W  
 0.01  
 0.05  
 ↓  
 0.10  
 0.01  
 0.05  
 ↓  
 0.10

Sample Information	
Matrix:	Wipe
Laboratory Information	
Sample ID:	WG6214-1
Batch ID:	WG6214
Filename:	b01oct01e-9
Retchk:	b01oct01e-1
Begin ConCal:	b01oct01e-1
Extraction Date:	01-Oct-01
Analysis Date:	01-Oct-01
Initial Cal:	m1613-b061600a



Method 1631  
**D04601(PS 234-1-1)** *Location*  
 Lockheed-Martin

**Analytical Data Summary Sheet**

Analyte	Amount (ng)	EDL (ng)	EMPC (ng)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	ND	0.0077				
1,2,3,7,8-PeCDD	ND	0.0045				
1,2,3,4,7,8-HxCDD	ND	0.0081				
1,2,3,6,7,8-HxCDD	ND	0.0079				
1,2,3,7,8,9-HxCDD	ND	0.0076				
1,2,3,4,6,7,8-HpCDD	EMPC	0.0076	0.0092	38.27	1.3	
OCDD	0.0463			42.03	0.94	K
2,3,7,8-TCDF	ND	0.0043				
1,2,3,7,8-PeCDF	ND	0.0036				
2,3,4,7,8-PeCDF	ND	0.0031				
1,2,3,4,7,8-HxCDF	ND	0.0038				
1,2,3,6,7,8-HxCDF	ND	0.0037				
2,3,4,6,7,8-HxCDF	ND	0.0045				
1,2,3,7,8,9-HxCDF	ND	0.0054				
1,2,3,4,6,7,8-HpCDF	ND	0.0041				
1,2,3,4,7,8,9-HpCDF	ND	0.0057				
OCDF	ND	0.0120				
Total TCDDs	0.0384					
Total PeCDDs	ND	0.0099	0.0120			
Total HxCDDs	ND	0.0135				
Total HpCDDs	ND	0.0076	0.0092			
Total TCDFs	ND	0.0043				
Total PeCDFs	ND	0.0034				
Total HxCDFs	ND	0.0053	0.0056			
Total HpCDFs	ND	0.0054				
ITEF TEQ (ND=0)	0.0000		0.0001			
ITEF TEQ (ND=1/2)	0.0082		0.0083			

*Co-MDL*  
 $\frac{0.051}{0.05}$   
 ↓  
 0.10  
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 $\frac{0.01}{0.05}$   
 ↓  
 0.10

Client Information		Sample Information	
Project Name:	NYC WTC ER (R1A00236)	Matrix:	Wipe
Sample ID:	D04601 PS 234-1-1		
Laboratory Information			
Project ID:	G381-33	Batch ID:	WG6214
Sample ID:	28593	Filename:	b01oct01e-10
Collection Date/Time:	29-Sep-01	Retchic:	b01oct01e-1
Receipt Date:	01-Oct-01	Begin ConCal:	b01oct01e-1
Extraction Date:	01-Oct-01		
Analysis Date:	02-Oct-01	Initial Cal:	m1613-b061600a

$Q = 0.04$

Paradigm Analytical Labs

Method 1613  
**D04604 PS 234-2-1** ← *Location*  
 Lockheed-Martin

**Analytical Data Summary Sheet**

Analyte	Amount (ng)	EDL (ng)	EMPC (ng)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	ND	0.0082				
1,2,3,7,8-PeCDD	ND	0.0044				
1,2,3,4,7,8-HxCDD	ND	0.0084				
1,2,3,6,7,8-HxCDD	ND	0.0079				
1,2,3,7,8,9-HxCDD	ND	0.0078				
1,2,3,4,6,7,8-HpCDD	ND	0.0072				
OCDD	ND	0.0655				
2,3,7,8-TCDF	ND	0.0040				
1,2,3,7,8-PeCDF	ND	0.0029				
2,3,4,7,8-PeCDF	ND	0.0025				
1,2,3,4,7,8-HxCDF	ND	0.0022				
1,2,3,6,7,8-HxCDF	ND	0.0021				
2,3,4,6,7,8-HxCDF	ND	0.0026				
1,2,3,7,8,9-HxCDF	ND	0.0044				
1,2,3,4,6,7,8-HpCDF	ND	0.0023				
1,2,3,4,7,8,9-HpCDF	ND	0.0053				
OCDF	ND	0.0156				
Total TCDDs	ND	0.0082				
Total PeCDDs	ND	0.0044				
Total HxCDDs	ND	0.0079				
Total HxCDDs	ND	0.0072				
Total TCDFs	ND	0.0040				
Total PeCDFs	ND	0.0027				
Total HxCDFs	ND	0.0026				
Total HxCDFs	ND	0.0042				
ITEF TEQ (ND=0)	0.0000		0.0000			
ITEF TEQ (ND=1/2)	0.0081		0.0081			

Q MDL  
 NY  
 0.01  
 0.05  
 ↓  
 0.10  
 0.05  
 ↓  
 0.10

Client Information		Sample Information	
Project Name:	NYC WTC ER (R1A00236)	Matrix:	Wipe
Sample ID:	D04604 PS 234-2-1		
Laboratory Information			
Project ID:	G381-33	Batch ID:	WG6214
Sample ID:	28597	Filename:	b01oct01e-11
Collection Date/Time:	29-Sep-01	Retchk:	b01oct01e-1
Receipt Date:	01-Oct-01	Begin ConCal:	b01oct01e-1
Extraction Date:	01-Oct-01		
Analysis Date:	02-Oct-01	Initial Cal:	m1613-b061600a

Method 1631  
**D04605 PS 234-2-1-Rep** — Location  
 Lockheed-Martin

**Analytical Data Summary Sheet**

Analyte	Amount (ng)	EDL (ng)	EMPC (ng)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	ND	0.0082				
1,2,3,7,8-PeCDD	ND	0.0033				
1,2,3,4,7,8-HxCDD	ND	0.0080				
1,2,3,6,7,8-HxCDD	ND	0.0074				
1,2,3,7,8,9-HxCDD	ND	0.0074				
1,2,3,4,6,7,8-HpCDD	ND	0.0074				
OCDD	ND	0.0301				
2,3,7,8-TCDF	ND	0.0030				
1,2,3,7,8-PeCDF	ND	0.0031				
2,3,4,7,8-PeCDF	ND	0.0029				
1,2,3,4,7,8-HxCDF	ND	0.0037				
1,2,3,6,7,8-HxCDF	ND	0.0033				
2,3,4,6,7,8-HxCDF	ND	0.0043				
1,2,3,7,8,9-HxCDF	ND	0.0050				
1,2,3,4,6,7,8-HpCDF	ND	0.0032				
1,2,3,4,7,8,9-HpCDF	ND	0.0032				
OCDF	ND	0.0183				
Total TCDDs	ND	0.0082				
Total PeCDDs	ND	0.0066				
Total HxCDDs	ND	0.0075				
Total HpCDDs	ND	0.0074				
Total TCDFs	ND	0.0030				
Total PeCDFs	ND	0.0030				
Total HxCDFs	ND	0.0040				
Total HpCDFs	ND	0.0031				
ITEF TEQ (ND=0)	0.0000		0.0000			
ITEF TEQ (ND=1/2)	0.0081		0.0081			

QADL  
 mg  
 0.01  
 0.05  
 0.1  
 0.1  
 0.01  
 0.05  
 0.1

Client Information		Sample Information	
Project Name:	NYC WTC ER (R1A00236)	Matrix:	Wipe
Sample ID:	D04605 PS 234-2-1-Rep		
Laboratory Information			
Project ID:	G381-33	Batch ID:	WG6214
Sample ID:	28599	Filename:	b01oct01e-12
Collection Date/Time:	29-Sep-01	Retzhk:	b01oct01e-1
Receipt Date:	01-Oct-01	Begin ConCal:	b01oct01e-1
Extraction Date:	01-Oct-01	Initial Cal:	m1613-b061600a
Analysis Date:	02-Oct-01		

$\Phi = 0.1$

Paradigm Analytical Labs

Method 1613  
**D04609 PS 234-FB** *Location*  
 Lockheed-Martin

Analytical Data Summary Sheet

Analyte	Amount (ng)	EDL (ng)	EMPC (ng)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	ND	0.0069				
1,2,3,7,8-PeCDD	ND	0.0027				
1,2,3,4,7,8-HxCDD	ND	0.0082				
1,2,3,6,7,8-HxCDD	ND	0.0080				
1,2,3,7,8,9-HxCDD	ND	0.0027				
1,2,3,4,6,7,8-HpCDD	ND	0.0067				
OCDD	ND	0.0286				
2,3,7,8-TCDF	ND	0.0042				
1,2,3,7,8-PeCDF	ND	0.0022				
2,3,4,7,8-PeCDF	ND	0.0021				
1,2,3,4,7,8-HxCDF	ND	0.0037				
1,2,3,6,7,8-HxCDF	ND	0.0035				
2,3,4,6,7,8-HxCDF	ND	0.0044				
1,2,3,7,8,9-HxCDF	ND	0.0051				
1,2,3,4,6,7,8-HpCDF	ND	0.0055				
1,2,3,4,7,8,9-HpCDF	ND	0.0058				
OCDF	ND	0.0138				
Total TCDDs	ND	0.0069				
Total PeCDDs	ND	0.0027				
Total HxCDDs	ND	0.0079				
Total HpCDDs	ND	0.0067				
Total TCDFs	ND	0.0042				
Total PeCDFs	ND	0.0022				
Total HxCDFs	ND	0.0051				
Total HpCDFs	ND	0.0055				
ITEF TEQ (ND=0)	0.0000		0.0000			
ITEF TEQ (ND=14)	0.0071		0.0071			

*0.01*  
*0.05*  
*0.10*  
*0.01*  
*0.05*  
*0.1*

Client Information		Sample Information	
Project Name:	NYC WTC ER (R1A00236)	Matrix:	Wipe
Sample ID:	D04609 PS 234-FB		
Laboratory Information			
Project ID:	G381-33	Batch ID:	WG6214
Sample ID:	28604	Filename:	b01oct01e-13
Collection Date/Time:	29-Sep-01	Retchk:	b01oct01e-1
Receipt Date:	01-Oct-01	Begin ConCal:	b01oct01e-1
Extraction Date:	01-Oct-01		
Analysis Date:	02-Oct-01	Initial Cal:	m1613-b061600a

Method 1613 <b>D04610(PS 234-TB)</b> Location Lockheed-Martin
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**Analytical Data Summary Sheet**

Analyte	Amount (ng)	EDL (ng)	EMPC (ng)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	ND	0.0066				
1,2,3,7,8-PeCDD	ND	0.0042				
1,2,3,4,7,8-HxCDD	ND	0.0088				
1,2,3,6,7,8-HxCDD	ND	0.0080				
1,2,3,7,8,9-HxCDD	ND	0.0080				
1,2,3,4,6,7,8-HpCDD	ND	0.0074				
OCDD	ND	0.0077				
2,3,7,8-TCDF	ND	0.0046				
1,2,3,7,8-PeCDF	ND	0.0027				
2,3,4,7,8-PeCDF	ND	0.0025				
1,2,3,4,7,8-HxCDF	ND	0.0052				
1,2,3,6,7,8-HxCDF	ND	0.0038				
2,3,4,6,7,8-HxCDF	ND	0.0034				
1,2,3,7,8,9-HxCDF	ND	0.0043				
1,2,3,4,6,7,8-HpCDF	ND	0.0041				
1,2,3,4,7,8,9-HpCDF	ND	0.0066				
OCDF	ND	0.0194				
Total TCDDs	ND	0.0066				
Total PeCDDs	ND	0.0042				
Total HxCDDs	ND	0.0082				
Total HpCDDs	ND	0.0074				
Total TCDFs	ND	0.0046				
Total PeCDFs	ND	0.0025				
Total HxCDFs	ND	0.0034				
Total HpCDFs	ND	0.0051				
ITEF TEQ (ND=0)	0.0000		0.0000			
ITEF TEQ (ND=½)	0.0073		0.0073			

<u>Client Information</u>		<u>Sample Information</u>	
Project Name:	NYC WTC ER (R1A00236)	Matrix:	Wipe
Sample ID:	D04610 PS 234-TB		
<u>Laboratory Information</u>			
Project ID:	G381-33	Batch ID:	WG6214
Sample ID:	28606	Filename:	b01oct01e-14
Collection Date/Time:	29-Sep-01	Retchik:	b01oct01e-1
Receipt Date:	01-Oct-01	Begin ConCal:	b01oct01e-1
Extraction Date:	01-Oct-01		
Analysis Date:	02-Oct-01	Initial Cal:	m1613-b061600a

Project Name: NYC  
 Project Number: 3381-33  
 LM Contact: J. Johnson Phone: 722-321-4200

Project Name: NYC  
 Project Number: 3381-33  
 LM Contact: J. Johnson Phone: 722-321-4200

Project Name: NYC  
 Project Number: 3381-33  
 LM Contact: J. Johnson Phone: 722-321-4200

REAC#	Sample No	Sampling Location	Sample Identification		Date Collected	# of bottles	Container/Preservative	Analytes Requested	
			Matrix	Notes				PCBs	Dioxin
	C04601	PS-234-1-1	X		9-24-01	1,402	403 g/box / 40c	X	
	D04601	PS-234-1-1	X		9-25-01	1,402		X	
	C04602	PS-234-1-2	X		9-25-01	1,402		X	
	C04603	PS-234-1-3W	X		9-24-01	1,402		X	
	C04604	PS-234-2-1	X		9-24-01	1,402		X	
	D04604	PS-234-2-1	X		9-24-01	1,402		X	
	C04605	PS-234-2-1-16g	X		9-24-01	1,402		X	
	D04605	PS-234-2-1-16g	X		9-24-01	1,402		X	
	C04606	PS-234-2-2	X		9-24-01	1,402		X	
	C04607	PS-234-2-2	X		9-24-01	1,402		X	
	C04608	PS-234-3-1	X		9-24-01	1,402		X	
	C04609	PS-234-FB	X		9-25-01	1,402		X	
	D04609	PS-234-FB	X		9-24-01	1,402		X	
	C04610	PS-234-1B	X		9-24-01	1,402		X	
	D04610	PS-234-1B	X		9-24-01	1,402		X	

Matrix:  
 Air  
 Animal Tissue  
 Dioxin  
 Groundwater  
 Oil  
 Product  
 Fluid Tissue

Preservative:  
 FW - Foliage Water  
 S - Soil  
 SW - Surface Water  
 TX - TCEP Extract  
 W - Water  
 X - Other - WASTE SAMPLE

Received by: Michael Mackay Date: 9/28/01  
 Received by: Public Affairs Date: 10/1/01

Received by	Date	Received by	Date
<u>Michael Mackay</u>	<u>9/28/01</u>		
<u>Public Affairs</u>	<u>10/1/01</u>		

SAMPLES TRANSFERRED FROM  
 CHAIN OF CUSTODY #:

Project Number: 3381-33  
 Project Name: NYC  
 LM Contact: J. Johnson Phone: 722-321-4200



Inter-Agency Environmental Sampling Log

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SUB AREA SITE	MUNICIPALITY	DATE SAMPLED	TO	FROM	TO	FROM	DATE	TIME	LOCATION	COORDINATES	ANALYSIS	TIME STANDARD
PA125	MSDEC	10/23/01	10	10	Manhattan Borough C.C.	Manhattan	10:00	10:00	100th St 100th St	40.735000 -87.775000	MSDEC	10:00
PA125	MSDEC	10/23/01	13	13	Manhattan Borough C.C.	Manhattan	10:00	10:00	100th St 100th St	40.735000 -87.775000	MSDEC	10:00
PA125	MSDEC	10/23/01	15	15	Manhattan Borough C.C.	Manhattan	10:00	10:00	100th St 100th St	40.735000 -87.775000	MSDEC	10:00
PA125	MSDEC	10/23/01	16	16	Manhattan Borough C.C.	Manhattan	10:00	10:00	100th St 100th St	40.735000 -87.775000	MSDEC	10:00
PA125	MSDEC	10/23/01	17	17	Manhattan Borough C.C.	Manhattan	10:00	10:00	100th St 100th St	40.735000 -87.775000	MSDEC	10:00
PA125	MSDEC	10/23/01	19	19	Manhattan Borough C.C.	Manhattan	10:00	10:00	100th St 100th St	40.735000 -87.775000	MSDEC	10:00
PA125	MSDEC	10/23/01	20	20	Manhattan Borough C.C.	Manhattan	10:00	10:00	100th St 100th St	40.735000 -87.775000	MSDEC	10:00
PA125	MSDEC	10/23/01	22	22	Manhattan Borough C.C.	Manhattan	10:00	10:00	100th St 100th St	40.735000 -87.775000	MSDEC	10:00
PA125	MSDEC	10/23/01	23	23	Manhattan Borough C.C.	Manhattan	10:00	10:00	100th St 100th St	40.735000 -87.775000	MSDEC	10:00
<b>Manhattan Borough</b>												
<b>C.C. Daily Average</b>												
											<b>35.04</b>	



NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED

DRAFT GCMS Results for 10/05/01 DRAFT WITH DISCRETION

File name	NYC236	NYC237	NYC238	NYC239	NYC240
Sample Location	Instrument Blank	Tedlar Blank	Ambient: N. Park Pier	Middle of North Tower	Middle of North Tower
Sample Number			10469	10470	10470
Sample Height			Breathing level	Ground level	Ground level
Volume		0.25 mL	0.25 mL	0.05 mL	0.01 mL
Propylene	RL=20 ppb	RL=20 ppb	RL=20 ppb	27,000 ppb	56,000 ppb
Dichlorodifluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	21 ppb	40 ppb
Dichlorotetrafluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	15,000 ppb	26,000 ppb
Vinyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	94 ppb	180 ppb
1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Bromomethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	380 ppb	730 ppb
Chloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	1,200 ppb	2,300 ppb
Trichlorofluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	170 ppb	280 ppb
Isopropyl Alcohol	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Acetone	RL=20 ppb	RL=20 ppb	RL=20 ppb	3,200 ppb	60,000 ppb
Trichlorotrifluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
3-Chloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Methylene Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
MTBE	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
trans-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Hexane	RL=20 ppb	RL=20 ppb	RL=20 ppb	2,000 ppb	3,700 ppb
1,1-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Vinyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
2-Butanone	RL=20 ppb	RL=20 ppb	RL=20 ppb	8,800 ppb	16,000 ppb
cis-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Ethyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloroform	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Tetrahydrofuran	RL=20 ppb	RL=20 ppb	RL=20 ppb	4,300 ppb	7,500 ppb
1,1,1-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Cyclohexane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Carbon Tetrachloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	2,100 ppb
Benzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	38,000 ppb	86,000 ppb
Heptane	RL=20 ppb	RL=20 ppb	RL=20 ppb	1,500 ppb	2,700 ppb
Trichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichloropropane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,4-Dioxane	RL=20 ppb	RL=20 ppb	RL=20 ppb	1,600 ppb	3,000 ppb
Methyl Isobutyl Ketone	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	1,200 ppb
cis-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Toluene	RL=20 ppb	RL=20 ppb	RL=20 ppb	18,000 ppb	40,000 ppb
trans-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb

2-Hexanone	RL=20 ppb	RL=20 ppb	RL=20 ppb	920 ppb	1,600 ppb
Tetrachloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	52 ppb	RL=20 ppb
Dibromochloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dibromoethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	680 ppb	1,200 ppb
Ethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	20,000 ppb	48,000 ppb
m&p-Xylenes	RL=20 ppb	RL=20 ppb	RL=20 ppb	1,500 ppb	2,600 ppb
o-Xylene	RL=20 ppb	RL=20 ppb	RL=20 ppb	1,300 ppb	2,200 ppb
Styrene	RL=20 ppb	RL=20 ppb	RL=20 ppb	15,000 ppb	2,200 ppb
Bromoform	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2,2-Tetrachloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
4-Ethyltoluene	RL=20 ppb	RL=20 ppb	RL=20 ppb	1,100 ppb	1,800 ppb
1,3,5-Trimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	1,100 ppb	1,700 ppb
1,2,4-Trimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	760 ppb	1,200 ppb
1,3-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	94 ppb	150 ppb
1,4-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	150 ppb
Benzyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	200 ppb	320 ppb
1,2,4-Trichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	52 ppb	57 ppb
Hexachloro-1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb

RL=Reporting Limit (20 ppb)

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

FILE

NO QUANTIFICATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

File name	DRAFT GCMS Results for 10/05/01 DRAFT			
	NYC241 Middle of South Tower	NYC243 Loc# 2 Greenwich & Liberty	NYC244 Loc #3 Tobin Plaza	NYC245 Liberty & West Loc #1
Sample Location				
Sample Number	17512	17511	17513	17510
Sample Height	Breathing level	Breathing level	Breathing level	Breathing level
Volume	0.02 mL	0.1	0.1 mL	0.1 ml
Propylene	5,700 ppb	RL=20 ppb	RL=20 ppb	73 ppb
Dichlorodifluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Dichlorotetrafluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloromethane	3,900 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Vinyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Bromomethane	100 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloroethane	220 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Trichlorofluoromethane	57 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Isopropyl Alcohol	RL=20 ppb	RL=20 ppb	36 ppb	RL=20 ppb
Acetone	6,800 ppb	78 ppb	140 ppb	180 ppb
Trichlorotrifluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
3-Chloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Methylene Chloride	28 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
MTBE	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
trans-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Hexane	320 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Vinyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
2-Butanone	1,700 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
cis-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Ethyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloroform	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Tetrahydrofuran	1,000 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,1-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Cyclohexane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Carbon Tetrachloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichloroethane	220 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Benzene	9,500 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Heptane	210 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Trichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichloropropane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,4-Dioxane	270 ppb	45 ppb	51 ppb	110 ppb
Methyl Isobutyl Ketone	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
cis-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Toluene	4,000 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
trans-1,3-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb

FILE

2-Hexanone	150 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Tetrachloroethene	84 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Dibromochloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dibromoethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chlorobenzene	160 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Ethylbenzene	4,300 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
m&p-Xylenes	220 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
o-Xylene	200 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Styrene	2,100 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Bromoform	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2,2-Tetrachloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
4-Ethyltoluene	160 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,3,5-Trimethylbenzene	130 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2,4-Trimethylbenzene	100 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,3-Dichlorobenzene	28 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,4-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Benzyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichlorobenzene	50 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2,4-Trichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Hexachloro-1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb

RL=Reporting Limit (20 ppb)

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED  
 WITH DISCRETION

FILE

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Sunday, October 7, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 17 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 7:30 p.m 10/7)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 50 samples taken in and around ground zero from October 4 through October 5. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities (Link to map). One sample was not analyzed due to overloading of particulates. This brings the total number of air samples collected and analyzed for lower Manhattan to 576, with 27 samples above the standard.

**Staten Island Landfill**

**Air (Asbestos)** - Twenty-three air samples were taken from October 5 through October 6. All test results were below the AHERA standard used for allowing re-entry into schools.

**Particulates** - The results from October 5 showed that the average concentrations of particulate matter decreased from the previous day.

**Ambient Air Sampling:**

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on October 5 from stations located at Pace University, Borough of Manhattan Community College and the U.S. Coast Guard Building located at Battery Park. All of the 24-hour averages were below the stringent National Ambient Air Quality Standard of 65 ug/m<sup>3</sup>.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 6.

Benzene was detected above the OSHA limit at one location in the plume of the debris pile, but not at a location outside the perimeter of ground zero.

took wipe samples inside three lower Manhattan schools. Eight samples were collected from Borough of Manhattan Community College and seven samples were collected from Stuyvesant High School. All samples showed no detectable levels of PCBs.

**Dioxin** - On September 28 and 29, EPA collected six wipe samples from inside Borough of Manhattan Community College, Stuyvesant High School and Public School 234. All samples showed no detectable levels of dioxin.

U.S. Environmental Protection Agency  
Air / Bulk / Wipe / Water Sampling Situation Report  
Sunday, October 7, 2001 (2:00 pm)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 4, 1200 to 2400)
  - All 17 samples below the TEM AHERA standard.
- NYC / ER (Oct 5, 0001 to 1200)
  - All 17 samples below the TEM AHERA standard.
- NYC / ER (Oct 5, 1200 to 2400)
  - 16 samples below the TEM AHERA standard.  
(One sample filter over loaded - no results)

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 3, 7:00 PM - Oct 4, 7:00 AM) - Asbestos
  - Results pending.
- Fresh Kills (Oct 5, 0800 to 1800) - Asbestos
  - Results not received.
- Fresh Kills (Oct 5, 1800 to Oct 6, 0800) - Asbestos
  - All 11 samples were below the TEM AHERA standard.
  - No volume collected at 1 other location.
- Fresh Kills (Oct 6, 0800 to 2000) - Asbestos
  - All 12 samples were below the TEM AHERA standard.
- Fresh Kills (Oct 6) - Particulate Monitoring
  - Average particulate concentrations decreased from previous day.

Ambient Air Sampling Locations (Particulate monitoring - PM<sub>2.5</sub>)

- NYC / ER (Oct 5)
  - Pace University (Site 1) - 24-hr average concentration for this period was 33.69 ug/m<sup>3</sup>.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was 39.27 ug/m<sup>3</sup>.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was 32.70 ug/m<sup>3</sup>.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

**FILE**

Ambient Air Sampling Locations (TAGA - volatile organics)

- NYC / ER (Oct 6)
  - Benzene exceeded OSHA TWA PEL at the 1 location sampled in the plume on the debris pile.

**FILE**



File: 100601  
 C:\Users\Public\Sampling Results - all (read) - 100601  
 100601 (1/26/01 to 2/06)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCMA by NIOSH 7400		Structures (IP)		TEM (AHERA)	
					limb <sup>1</sup>	lec <sup>2</sup>	0.5-5µm	>5µm	limb <sup>1</sup>	S-lic <sup>2</sup>
10/4/01	02541	A	1440	Air	18.47	0.006	0	0	<13.33	<0.0043
10/4/01	02542	B	1440	Air	23.57	0.006	1**	0	16	0.0043
10/4/01	02543	C-1	1440	Air	12.74	0.003	0	0	<16.00	<0.0043
10/4/01	02547	D	1440	Air	13.36	0.004	0	0	<16.00	<0.0043
10/4/01	02611	E	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/4/01	02612	F	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/4/01	02546	H	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/4/01	02544	I	1440	Air	10.19	0.003	1**	0	16	0.0043
10/4/01	02545	J	1440	Air	11.46	0.003	0	0	<16.00	<0.0043
10/4/01	02548	K	1440	Air	15.26	0.005	0	0	<16.00	<0.0043
10/4/01	02548	L	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/4/01	02616	M	1440	Air	9.55	0.003	1**	0	16	0.0043
10/4/01	02615	N	1440	Air	26.11	0.007	0	1**	0	0.0043
10/4/01	02549	P	1440	Air	17.83	0.005	0	0	<16.00	<0.0043
10/4/01	02613	Q	1440	Air	22.93	0.006	0	0	<16.00	<0.0043
10/4/01	02550	S	1440	Air	11.46	0.003	2**	0	32	0.0066

cod#0692

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: 1st block between Broadway & Liberty St.
- D: East end of Liberty St. at South End Ave
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St.
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TACA bus area
- M: Western end of Harrison St. at West St. (on tree next to volleyball court)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: TACA Bus Location
- S: Rector & South End

NS: Not sampled

\*Structure (S) Roughly equivalent to Fiber (F)

\*\*IP: Not requested

\*\*\*IP: Not analyzed due to overloading of particulates

FILE

ERT: 10/06/01 9:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/16/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 5/µm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-14-Q1a.xls

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/5/01 (06:37) to 10/5/01 (12:00)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCMN by NIOSH 7400 f/ftm <sup>3</sup>	PCMN by NIOSH 7400 f/cc	Structures (f) 0.01-0.5µ	Structures (f) >5µ	TEM (AHERA) f/ftm <sup>3</sup>	S-f/cc*
10/5/01	02620	A	1440	Air	10.93	0.003	0	0	<16	<0.0043
10/5/01	01858	B	1440	Air	11.46	0.003	0	0	<16	<0.0043
10/5/01	01859	C-1	1440	Air	<7.0	<0.003	0	0	<16	<0.0043
10/5/01	00871	D	1440	Air	28.03	0.007	2**	0	32	0.0085
10/5/01	00875	E	1440	Air	7.64	0.002	0	0	<16	<0.0043
10/5/01	00876	F	1440	Air	8.29	0.002	0	0	<16	<0.0043
10/5/01	00877	F Dup	1440	Air	<7.0	<0.002	1**	0	16	0.0043
10/5/01	17454	H	1440	Air	<7.0	<0.002	0	0	<16	<0.0043
10/5/01	01990	I	1440	Air	9.55	0.003	0	0	<16	<0.0043
10/5/01	00879	J	1440	Air	8.29	0.002	0	0	<16	<0.0043
10/5/01	17451	K	1440	Air	<7.0	<0.003	1**	0	16	0.0043
10/5/01	17450	M	1440	Air	<7.0	<0.003	0	0	<16	<0.0043
10/5/01	00880	N	1440	Air	<7.0	<0.003	0	0	<16	<0.0043
10/5/01	00873	P	1440	Air	<7.0	<0.003	0	1**	16	0.0043
10/5/01	00878	Q	1440	Air	13.38	0.004	0	1**	16	0.0043
10/5/01	00874	S	1440	Air	<7.0	<0.002	1**	0	16	0.0043

cc:R 04/01

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: Trinity (a.k.a. Church & Liberty
- C-1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St.
- G: Church & West St.
- H: South side of Church & Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Sluyveant High), access to TAGA Bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/1/94  
 AHERA: Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA), 0.01 fibers/cc (FCM), 70 f/ftm<sup>3</sup>, volume 120L L (or 24 min filter (TEM))

FL-10-35-01.xls

FILE

ERT: 10/06/01 9:50 AM

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (6) Roughly equivalent to Fiber (F)  
 NR: Not requested  
 NA: Not analyzed due to overloading of particulates

\*\* Chrysotile

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/05/01 11:20:01 to 10/05/01 24:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AIERA)		S-1/cz*
					f/m <sup>3</sup>	f/cc	Structures (#)	3mm	
10/02/2001	05191	A	1440	Air	28.03	0.007	NA	NA	NA
10/02/2001	05192	B	1440	Air	26.75	0.007	0	0	<0.0041
10/02/2001	05193	C	1440	Air	7.64	0.002	0	0	<0.0041
10/02/2001	05196	D	1440	Air	29.3	0.006	0	0	<0.0041
10/02/2001	05200	E	1440	Air	23.66	0.006	0	0	<0.0041
10/02/2001	05201	F	1440	Air	35.67	0.009	0	0	<0.0041
10/02/2001	05202	G	1440	Air	12.74	0.003	0	0	<0.0041
10/02/2001	05194	H	1440	Air	17.63	0.005	0	0	<0.0041
10/02/2001	05204	I	1440	Air	25.75	0.012	0	0	<0.0041
10/02/2001	05197	J	1440	Air	22.93	0.006	0	0	<0.0041
10/02/2001	05205	K	1440	Air	11.46	0.003	0	0	<0.0041
10/02/2001	05206	L	1440	Air	26.75	0.007	0	0	<0.0041
10/02/2001	05199	M	1440	Air	7.64	0.002	0	0	<0.0041
10/02/2001	05203	N	1440	Air	34.39	0.009	0	0	<0.0041
10/02/2001	05198	O	1440	Air	10.19	0.003	0	0	<0.0041
10/02/2001	05195	P	1440	Air	10.19	0.003	0	0	<0.0041
10/02/2001	05198	S	1440	Air	10.19	0.003	0	0	<0.0041

f/cc data

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St
- C: Trinity (aka Church) & Liberty
- C1: SW corner of Broadway & Liberty St
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Fourtenth median strip of Vesey & West St
- G: Church and Duane St.
- H: Southwest of Chase Manhattan Plaza at Pine St.
- I: corner of Wall St. & Broadway
- J: NE corner of Wall St. & Broadway
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Shoyouan Tunnel) across to TAGA bus area
- M: Western end of Hanson St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

NS: Not sampled  
\*Structure (S) roughly equivalent to fiber (f)  
NR: Not requested  
NA: not analyzed due to overloading of particulates

FILE

ERT: 10/07/01 9:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 1, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AIERA)  
Standard criteria: EPA 40CFR Part 763 (AIERA): 0.01 fibers/cc (PCM); 70 5/μm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/05/01 1800 to 10/06/01 0900

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fiber*	
					f/min <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>		
10/5-6/2001	02151	#1	720	Air	<7.0	<0.004	0	0	<8.00	<0.0043
10/5-6/2001	02152	#2	917	Air	<7.0	<0.003	0	0	<8.00	<0.0038
10/5-6/2001	02153	#3	720	Air	<7.0	<0.003	0	0	<8.00	<0.0043
10/5-6/2001	02154	#4								
10/5-6/2001	02155	#5	720	Air	No Air volume analyzed	Results not available	0	0	<8.00	<0.0043
10/5-6/2001	02156	#6	720	Air	<7.0	<0.004	0	0	<8.00	<0.0043
10/5-6/2001	02157	#7	720	Air	<7.0	<0.004	0	0	<8.00	<0.0043
10/5-6/2001	02158	#8	720	Air	<7.0	<0.004	0	0	<8.00	<0.0043
10/5-6/2001	02159	#9A	220	Air	<7.0	<0.012	0	0	<8.00	<0.0043
10/5-6/2001	02160	#9B	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/5-6/2001	02191	#10	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/5-6/2001	02192	#10	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048

code # 04223

\*\* Chrysotile

NS: Not sampled  
Sample volume is below recommended limit of the method:  
- Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40-CFR Part 763 (A) (E) (2) (A)  
Standard criteria: EPA 40-CFR Part 763 (A) (E) (2) (A) (i) (1) (C) (M), 70 S/mm<sup>2</sup>, volume 7200 L, for 25 min filter (TEM)

ERT: 10/07/01 9:50 AM

FILE

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/06/01 0800 to 10/06/01 2000

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AIERA)		S-f/cc*
					f/cc	f/m <sup>3</sup>	Structures (#)	S/mm <sup>2</sup>	
10/06/2001	02911	#1	708.3	Air	<7.0	<0.004	0	<8.61	<0.0047
10/06/2001	02912	#2	711.5	Air	<7.0	<0.004	0	<8.61	<0.0047
10/06/2001	02913	#3	710	Air	10.19	0.005	0	<8.61	<0.0047
10/06/2001	02914	#4	680.7	Air	<7.0	<0.004	0	<8.61	<0.0047
10/06/2001	02915	#5	755.2	Air	<7.0	<0.004	0	<8.61	<0.0047
10/06/2001	02916	#6	711	Air	<7.0	<0.004	0	<8.61	<0.0047
10/06/2001	02917	#7	711	Air	<7.0	<0.004	0	<8.61	<0.0047
10/06/2001	02918	#8	720	Air	<7.0	<0.004	0	<8.61	<0.0047
10/06/2001	02919	#9A	768	Air	<7.0	<0.004	0	<8.61	<0.0047
10/06/2001	02920	#9B	660	Air	<7.0	<0.004	0	8.61	0.0055
10/06/2001	02921	#9C	698.7	Air	<7.0	<0.004	0	8.61	0.0047
10/06/2001	02922	#10	708	Air	<7.0	<0.004	0	<8.61	<0.0047

code 10002

\*\* Chrysotile

NS: Not sampled

Sample volume is below recommended limit of the method:

- Structure (S): roughly equivalent to fiber (f)

NA: not analyzed due to overloading of particulates

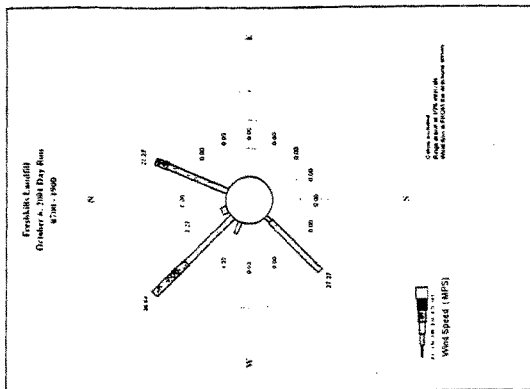
NIOSH 7400: Filter Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/1/99  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 808-FR-Part 763 (AIERA)  
 Standard criteria: EPA 808-FR-Part 763 (AIERA); 0.01 fibers/cc (f/cc), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/07/01 9:50 AM

**FILE**

Daily DataRam Particulate Monitoring Summary Sheet  
 Fresh Kills Landfill  
 October 6, 2001

Loc	Longitude	Latitude	DataRam ID	Tag #	Unused Points	Elapsed Time	Avg Time (sec)	Logging Period	Cal Factor	STEL ug/m <sup>3</sup>	Min Conc ug/m <sup>3</sup>	Avg Conc ug/m <sup>3</sup>	Max Conc ug/m <sup>3</sup>
1	-74.199795	40.565170	2294	1	59	14:43:00	10	00:15:00	100	0.0	2.2	46.2	1318.1
2	-74.198262	40.566883	2012	1	28	07:00:00	10	00:15:00	100	0.0	0.0	1.7	348.9
3	-74.196685	40.570254	2010	1	58	14:30:00	10	00:15:00	100	0.0	0.0	12.9	263.5
4	-74.201380	40.569790	2224	1	28	07:00:00	10	00:15:00	100	0.0	0.0	10.0	1702.8
5	-74.205873	40.568892	2295	1	57	14:15:00	10	00:15:00	100	0.0	0.2	12.9	397.9
6	-74.207406	40.563818	2480	1	35	08:45:00	10	00:15:00	100	0.0	0.0	18.4	425.1
7	-74.205414	40.560434	2226	1	57	4:15:00	10	00:15:00	100	0.0	0.0	15.1	538.4
8	-74.200109	40.561915	2152	1	57	4:15:00	10	00:15:00	100	0.0	0.0	11.2	250.4



FILE

DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

DRAFT GCMS Results for 10/06/01 DRAFT			
File name	NYC254	NYC255	NYC256
Sample Location	Instrument Blank	Ambient N. Park Pier	North Tower
Sample Number		05252	05251
Sample Height		Breathing level	Ground level
Volume	250 mL	250 mL	20 mL
Propylene	RL=20 ppb	RL=20 ppb	20000 ppb
Dichlorodifluoromethane	RL=20 ppb	RL=20 ppb	RL=50 ppb
Dichlorotetrafluoroethane	RL=20 ppb	RL=20 ppb	RL=50 ppb
Chloromethane	RL=20 ppb	RL=20 ppb	11000 ppb
Vinyl Chloride	RL=20 ppb	RL=20 ppb	RL=50 ppb
1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=50 ppb
Bromomethane	RL=20 ppb	RL=20 ppb	300 ppb
Chloroethane	RL=20 ppb	RL=20 ppb	970 ppb
Trichlorofluoromethane	RL=20 ppb	RL=20 ppb	230 ppb
Isopropyl Alcohol	RL=20 ppb	24 ppb	RL=50 ppb
Acetone	RL=20 ppb	47 ppb	22000 ppb
Trichlorotrifluoroethane	RL=20 ppb	RL=20 ppb	RL=50 ppb
1,1-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=50 ppb
3-Chloropropene	RL=20 ppb	RL=20 ppb	RL=50 ppb
Methylene Chloride	RL=20 ppb	RL=20 ppb	RL=50 ppb
MTBE	RL=20 ppb	RL=20 ppb	RL=50 ppb
trans-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=50 ppb
Hexane	RL=20 ppb	RL=20 ppb	1400 ppb
1,1-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=50 ppb
Vinyl Acetate	RL=20 ppb	RL=20 ppb	RL=50 ppb
2-Butanone	RL=20 ppb	RL=20 ppb	5600 ppb
cis-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=50 ppb
Ethyl Acetate	RL=20 ppb	RL=20 ppb	RL=50 ppb
Chloroform	RL=20 ppb	RL=20 ppb	RL=50 ppb
Tetrahydrofuran	RL=20 ppb	RL=20 ppb	2800 ppb
1,1,1-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=50 ppb
Cyclohexane	RL=20 ppb	RL=20 ppb	RL=50 ppb
Carbon Tetrachloride	RL=20 ppb	RL=20 ppb	RL=50 ppb
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=50 ppb
Benzene	RL=20 ppb	44 ppb	31000 ppb
Heptane	RL=20 ppb	RL=20 ppb	950 ppb
Trichloroethene	RL=20 ppb	RL=20 ppb	RL=50 ppb
1,2-Dichloropropane	RL=20 ppb	RL=20 ppb	RL=50 ppb
1,4-Dioxane	RL=20 ppb	81 ppb	1100 ppb

FILE

**AND THE DATA SHOULD BE USED  
WITH DISCRETION**

Methyl Isobutyl Ketone	RL=20 ppb	RI=20 ppb	RI=50 ppb
cis-1,3-Dichloropropene	RL=20 ppb	RI=20 ppb	RI=50 ppb
Toluene	RL=20 ppb	53 ppb	14000 ppb
trans-1,3-Dichloropropene	RL=20 ppb	RI=20 ppb	RI=50 ppb
1,1,2-Trichloroethane	RL=20 ppb	RI=20 ppb	RI=50 ppb
2-Hexanone	RL=20 ppb	RI=20 ppb	370 ppb
Tetrachloroethene	RL=20 ppb	RI=20 ppb	RI=50 ppb
Dibromochloromethane	RL=20 ppb	RI=20 ppb	RI=50 ppb
1,2-Dibromoethane	RL=20 ppb	RI=20 ppb	RI=50 ppb
Chlorobenzene	RL=20 ppb	RI=20 ppb	290 ppb
Ethylbenzene	RL=20 ppb	120 ppb	17000 ppb
m&p-Xylenes	RL=20 ppb	RI=20 ppb	830 ppb
o-Xylene	RL=20 ppb	RI=20 ppb	660 ppb
Styrene	RL=20 ppb	78 ppb	6700 ppb
Bromoform	RL=20 ppb	RI=20 ppb	RI=50 ppb
1,1,2,2-Tetrachloroethane	RL=20 ppb	RI=20 ppb	RI=50 ppb
4-Ethyltoluene	RL=20 ppb	RI=20 ppb	460 ppb
1,3,5-Trimethylbenzene	RL=20 ppb	RI=20 ppb	390 ppb
1,2,4-Trimethylbenzene	RL=20 ppb	RI=20 ppb	270 ppb
1,3-Dichlorobenzene	RL=20 ppb	RI=20 ppb	RI=50 ppb
1,4-Dichlorobenzene	RL=20 ppb	RI=20 ppb	RI=50 ppb
Benzyl Chloride	RL=20 ppb	RI=20 ppb	RI=50 ppb
1,2-Dichlorobenzene	RL=20 ppb	RI=20 ppb	RI=50 ppb
1,2,4-Trichlorobenzene	RL=20 ppb	RI=20 ppb	RI=50 ppb
Hexachloro-1,3-Butadiene	RL=20 ppb	RI=20 ppb	RI=50 ppb

RL=Reporting Limit (20 ppb)

**FILE**



**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Monday, October 8, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 17 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 7:30 p.m 10/8)**

**Air: Fixed Monitors in New York New Jersey:**

**Asbestos** - EPA analyzed 16 samples taken in and around ground zero on October 6. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities (Link to map). One sample was not analyzed due to overloading of particulates. This brings the total number of air samples collected and analyzed for lower Manhattan to 592, with 27 samples above the standard.

Eight air samples taken in New Jersey on October 5 and 6 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 82, with zero above the standard.

**Staten Island Landfill**

**Air (Asbestos)** - Twelve air samples were taken from October 6 through October 7. All test results were below the AHERA standard used for allowing re-entry into schools.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Monday, October 8, 2001 (11:00 am)

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Oct 6, 0001 to 0900)

All 16 samples analyzed were below the TEM AHERA standard. One other sample was not analyzed due to overloading of particulates.

NJ DEP (Oct 5)

All 4 samples analyzed were below the TEM AHERA standard.

NJ DEP (Oct 6)

All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

Fresh Kills (Oct 6, 7:30 PM - Oct 7, 7:30 AM) - Asbestos

All 12 samples were below the TEM AHERA standard.

Dewatering Sample Activity - Exchange Place PATH tunnel (Oct.3)

Metals: Toxic metals were not detected except for barium. The highest barium concentration was 150 ug/l. This is less than the 1000 ug/l federal ambient water criteria for this metal.

PCB Congeners: None of the PCB congeners analyzed were detected.

NVOAs: No comparisons to federal criteria are possible since acute or chronic federal criteria do not exist.

VOCs: The only VOC for which Water Quality Criteria exist is toluene. Toluene did not exceed the acute and chronic marine Water Quality Criteria.

Total Petroleum Hydrocarbons: None detected.

Total Organic Carbon: No criteria exist.

Non-filterable Residue (TSS): TSS was reported at a level below that detected in the effluent from Newtown Creek STP (as a comparison point)

BOD5: Awaiting completion of 5 day test analysis.

Asbestos: Results not available to date.

Dioxins/Furans: Results not available to date.

**FILE**

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/06/01 (09:01) to 10/06/01 (09:00)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fice*
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	
10/06/01	05211	A	1010	Air	45.86	0.018	NA	NA	NA
10/06/01	05212	B	1026	Air	30.57	0.012	0	7.75	0.0029
10/06/01	05213	C-1	1036	Air	<7.0	<0.003	0	<7.75	<0.0029
10/06/01	05214	D	1060	Air	57.32	0.021	2**	15.5	0.0066
10/06/01	05221	E	1112	Air	26.75	0.009	0	7.75	0.0027
10/06/01	05222	F	1122	Air	24.2	0.008	0	<7.75	<0.0027
10/06/01	05214	H	1040	Air	<7.0	<0.003	0	7.75	0.0029
10/06/01	05215	I	1050	Air	10.19	0.004	0	<7.75	<0.0028
10/06/01	05216	J Dup	1030	Air	8.32	0.003	0	<7.75	<0.0028
10/06/01	05218	K	1068	Air	40.76	0.015	0	<7.75	<0.0028
10/06/01	05227	L	1156	Air	<7.0	<0.002	0	<7.75	<0.0028
10/06/01	05226	M	1150	Air	14.01	0.005	0	<7.75	<0.0026
10/06/01	05225	N	1146	Air	7.64	0.003	0	<7.75	<0.0026
10/06/01	05220	P	1068	Air	11.46	0.004	0	<7.75	<0.0027
10/06/01	05223	Q	1128	Air	7.64	0.003	0	<7.75	<0.0026
10/06/01	05219	S	1078	Air	7.64	0.003	0	<7.75	<0.0028

ccaf 10622

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of West Broadway & Duane St
- C: Trinity (St. Ann, St. Peter & St. Paul)
- C-1: SW corner of Broadway & Liberty St
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Sluyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bullhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: West side of West St. (center island) in proximity to USCG command post
- R: TAGA bus location
- S: Rector & South End

- NS: Not sampled
- NA: No structure (S) roughly equivalent to fiber (f)
- NR: Not analyzed due to oversizing of particulates
- NA: not analyzed due to oversizing of particulates
- Sample volume is below recommended limit of the method:



ERT: 10/08/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-06-01.xls

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM ( AHERA)	
					f/mm <sup>2</sup>	f/cc	0.5µ-5µ S (#)	>5µ S/mm <sup>2</sup>
10/5/01	02026	Liberty Park	480	Air	<7.0	<0.006	0	<7.75
10/5/01	02027	CITGO Terminal	480	Air	10.19	0.008	0	<7.75
10/5/01	02028	FMC Terminal	480	Air	<7.0	<0.006	0	<7.75
10/5/01	02029	Shell Terminal	480	Air	<7.0	<0.006	0	<7.75

00494183

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1305 (10/05/01) - 2105 (10/05/01)
CITGO Terminal	1355 (10/05/01) - 2155 (10/05/01)
FMC Terminal	1430 (10/05/01) - 2230 (10/05/01)
Shell Terminal	1450 (10/05/01) - 2250 (10/05/01)

ERT: 10/08/01 09:50 AM

**FILE**

NYC Emergency Response  
Asbestos Air Sampling Results NYC ERINJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	>5µ S (#)	S/mm <sup>2</sup>
10/6/01	01971	Liberty Park	480	Air	<7.0	<0.006	0	<7.75
10/6/01	01972	CITGO Terminal	480	Air	<7.0	<0.006	0	<7.75
10/6/01	01973	FMC Terminal	480	Air	<7.0	<0.006	0	<7.75
10/6/01	01974	Shell Terminal	480	Air	<7.0	<0.006	0	<7.75

cc:R4184

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1415 (10/06/01) - 2215 (10/06/01)
CITGO Terminal	1510 (10/06/01) - 2310 (10/06/01)
FMC Terminal	1340 (10/06/01) - 2340 (10/06/01)
Shell Terminal	1605 (10/06/01) - 2405 (10/06/01)

ERT: 10/08/01 09:50 AM

**FILE**

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/06/01 13:30 to 10/07/01 07:30

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/cc	f/cc	Structures #/ 0.5µ - 5µ	S-f/cc*
10/6-10/7	02925	#1	704	Air	<7.0	<0.004	0	<0.0048
10/6-10/7	02926	#2	704.1	Air	<7.0	<0.004	0	<0.0048
10/6-10/7	02927	#3	704.9	Air	<7.0	<0.004	0	<0.0048
10/6-10/7	02928	#4	707.5	Air	<7.0	<0.004	0	<0.0048
10/6-10/7	02929	#5	708.3	Air	<7.0	<0.004	0	<0.0048
10/6-10/7	02930	#6	715.6	Air	<7.0	<0.004	0	<0.0048
10/6-10/7	02221	#7	711.8	Air	<7.0	<0.004	0	<0.0048
10/6-10/7	02222	#8	715.6	Air	19.11	0.011	0	<0.0048
10/6-10/7	02223	#9A	646.6	Air	12.74	0.008	0	<0.0048
10/6-10/7	02224	#9B	648.7	Air	7.64	0.005	0	<0.0048
10/6-10/7	02225	#9C	644.2	Air	7.64	0.005	0	<0.0048
10/6-10/7	02226	#10	644.5	Air	<7.0	<0.004	0	<0.0048

code 04603

NS: Not sampled  
 Sample volume is below recommended limit of the method:  
 - Structure (S) roughly equivalent to fiber (f)  
 - NK: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 460CFR Part 763 (AHERA)  
 Standard criteria: EPA 460CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 nm filter (TEM)

ERT: 10/08/01 9:50 AM

FILE

October 8, 2001 (11:21am)Preliminary DataNew York City/ World Trade Center Sampling Activities  
Exchange Place PATH Dewatering**Preliminary Results Summary:**EPA Personnel: Robert Morrell  
Warren McHose

Sampling Date: October 03, 2001

Location: Grab samples from direct discharge to the Hudson River.

Sample Matrix: Aqueous

Analytes (Laboratory): VOCs (Region 2)  
PCBs (Region 2)  
PAHs (Region 2)  
Metals (Region 2)  
BOD5 (Region 2)  
TSS (Region 2)  
TOC (Region 2)  
Total Petroleum Hydrocarbons (Region 2)  
Dioxins/Furans (contract lab - Paradigm Analytical)  
Asbestos (contract lab)

**Dewatering Activity:** The Port Authority initiated pumping from the PATH tunnels at Exchange Place under an existing permit (NJ0076988) on September 11, 2001. The Port Authority estimates that discharge averaged 2600 GPM. The F tunnel has been plugged since the WTC disaster, and no dewatering is occurring from that tunnel. Dewatering continues from the E tunnel. Pumps are activated by a float switch, and operate between 8 and 12 hours per day, at an estimated discharge of 250 GPM. NJDEP had been notified of the enhanced discharge, but performed no sampling. EPA learned of the enhanced discharge on October 01, 2001, and performed reconnaissance on October 02. NJPDES Permit parameters are tabulated below.

DSN	Monthly Average Flow (GPD)	Long Term Average Flow (GPD)	Description of Treatment
001	7200	480	None
002	32000	480	None
003	NA	NA	None

**FILE**

Parameter	Non-numeric Effluent Limit	Monitoring Requirements	
		Frequency	Type
Flow (GPD)	BMP	Semi-Annually	Calculated
pH TSS, mg/L TOC, mg/L Petroleum Hydrocarbons, mg/L	BMP	Semi-Annually	Grab

**Preliminary Results:**

**Metals:** Laboratory results for metals and a comparison with results from runoff, ambient, and Newtown Creek STP samples are shown in Table 1. Toxic metals were not detected, except for barium which was detected at an elevated concentration versus the ambient Hudson River background sample collected on 09/20/01 by the George Washington Bridge. The barium concentration of 150 ug/L is less than the 1000 ug/L federal ambient water criteria for protection of human health from carcinogens, the only federal water quality criteria for this metal. Calcium, iron, and manganese were detected at elevated concentrations relative to GWB background, and sodium and potassium were detected at lower values. No other metals were detected.

**PCB Congeners :** None of the 71 PCB congeners analyzed were detected (DL 0.0054 ug/L).

**NVOAs:** Thirteen NVOA compounds were detected. Ten of these NVOAs are PAHs. There are neither federal marine acute or chronic criteria for any of the detected NVOAs. Benzoic acid (500 ug/L) and bis-2(chloroisopropyl) ether (69 ug/L), and 2,4-dimethyl phenol were detected at the highest concentrations. These compounds are not PAHs, which were detected a very low concentrations.

**VOCs:** Seven (7) VOCs were detected, all at less than 100 ug/L. For the detected VOCs, federal marine Water Quality Criteria are only applicable for toluene, with acute and chronic marine criteria of 6300 and 5000 ug/L, respectively. Toluene was detected at 13 ug/L, far below the criteria concentrations. Table 2 provides laboratory results for the detected VOCs.

**Total Petroleum Hydrocarbons: (TPH):** TPH was not detected (DL 5 mg/L).

**Total Organic Carbon: (TOC):** TOC was detected at 73 mg/L. There is no criteria for this parameter.

**FILE**



667

**Non-Filterable Residue (TSS):** TSS was reported at 26 mg/L, which is less than the 33 mg/L detected in effluent from the Newtown Creek STP.

**BOD5 (mg/L):** Awaiting completion of 5 day test analysis.

**Asbestos:** Results not yet available

**Dioxins/Furans:** Results not yet available

FILE

**Figure 1: Metals Results from WTC Disaster Non-Drinking Water Sampling**

Metal	Hudson River Background (CW Bridge)		Hudson River North WTC		Hudson River West WTC		Hudson River South WTC		East River (South St)		Runoff (Reactor St.) 09/14/01		Runoff (Reactor St.) 09/20/01		Midtown Pumping Station	Newtown Creek STP Effluent	Exchange Place PATH Tunnel	PATH Tunnel % IR Background
	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND				
Aluminum	410	240	ND	ND	ND	ND	ND	ND	420	640,000	1,500	300	ND	ND	ND	ND	ND	ND
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	140	19	ND	ND	ND	ND	ND	ND	ND
Barium	23	18	17	17	17	17	17	17	19	8,600	60	38	27	150	652	ND	ND	ND
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	78	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	260,000	290,000	280,000	290,000	290,000	290,000	290,000	290,000	270,000	5,500,000	240,000	64,000	35,000	460,000	176	ND	ND	ND
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	180	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt	ND	ND	ND	ND	ND	ND	ND	ND	ND	160	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,000	23	ND	ND	ND	ND	ND	ND	ND
Copper	ND	ND	ND	ND	ND	ND	ND	ND	ND	4,000	29	46	41	ND	ND	ND	ND	ND
Iron	390	230	200	200	200	200	200	200	440	320,000	1,500	730	540	1,900	487	ND	ND	ND
Potassium	260,000	300,000	300,000	310,000	310,000	310,000	310,000	310,000	290,000	100,000	6,200	47,000	25,000	200,000	77	ND	ND	ND
Magnesium	860,000	820,000	960,000	990,000	990,000	990,000	990,000	990,000	940,000	990,000	8,400	130,000	61,000	260,000	679	ND	ND	ND
Manganese	56	40	40	32	32	32	32	32	66	32,000	53	100	74	380	49	ND	ND	ND
Sodium	7,200,000	8,300,000	8,300,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,000,000	100,000	9,500	1,100,000	530,000	3,500,000	ND	ND	ND	ND
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	910	8	ND	ND	ND	ND	ND	ND	ND
Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	5,200	31	8	ND	ND	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	56	ND	ND	ND	ND	ND	ND	ND	ND
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	470	34	ND	ND	ND	ND	ND	ND	ND
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	ND	ND	ND	ND	ND	ND	ND	ND	ND	790	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	ND	ND	ND	ND	ND	ND	ND	ND	ND	49,000	150	94	80	ND	ND	ND	ND	ND
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND	9	ND	ND	ND	ND	ND	ND	ND	ND



**Table 2: Volatile Organic Compounds Detected in Exchange Place PATH Tunnel effluent**

Compound	Concentration (ug/L)
Chloromethane	10 QE
Acetone	80 QE
Methylene Chloride	12
2-Butanone	21 QE
Toluene	13
2-Hexanone	10
Methyl Tert-Butyl ether	68

QE - Accuracy check sample below lower acceptance limit

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Tuesday, October 9, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 17 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 6:00 p.m. 10/9):**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 50 samples taken in and around ground zero from October 7 to October 8. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities (Link to map). This brings the total number of air samples collected and analyzed for lower Manhattan to 642, with 27 samples above the standard.

Four air samples taken in New Jersey on October 7 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 86, with zero above the standard.

**Staten Island Landfill**

**Air (Asbestos)** - Twelve air samples were taken on Oct. 5 and an additional twelve samples were taken from Oct. 7 to Oct. 8. All test results were below the AHERA standard used for allowing re-entry into schools.

**Dust** - Nine samples taken on Oct. 7 were analyzed for asbestos. All results either showed no detection of asbestos or asbestos present at concentrations of less than 1%.

**Ambient Air Sampling:**

**Metals** - Ten samples were taken on October 4 within the vicinity of the emergency response operations. All results were below levels of concern.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted from October 6 to October 7 at Pace University, the Borough of Manhattan Community College and the U.S. Coast Guard building, located in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standard (65 ug/m<sup>3</sup>) for all stations.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Tuesday, October 9, 2001 (11:00 am)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 7, 0001 to 1200)
  - All 17 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 7, 1200 to 2400)
  - All 17 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 8, 0001 to 1200)
  - All 16 samples analyzed were below the TEM AHERA standard.
- NJ DEP (Oct 7)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 5, 7:00 AM - 7:00 PM) - Asbestos
  - All 12 samples were below the TEM AHERA standard.
- Fresh Kills (Oct 7, 7:30 PM - Oct 8, 7:30 AM) - Asbestos
  - All 12 samples were below the TEM AHERA standard.

Ambient Air Sampling Locations

- NYC / ER (Oct 4) - Metals
  - All 10 samples analyzed were below levels of concern for all metals.
- NYC / ER (Oct 6) - Particulate monitoring -  $PM_{2.5}$ 
  - Pace University (Site 1) - 24-hr average concentration for this period was  $8.59 \text{ ug/m}^3$ .
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was  $10.97 \text{ ug/m}^3$ .
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was  $7.67 \text{ ug/m}^3$ .
  - All readings below the National Ambient Air Quality Standard for  $PM_{2.5}$  ( $65 \text{ ug/m}^3$ ).
- NYC / ER (Oct 7) - Particulate monitoring -  $PM_{2.5}$ 
  - Pace University (Site 1) - 24-hr average concentration for this period was  $11.86 \text{ ug/m}^3$ .
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this

FILE

- period was 3.22  $\mu\text{g}/\text{m}^3$ .
- Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was 4.73  $\mu\text{g}/\text{m}^3$ .
- All readings below the National Ambient Air Quality Standard for  $\text{PM}_{2.5}$  (65  $\mu\text{g}/\text{m}^3$ ).

Bulk/Dust Samples

- Fresh Kills (Oct 7) - Asbestos
  - Asbestos was either not detected or less than 1% chrysotile in the 9 samples collected from various steel and debris piles.

Direct Reading Instruments

- NYC / ER (Oct 7)
  - Nothing of significance reported.
- NYC / ER (Oct 8)
  - Some increased CO readings at several locations.

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NYC Response  
Asbestos Air Sampling Results at Field Locations  
Sampling Date and Time: 10/07/01 (0800 to 1200)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-f/cc
					fibers/cm <sup>3</sup>	f/cc	Structures (#) 0.5µ - 5µ	S/mm <sup>2</sup>	
10/7/01	05231	A	1440	Air	NA	0	0	<15.50	<0.0041
10/7/01	05232	B	1440	Air	25.48	0.007	0	<15.50	<0.0041
10/7/01	05233	C,1	1440	Air	40.76	0.011	0	<15.50	<0.0041
10/7/01	05236	D	1440	Air	33.12	0.009	0	<15.50	<0.0041
10/7/01	05240	E	1440	Air	44.99	0.012	0	<15.50	<0.0041
10/7/01	05241	F	1440	Air	14.01	0.004	0	<15.50	<0.0041
10/7/01	05242	G	1440	Air	8.92	0.002	0	<15.50	<0.0041
10/7/01	05245	H	1440	Air	15.29	0.004	0	<15.50	<0.0041
10/7/01	05243	J DUP	1440	Air	17.83	0.005	0	<15.50	<0.0041
10/7/01	05246	K	1440	Air	7.0	<0.002	0	<15.50	<0.0041
10/7/01	05245	M	1440	Air	8.92	0.002	0	<15.50	<0.0041
10/7/01	05244	N	1440	Air	7.0	<0.002	0	<15.50	<0.0041
10/7/01	05239	P	1440	Air	7.0	<0.002	0	<15.50	<0.0041
10/7/01	05238	Q	1440	Air	11.46	0.003	0	<15.50	<0.0041
10/7/01	05235	S	1440	Air	11.46	0.003	0	<15.50	<0.0041

code 10083

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: West end of Duane St. at South End Ave
- F: Northern median strip of Vesey & West St.
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant Hglt), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to ballpark court)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCC command post
- R: TAGA bus ramp
- S: Rectory & South End

NS: Not sampled  
Sample volume is below recommended limit of the method:  
\*Structure (S) Roughly equivalent to Fiber (F)  
NR: Not requested  
NA: not analyzed due to overloading of particulates

ERT: 10/09/01 9:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 01/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fibers/cc (PCM), 76 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

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NYC Response  
Asbestos Air Sampling Results at Field Locations  
Sampling Date and Time: 10/07/01 (1200) to 10/07/01 (2400)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-f/cc*
					f/cc	f/mm <sup>2</sup>	Structures (#)	S/mm <sup>2</sup>	
10/7/01	05261	A	1440	Air	15.29	0.004	0	<15.50	<0.0041
10/7/01	05262	B	1440	Air	14.01	0.004	0	<15.50	<0.0041
10/7/01	05263	C 1	1440	Air	21.66	0.006	0	<15.50	<0.0041
10/7/01	05266	D	1440	Air	22.93	0.006	0	<15.50	<0.0041
10/7/01	05270	E	1440	Air	57.32	0.015	0	<15.50	<0.0041
10/7/01	05271	F	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/7/01	05264	H	1440	Air	17.83	0.005	0	<15.50	<0.0041
10/7/01	05265	I	1440	Air	11.46	0.003	0	<15.50	<0.0041
10/7/01	05267	J	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/7/01	05268	K	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/7/01	05272	L	1440	Air	10.19	0.003	0	<15.50	<0.0041
10/7/01	05275	M	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/7/01	05274	N Dup	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/7/01	05269	P	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/7/01	05272	Q	1440	Air	10.19	0.003	0	<15.50	<0.0041
10/7/01	05268	S	1440	Air	<7.0	<0.002	0	<15.50	<0.0041

ce# 04037

Sampling Locations:

- A: SE corner of West Broadway & Barclay St.
- B: SE corner of West Broadway & Duane St.
- C: Trinity Park, Church & Liberty
- C1: SW corner of Broadway & Liberty St
- D: East end of Albany St. at Greenwich St
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of West St. & Broadway
- J: NE corner of Warren & West St
- K: West St. & Albany in median strip
- L: West St. & Albany in median strip
- M: West Broadway toward North Park rec. area (north side of Stuyvesant Hght), access to TAGA bus area
- N: South side of Pine St. at West St. (on tree next to bulkhead)
- N1: South side of Pine St. (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA bus Location
- S: Rector & South End

NS: Not sampled  
\*Structure (S) roughly equivalent to fiber (f)  
NR: Not requested  
NA: not analyzed due to overloading of particulates

ERT: 10/09/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 7000 L, for 25 mm filter (TEM)

FL-10-07-01a.xls





NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/08/01 (0001 to 1200)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	FCM by NIOSH 7400		TEM (AHERA)		
					f/cc	Structures (#)	5µ	S-f/cc*	
10/001	05281	A	7.56	Air	<7.0	<0.004	0	<8.69	<0.0049
10/001	05282	B	1440	Air	11.46	0.003	1	15.5	0.0041
10/001	05283	C1	1440	Air	17.83	0.005	0	<15.50	<0.0041
10/001	05286	D	1440	Air	11.46	0.003	0	<15.50	<0.0041
10/001	05290	E	1428	Air	10.19	0.003	0	<15.50	<0.0042
10/001	05291	F	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/001	05292	G	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/001	05295	H	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/001	05296	I	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/001	05297	J	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/001	05298	K	1440	Air	14.01	0.004	0	<15.50	<0.0041
10/001	05299	L	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/001	05295	N	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/001	05289	P	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/001	05292	O	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/001	05288	S	1440	Air	<7.0	<0.002	0	<15.50	<0.0041

cc: # 61084

Sampling Locations:

- A: E. corner of West Broadway & Barclay
- B: SE corner of West Broadway & Barclay
- C: Trinity (aka Church) & Liberty
- C1: SW corner of Broadway & Liberty St
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St.
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on free next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- O: NE corner of South End Ave. & Albany
- P: Barclay & West St. (center island) in proximity to USCG command post
- R: Right in Location
- S: Reclon & South End

NS: Not sampled  
\*Structure (S) Roughly equivalent to Fiber (F)  
NR: Not requested  
NA: not analyzed due to overloading of particulates

ERT: 10/09/01 9:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 9/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/imm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-08-01.xls



NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*	
10/7/01	01976	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/7/01	01977	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/7/01	01978	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/7/01	01979	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

COEH186

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 \*Structure (S) roughly equivalent to Fiber (f)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location  
 Liberty Park  
 CITGO Terminal  
 FMC Terminal  
 Shell Terminal

Period in which samples were collected and retrieved  
 Sampling Times

1145 (10/07/01) - 1945 (10/07/01)  
 1225 (10/07/01) - 2025 (10/07/01)  
 1250 (10/07/01) - 2050 (10/07/01)  
 1320 (10/07/01) - 2120 (10/07/01)  
 ERT: 10/09/01 09:50 AM

DEP-10-07-01.xls

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/05/01 0700 or 1200 to 1900

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/ftm	f/cc	Structures (f) >5µ	S-f/cc*
10/5/01	02171	#1	668.9	Air	8.92	0.005	0	<8.61
10/5/01	02172	#2	698.7	Air	11.46	0.007	0	<8.61
10/5/01	02173	#3	709	Air	33.91	0.02	0	<8.61
10/5/01	02174	#4	702	Air	24.2	0.013	0	<8.61
10/5/01	02175	#5	700.8	Air	17.4	0.009	0	<8.61
10/5/01	02176	#6	80	Air	<1.0	<0.004	0	<7.76
10/5/01	02177	#7	706	Air	8.92	0.005	0	<8.61
10/5/01	02178	#8	711.6	Air	40.26	0.022	0	<8.61
10/5/01	02179	#9A	720	Air	26.3	0.016	0	<8.61
10/5/01	02180	#9B	680	Air	7.64	0.004	0	<8.61
10/5/01	02181	#9C	695	Air	20.38	0.012	0	<8.61
10/5/01	02182	#10	666	Air	38.22	0.022	0	<8.61

total 04222

NS: Not sampled  
 Sample volume is below recommended limit of the method.  
 \* Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 f/cc (PCM), 70 S/ftm<sup>3</sup>, volume 1200 L, for 25 nm filter (TEM)

ERT: 10/05/01 9:50 AM





NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/07/01 19:30 to 10/08/01 07:30

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/min <sup>2</sup>	f/cc	Structures (#)	S-f/cc*
10/7-10/8	02935	#1	661.8	Air	12.74	0.007	0	<8.00
10/7-10/8	02936	#2	660.7	Air	<7.0	<0.004	0	<8.00
10/7-10/8	02937	#3	685.7	Air	<7.0	<0.006	0	<8.00
10/7-10/8	02938	#4	663.2	Air	<7.0	<0.004	0	<8.00
10/7-10/8	02939	#5	663.6	Air	<7.0	<0.004	0	<8.00
10/7-10/8	02940	#6	486	Air	<7.0	<0.005	0	<8.00
10/7-10/8	02951	#7	671	Air	<7.0	<0.004	0	<8.00
10/7-10/8	02952	#8	670	Air	<7.0	<0.004	0	<8.00
10/7-10/8	02953	#9A	546.9	Air	<7.0	<0.005	0	<8.00
10/7-10/8	02954	#9B	662	Air	20.98	0.012	3**	40
10/7-10/8	02955	#9C	670.2	Air	12.74	0.007	0	0
10/7-10/8	02955	#10	620	Air	7.64	0.005	0	0

code 04609

\*\* Chrysotile

NS: Not sampled  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 N/A: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/min<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/09/01 9:50 AM



Table 1 Results of the Analysis for Metals in Air  
WTC New York ER site

Client ID Location Air Volume (L) Date Collected	Media Blank #1		Media Blank #2		Media Blank #3		05023 Field Blank		05024 Lot Blank		05013 TAGA	
	Lab	Conc µg/filter	MDL µg/filter	Lab	Conc µg/filter	MDL µg/filter	Lab	Conc µg/filter	MDL µg/filter	Lab	Conc µg/filter	MDL µg/m <sup>3</sup>
Parameter	Analysis Method	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>
Aluminum	ICAP	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	1.5
Arsimony	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Arsenic	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Barium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Beryllium	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Cadmium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Calcium	ICAP	4.0	2.5	4.1	2.5	3.6	2.5	U	2.5	U	2.5	U
Chromium	ICAP	0.73	0.13	0.90	0.13	0.75	0.13	U	0.13	U	0.13	U
Cobalt	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Copper	ICAP	U	0.25	U	0.25	U	0.25	0.62	0.25	U	0.25	U
Iron	ICAP	U	0.63	U	0.63	U	0.63	0.62	0.25	U	0.25	U
Lead	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	1.1
Magnesium	ICAP	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
Manganese	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Nickel	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Potassium	ICAP	U	50	U	50	U	50	U	50	U	50	U
Selenium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Silver	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Sodium	ICAP	U	13	U	13	U	13	U	13	U	13	U
Thallium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Vanadium	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Zinc	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration (=MDL) subtracted from all sample results

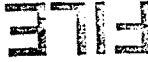


Table 1 Results of the Analysis for Metals in Air  
WTC New York ER site

Client ID Location	05014 TAGA	1032 10/04/01	Analysis Method	05015 A-BARCLAY ST. & WEST BROADWAY		05016 B-CHURCH & DEY ST.		05017 LOC 3 - SW SIDE OF WTC 5		05018 C1-LIBERTY ST. & BROADWAY		05019 D-GREENWICH & ALBANY ST.	
				Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Aluminum	U	1.2	ICAP	5.5	1.2	2.8	1.2	2.6	1.2	1.6	1.2	5.2	1.2
Antimony	U	0.048	AA-Fur	0.16	0.049	U	0.049	0.066	0.05	U	0.049	U	0.05
Arsenic	U	0.048	AA-Fur	0.10	0.049	U	0.049	U	0.05	U	0.049	U	0.05
Barium	U	0.12	ICAP	0.14	0.12	U	0.12	U	0.12	U	0.12	U	0.12
Beryllium	U	0.048	ICAP	U	0.049	U	0.049	U	0.05	U	0.049	U	0.05
Cadmium	U	0.12	ICAP	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12
Calcium	2.6	2.4	ICAP	81	2.4	23	2.5	25	2.5	5.6	2.5	26	2.5
Chromium	U	0.12	ICAP	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12
Cobalt	U	0.24	ICAP	U	0.24	U	0.24	U	0.25	U	0.25	U	0.25
Copper	U	0.24	ICAP	1.2	0.24	0.39	0.25	0.49	0.25	0.26	0.25	U	0.25
Iron	2.0	0.61	ICAP	16	0.61	7.9	0.62	4.3	0.62	3.1	0.62	9.4	0.62
Lead	U	0.048	AA-Fur	1.4	0.049	0.26	0.049	0.42	0.05	0.079	0.049	0.098	0.05
Magnesium	U	12	ICAP	U	12	U	12	U	12	U	12	U	12
Manganese	U	0.12	ICAP	0.28	0.12	0.13	0.12	U	0.12	U	0.12	0.18	0.12
Nickel	U	0.24	ICAP	U	0.24	U	0.24	U	0.25	U	0.25	U	0.25
Potassium	U	48	ICAP	U	49	U	49	U	50	U	49	U	50
Selenium	U	0.048	AA-Fur	U	0.049	U	0.049	U	0.05	U	0.049	U	0.05
Silver	U	0.12	ICAP	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12
Sodium	U	12	ICAP	U	12	U	12	U	12	U	12	U	12
Thallium	U	0.048	AA-Fur	U	0.049	U	0.049	U	0.05	U	0.049	U	0.05
Vanadium	U	0.24	ICAP	U	0.24	U	0.24	U	0.25	U	0.25	U	0.25
Zinc	U	0.24	ICAP	3.9	0.24	0.86	0.25	1.2	0.25	0.29	0.25	0.50	0.25

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration (≅MDL) subtracted from all sample results



Table 1 Results of the Analysis for Metals in Air  
WTC New York ER site

Client ID Location	Air Volume (L) Date Collected	05020 P-ALBANY ST. & SOUTHEND AVE. 1006 10/04/01		05021 S RECTOR PLACE & SOUTHEND AVE. 1006 10/04/01		05022 E LIBERTY ST. & SOUTHEND AVE. 1000 10/04/01	
		Conc µg/m³	MDL µg/m³	Conc. µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³
Parameter	Analysis Method	Conc µg/m³	MDL µg/m³	Conc. µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³
Aluminum	ICAP	2.4	1.2	2.0	1.2	2.8	1.3
Antimony	AA-Fur	U	0.05	U	0.05	U	0.05
Arsenic	AA-Fur	U	0.05	U	0.05	U	0.05
Barium	ICAP	U	0.12	U	0.12	U	0.13
Beryllium	ICAP	U	0.05	U	0.05	U	0.05
Cadmium	ICAP	U	0.12	U	0.12	U	0.13
Calcium	ICAP	17	2.5	7.2	2.5	15	2.5
Chromium	ICAP	U	0.12	U	0.12	U	0.13
Cobalt	ICAP	U	0.25	U	0.25	U	0.25
Copper	ICAP	U	0.25	U	0.25	U	0.25
Iron	ICAP	4.1	0.62	3.5	0.62	3.4	0.63
Lead	AA-Fur	0.068	0.05	0.073	0.05	U	0.05
Magnesium	ICAP	U	12	U	12	U	13
Manganese	ICAP	U	0.12	U	0.12	U	0.13
Nickel	ICAP	U	0.25	U	0.25	U	0.25
Potassium	ICAP	U	50	U	50	U	50
Selenium	AA-Fur	U	0.05	U	0.05	U	0.05
Silver	ICAP	U	0.12	U	0.12	U	0.13
Sodium	ICAP	U	12	U	12	U	13
Thallium	AA-Fur	U	0.05	U	0.05	U	0.05
Vanadium	ICAP	U	0.25	U	0.25	U	0.25
Zinc	ICAP	0.32	0.25	0.30	0.25	0.35	0.25

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration (≈MDL) subtracted from all sample results



NYC Response  
Asbestos Bulk Sample Analysis Results  
Sampling Date: 10/07/01

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results	Comments
10/7/01	03846	L F Bulk Steel NE	solid	<1% Asbestos	
10/7/01	03847	L F Bulk Steel NE	solid	<1% Chrysotile	
10/7/01	03848	L F Bulk Steel NE	solid	<1% Chrysotile	
10/7/01	03849	L F NE Build 7	solid	ND	
10/7/01	03850	L F NE Build 7	solid	ND	
10/7/01	06394	L F NE Build 7	solid	ND	
10/7/01	06395	L F WTC East Pile	solid	ND	
10/7/01	06396	L F WTC East Pile	solid	ND	
10/7/01	06397	L F WTC East Pile	solid	ND	

CCCF 04206

PLM Polarized Light Microscope by Method NY State ELAP 198.1  
ND: None Detected

ERT: 10/09/01 9:50 AM



GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PHD-5										TVA-1000					
				COCl <sub>2</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	HCl ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	NO ppm	FID ppm	PID ppm								
A	7	1300	N/9	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	7	1309	N/5	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C	7	1312	N/5	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	7	1319	W/5	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	7	1323	W/4	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	7	1329	SW/3	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
G	7	1336	SW/3	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	7	1340	SW/11	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	7	1347	NE/7	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J	7	1350	NE/12	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	7	1355	NW/12	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L	7	1400	NW/8	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
M	7	1407	N/10	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	7	1410	SE/10	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
O	7	1414	N/4	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	7	1419	NW/10	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

A: GREENWICH + BRADLEY  
 B: CHURCH + LIBERTY  
 C: CHURCH + LIBERTY  
 D: BRADLEY + LIBERTY  
 E: GREENWICH + LIBERTY  
 F: SCOTTSBORO + LIBERTY  
 G: WEST + WARREN  
 H: WEST + ALBANY  
 I: STUY. HS. (VINE)  
 J: HARRISBURG (VINE) + N. PIER 25  
 K: PIER 25  
 L: PIER 25  
 M: PIER 25  
 N: PIER 25  
 O: SCOTTSBORO + ALBANY  
 P: CG COMMAND POST  
 Q: LIBERTY + WEST  
 R: GREENWICH + LIBERTY  
 S: HARRISBURG (VINE) + N. PIER 25  
 T: PIER 25

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date OCT	Time	Wind Dir.	Tape Meters				Multi-Gas PHD-5							TVA-1000			
				COCl <sub>2</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	H <sub>2</sub> O <sub>2</sub> ppbv	HCl ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	NO ppm	FID ppm	PID ppm			
M	7	1425	NW/9	ND		ND	ND	ND	ND	ND	ND	ND	20.6	ND	ND		ND	ND
L	7	1430	NW/8	ND		ND	ND	ND	ND	ND	ND	ND	20.7	ND	ND		0.1	ND

A: GREENWICH + LIBERTY  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C-1: BROOKLYN + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOUTHEND + LIBERTY  
 F: WEST + VESLEY  
 H: CHASE PLAZA  
 I: BROOKLYN + CORAL ST.  
 J: WEST + LARREN  
 K: WEST + ALBANY  
 L: STUY. H.S. (FREE)  
 M: HARBORSON (FREE) + N. RIVER ST.  
 P: SOUTHEND + ALBANY  
 Q: CG COMMAND BAY  
 1: LIBERTY + WEST  
 2: GREENWICH + LIBERTY  
 3: PLAZA PARADE FROM DEY



GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date OCT	Time	Wind Dir.	Tape Meters										Multi-Gas PHD-5				TVA-1000			
				COCl <sub>2</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	H <sub>2</sub> O ppbv	HCl ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	NA	NA	CO ppm	NO ppm	FID ppm	FID ppm				
A	7	0843	SW/3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
B	7	0855	S/3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C	7	0900	W/2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1	7	0903	W/7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	7	0906	W/7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	7	0912	N/3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	7	0919	S/3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	7	0925	S/9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	7	0931	N/4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	7	0936	N/5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	7	0940	W/9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	7	0954	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	7	1002	N/7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q	7	1005	N/7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J	7	1008	W/3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	7	1011	NW/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

H: GREENWICH + BRIDGEMAN  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C1: BRIDGEMAN + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOUTHEND + LIBERTY  
 F: WEST + BRIDGEMAN  
 H: CHURCH PLAZA  
 I: BRIDGEMAN + LIBERTY  
 J: WEST + LIBERTY  
 K: WEST + BRIDGEMAN  
 L: STUR. HS. (GREEN)  
 M: HARRISON (WEE) + N PIER 25  
 N: PIER 25  
 O: CG COMMAND POST  
 P: LIBERTY + WEST  
 Q: HARRISON + LIBERTY  
 R: TUNZA CROSS FROM DEY

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters		Multi-Gas PHD-5								TVA-1000			
				COCl <sub>2</sub> ppbv	H <sub>2</sub> S ppb	H <sub>2</sub> ppb	HCl ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	NO ppm	FID ppm	FID ppm		
M	7	1013	N/S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L	7	1017	N/S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

E: SOOTHEND + LIBERTY  
 F: WEST + WESLEY  
 H: CHINESE PLAZA  
 I: BOUNDARY + WILLY ST.  
 J: WEST + WARREN  
 K: WEST + ALBANY  
 L: STUY VS. (CRGE)  
 M: HARRISON (CRGE) + N Pier 25  
 N: PIER 25  
 O: SOOTHEND + ALBANY  
 P: CG COMMAND POST  
 Q: LIBERTY + WEST  
 R: LIBERTY + WEST  
 S: HARRISON + LIBERTY  
 T: RUTZ CROSS FROM DEY

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PHD-5										TVA-1000	
				COCl <sub>2</sub> ppbv	HF ppbv	H <sub>2</sub> N ppbv	H <sub>2</sub> O ppbv	HCI ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	NO ppm	FID ppm	FID ppm			
A	10/11/01	13:40	S7/LL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	10/11/01	13:45	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C	10/11/01	13:50	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1	10/11/01	13:55	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	10/11/01	14:00	E	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	10/11/01	14:05	FS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	10/11/01	14:10	SW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	10/11/01	14:17	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	10/11/01	14:30	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
T	10/11/01	14:33	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
A	10/11/01	14:38	E	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	10/11/01	14:45	E	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	10/11/01	15:00	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
G	10/11/01	15:05	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J	10/11/01	15:11	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
V	10/11/01	15:15	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L	10/11/01	15:25	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

A: GREENWICH + BRADLEY  
 B: CHURCH + KEY  
 C: CHURCH + LIBERTY  
 C1: BRADLEY + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOMMERS + LIBERTY  
 F: WEST + WESLEY  
 H: CHARGE PLAZA  
 I: BRADLEY + CORAL ST.  
 J: WEST + WARREN  
 K: WEST + ALBANY  
 L: STUY. VS. GREENE  
 M: HARRISON (FREE) + N. BIER 25  
 N: TUNIA PLAZA FROM DEY  
 P: SOMMERS + ALBANY  
 Q: CG (DUMMINS) POST  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: TUNIA PLAZA FROM DEY

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Wednesday, October 10, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 17 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 5:00 p.m. 10/10):**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 34 samples taken in and around ground zero from October 8 to October 9. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities (Link to map). This brings the total number of air samples collected and analyzed for lower Manhattan to 676, with 27 samples above the standard.

**Staten Island Landfill**

**Air (Asbestos)** - The number of monitoring locations has been increased to 16. Sixteen air samples were taken on Oct. 8, fourteen of the results were below the AHERA standard used for allowing re-entry into schools. Two samples, one in the area where sifting of debris is occurring and the other in the wash area were above the AHERA standard. The sample in the wash area was taken in a shed where initial decontamination takes place. During the sampling period a worker was using a dry broom to sweep the area instead of the required wet mop. Corrective measures have been implemented. An additional 16 samples were collected between Oct. 8 and Oct. 9, all were below the AHERA standard used for allowing re-entry into schools

**Ambient Air Sampling:**

**PCBs** - Ten samples were taken on Sept. 27, within the vicinity of the emergency response operations. Eight samples showed no detection of PCBs, the remaining two samples detected PCBs at levels less than the removal action guideline, adjusted for a one-year exposure duration.

**Dust Samples**

Three samples of dust collected from roof tops in the area of the former World Trade Center

were analyzed for asbestos. All results either showed no detection of asbestos or asbestos present at concentrations of less than 1%.

**NJ metal recycling facilities**

On October 9, 25 samples were collected from structural steel brought to metal recycling facilities in NJ. Two samples were found to have asbestos at levels greater than 1% (consistent with the known use of asbestos in some parts of the World Trade Center).

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Wednesday, October 10, 2001 (12:00 noon)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 8, 1200 to 2400 hrs)
  - All 17 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 9, 0001 to 1200 hrs)
  - All 17 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 8, 0700 - 2000 hrs) - Asbestos
  - Number of monitoring locations have been relabeled and increased to 16.
  - "P" represents Perimeter, "S" represents Sift Area, "W" represents Wash Area (enclosed structures), and "B" represents "Barge Unloading Area.
  - 2 of 16 samples were above the TEM AHERA standard. One sample location (#12) is on the south side of the landfill in the wash area. The other (#9) is in the sift area.
- Fresh Kills (Oct 8, 1930 - Oct 9, 0730 hrs) - Asbestos
  - All 16 samples were below the TEM AHERA standard.

Ambient Air Sampling Locations

- NYC / ER (Sep 27) - PCBs
  - Trace amounts detected in 2 of 10 samples well below levels of concern.
  - 8 samples did not detect any PCBs.
  - All levels were below the EPA Removal Action level guidelines.
- NYC / ER (Oct 9) - Particulate Monitoring (dataram)
  - Levels noted at two locations (Stations N and L) were well below the OSHA TWA (respirable) for particulates. Test was run for 6 hours.

Bulk/Dust Samples

- NYC / ER (Oct 8) - Asbestos
  - Asbestos was either not detected or less than 1% chrysotile in 3 samples collected on roof tops in the area of the WTC.
- NJ metal recycling facilities (Oct 9) - Asbestos
  - Asbestos was detected in 2 of 25 samples (24 - 31% chrysotile) collected from structural steel brought to metal recycling facilities in NJ.

**FILE**





NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/08/01 (12:00) to 10/08/01 (24:00)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/inn <sup>2</sup>	f/cc	Structures (#)*	S/inn <sup>2</sup>	S-f/cc*	
10/08/01	05311	A	1440	Air	49.41	0.013	0	0	<15.50	<0.0041
10/08/01	05312	B	1440	Air	14.01	0.004	0	0	<15.50	<0.0041
10/08/01	05313	C1	1440	Air	38.22	0.010	0	0	<15.50	<0.0041
10/08/01	05320	D	1440	Air	26.75	0.007	1**	0	15.5	0.0041
10/08/01	05321	E	1440	Air	19.11	0.005	0	0	<15.50	<0.0041
10/08/01	05314	F	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/08/01	05315	G	1440	Air	33.12	0.009	0	1**	15.5	0.0041
10/08/01	05323	H	1440	Air	26.38	0.005	0	0	<15.50	<0.0041
10/08/01	05317	I	1440	Air	NA	NA	0	0	<15.50	<0.0041
10/08/01	05326	J	1440	Air	16.56	0.004	0	0	<15.50	<0.0041
10/08/01	05327	K	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/08/01	05324	L Dup	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/08/01	05325	M	1440	Air	11.46	0.003	0	0	<15.50	<0.0041
10/08/01	05319	N	1440	Air	45.86	0.012	0	0	<15.50	<0.0041
10/08/01	05322	O	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/08/01	05318	P	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/08/01	05318	Q	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/08/01	05318	R	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/08/01	05318	S	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041

ccar 00695

Sampling Locations:

- A: NE corner of East Broadway & Barclay
- B: SE corner of Church & West St.
- C: Trinity (aka Church) & Liberty St.
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St.
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to volleyball court)
- N: South side of Pier 25 (next to volleyball court)
- O: NE corner of South End Ave. & Albany
- P: Barclay & West St. (center island) in proximity to USCG command post
- Q: TAGA bus Location
- R: Barclay & South End
- S: Rector & South End

NS: Not sampled  
\*Structure (S) roughly equivalent to fiber (f)  
NR: Not requested  
NA: not analyzed due to overloading of particulates

\*\* Chrysotile; no other types of asbestos were detected

ERT: 10/10/01 09:50 AM

NIOSH 7400: Filter Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/inn<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/09/01 (00:01) to 10/09/01 (12:00)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-f/cc*
					f/min <sup>3</sup>	f/cc	Structures (g) 0.5µ-5µ	>5µ	
10/9/01	05341	A	1440	Air	NA	NA	0	0	<0.0041
10/9/01	05342	B	1440	Air	7.68	0.006	0	0	<0.0041
10/9/01	05343	C.1	1440	Air	17.83	0.005	0	0	<0.0041
10/9/01	05346	D	1440	Air	92.36	0.027	1**	0	0.0041
10/9/01	05351	E	1440	Air	11.46	0.003	0	0	<0.0041
10/9/01	05352	F	1440	Air	8.92	0.002	0	0	<0.0041
10/9/01	05344	H	1440	Air	17.83	0.005	0	0	<0.0041
10/9/01	05345	I	1440	Air	30.57	0.008	0	0	<0.0041
10/9/01	05354	J	1440	Air	8.92	0.002	0	0	<0.0041
10/9/01	05357	K	1440	Air	NA	NA	0	0	<0.0041
10/9/01	05356	M	1440	Air	7.68	0.002	0	0	<0.0041
10/9/01	05355	N	1440	Air	7.68	0.002	0	0	<0.0041
10/9/01	05349	P	1440	Air	56.05	0.015	0	0	<0.0041
10/9/01	05350	P Dup	1440	Air	12.74	0.003	0	0	<0.0041
10/9/01	05353	Q	1440	Air	8.92	0.002	0	0	<0.0041
10/9/01	05348	S	1440	Air	<7.0	<0.002	0	0	<0.0041

\*\* Chrysotile, no other types of asbestos were detected

NS: Not sampled  
 St: Stature (S) roughly equivalent to fiber (f)  
 NR: Not requested  
 NA: Not analyzed due to overloading of particulates

- Sampling Locations:  
 A: NE corner of West Broadway & Buxley  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 C.1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Hudson Square St.  
 H: NE corner of West Broadway & Buxley  
 I: SE corner of Warren & West St  
 J: West St. & Albany in median strip  
 K: On walkway toward North Park rec area north side of Sullivan (light), access to TAGA bus area  
 L: Western end of Harrison St. at West St. (on tree next to volleyball court)  
 M: South side of Pier 25 (next to volleyball court)  
 N: NE corner of South End Ave. & Albany  
 O: Barclay & West St. (center island) in proximity to USCC command post  
 P: TAGA Bus Location  
 S: Pier 2 & South End

ERT: 10/0001 05:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/04  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA-40/CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 10 5imm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/08/01 0700 to 10/08/01 2000

**WILEY**  
 P... ..  
 S... ..  
 W... ..  
 D... ..

Sampling Date	Sample No.	Sample Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-1/cc*		
10/08/01	02959	P Loc #1	720	Air	<7.0	<0.004	1**	0	6.89	0.0048
10/08/01	02960	P Loc #2	720	Air	<7.0	<0.004	2**	0	17.78	0.0095
10/08/01	02961	P Loc #3	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/08/01	02962	P Loc #4	381.2	Air	<7.0	<0.007	0	0	<8.00	<0.0081
10/08/01	02963	P Loc #5	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/08/01	02964	P Loc #6	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/08/01	02965	P Loc #7	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/08/01	02966	P Loc #8	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/08/01	02967	S Loc #9	196.7	Air	14.65	0.009	6**	2**	71.11	0.0380
10/08/01	02968	S Loc #9A	196.7	Air	21.66	0.042	5**	3**	64	0.1253
10/08/01	02969	S Loc #9B	720	Air	<7.0	<0.004	2**	0	16	0.0068
10/08/01	02970	S Loc #9C	720	Air	<7.0	<0.004	1**	0	8	0.0043
10/08/01	02971	B Loc #10	565	Air	10.19	0.007	4**	1**	40	0.0273
10/08/01	02972	B Loc #11	562	Air	<7.0	<0.005	4**	0	32	0.0219
10/08/01	02973	W Loc #11	543	Air	<7.0	<0.005	0	0	<8.00	<0.0057
10/08/01	02974	W Loc #12	653	Air	9.28	0.005	7**	4**	89	0.0535

cc#419411  
 \*\* Chrysotile, no other types of asbestos fibers were found

NS: Not sampled  
 Sample volume is below recommended limit of the method:  
 - Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/10/01 9:50 AM

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/09/01 1930 to 10/09/01 0730

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/min?	f/cc	Structures (f) 0.5µ - 5µ	S/mm <sup>2</sup> 5µ
10/8-10/9	2977	P-1	653.2	Air	<7.0	<0.004	1**	0
10/8-10/9	2978	P-2	644	Air	<7.0	<0.004	0	0
10/8-10/9	2979	P-3	641	Air	<7.0	<0.004	0	0
10/8-10/9	2980	P-4	641	Air	<7.0	<0.004	0	0
10/8-10/9	2981	P-5	626.3	Air	8.92	0.005	0	0
10/8-10/9	2982	P-6	629.7	Air	8.92	<0.004	0	0
10/8-10/9	2983	P-7	629.7	Air	<7.0	<0.004	0	0
10/8-10/9	2984	P-8	629.7	Air	17.83	0.012	0	0
10/8-10/9	2985	S-9 A	516.6	Air	19.11	0.012	5**	0
10/8-10/9	2986	S-9 B	508.7	Air	28.03	0.021	0	0
10/8-10/9	2987	S-9 C	501.8	Air	28.03	0.021	0	0
10/8-10/9	2988	S-10	544.7	Air	<7.0	<0.005	0	0
10/8-10/9	2989	W-11	554	Air	21.66	0.015	0	0
10/8-10/9	2990	W-12	357.7#	Air	26.3	0.032	1**	0
10/8-10/9	2991	B-13	695.1	Air	<7.0	<0.004	0	0
10/8-10/9	2992	B-14	266	Air	<7.0	<0.010	0	0

loc# 04813  
 PW 12 at 0231 pump reading was 351.7 when retrieved at 0609 pump full

NS: Not sampled  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overbanding of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

\*\* Chrysotile, no other types of asbestos fibers were found

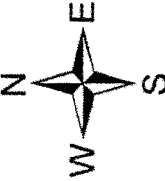




# Freshkills Landfill

Air Sampling and Monitoring Locations

Wind Flow for Oct 8, 2001 0700 - 2000



Calm Excluded Rings @ 10% Intervals

Wind flow from the direction shown

Speed in Meter per Second

- Asbestos Sampling Location
- Active work area



NYC  
 DEPT OF ENVIRONMENT & CONSERVATION

**NYC Response**  
**Air Samples - Modified Method 680 PCB results**  
 Sampling Date 09/27/01  
 COC 04049

Sample No.	Method	02801		02802		02803		02804		02805		02806	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
209-Dec11	WG6216-TP	U	10.0	U	0.865	U	0.862	U	2.46	U	1.95	U	1.66
Sum of MoCBs		U	10.0	U	0.865	U	0.862	U	2.46	U	1.95	U	1.66
Sum of DiCBs		U	10.0	U	0.865	U	0.862	U	2.46	U	1.95	U	1.66
Sum of TriCBs		U	10.0	U	0.865	U	0.862	U	2.46	U	1.95	U	1.66
Sum of TeCBs		U	10.0	U	0.865	U	0.862	U	2.46	U	1.95	U	1.66
Sum of PeCBs		U	10.0	U	0.865	U	0.862	U	2.46	U	1.95	U	1.66
Sum of HxCBs		U	10.0	U	0.865	U	0.862	U	2.46	U	1.95	U	1.66
Sum of HpCBs		U	10.0	U	0.865	U	0.862	U	2.46	U	1.95	U	1.66
Sum of OxCBs		U	10.0	U	0.865	U	0.862	U	2.46	U	1.95	U	1.66
Sum of NoCBs		U	10.0	U	0.865	U	0.862	U	2.46	U	1.95	U	1.66
Total		0	0	0	0	38.7	4.99	0	0	0	0	0	0

- Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area  
 M: Western end of Harrison St. at West St. (on tree next to volleyball court)  
 N: South side of Pier 25 (next to volleyball court)  
 O: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End



**NYC Response**  
**Air Samples - Modified Method 680 PCB results**  
**Sampling Date 09/27/01**

COC 04049

Sample No.	WG6217-1P		02807		02808		02809		02810		02831		02832	
	Sampling Location	Method Blank	D	P	S	E	Field Blank	Lot Blank						
Sample Volume (L)	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Analyte	ng	ng/m <sup>3</sup>	ng	ng/m <sup>3</sup>	ng	ng/m <sup>3</sup>	ng	ng/m <sup>3</sup>	ng	ng/m <sup>3</sup>	ng	ng/m <sup>3</sup>	ng	ng/m <sup>3</sup>
Sum of MoCBs	U	10.0	U	1.81	U	1.80	U	1.69	U	1.77	U	10.0	U	10.0
Sum of DiCBs	U	10.0	U	1.81	U	1.80	U	1.69	U	1.77	U	10.0	U	10.0
Sum of TriCBs	U	10.0	U	1.81	U	1.80	U	1.69	U	1.77	U	10.0	U	10.0
Sum of TeCBs	U	10.0	U	1.81	U	1.80	U	1.69	U	1.77	U	10.0	U	10.0
Sum of PeCBs	U	10.0	U	1.81	U	1.80	U	1.69	U	1.77	U	10.0	U	10.0
Sum of HxCBs	U	10.0	U	1.81	U	1.80	U	1.69	U	1.77	U	10.0	U	10.0
Sum of HpCBs	U	10.0	U	1.81	U	1.80	U	1.69	U	1.77	U	10.0	U	10.0
Sum of OxCBs	U	10.0	U	1.81	U	1.80	U	1.69	U	1.77	U	10.0	U	10.0
Sum of NoCBs	U	10.0	U	1.81	U	1.80	U	1.69	U	1.77	U	10.0	U	10.0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Sampling Locations:**

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C-1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Recler & South End

09-27-01PCBair.xls

ERT: 10/09/01 02:00 PM

*Modified Method 680*  
**LMB**

Client Information		Sample Information	
Project Name:		Matrix: Air	
Sample ID: LMB	Vol = 0		
Laboratory Information			
Project ID:		Batch ID: WG6216	
Sample ID: WG6216-1P ✓	Filename: 1002508		
Collection Date/Time:	ConCal: 1002501		
Receipt Date:	Initial Cal: m680-5051001		
Extraction Date: 01-Oct-01			
Analysis Date: 03-Oct-01			

Analyte (IUPAC#)	Amount (ng)	RL (ng)	RT (min.)	Ratio	Qualifier
209-DeCB	ND	10.0			

Total Targeted Analytes (IUPAC#)	Amount (ng)	RL (ng)	RT (min.)	Ratio	Qualifier
Sum of MoCBs	ND	10.0			
Sum of DiCBs	ND	10.0			
Sum of TriCBs	ND	10.0			
Sum of TeCBs	ND	10.0			
Sum of PeCBs	ND	10.0			
Sum of HxCBs	ND	10.0			
Sum of HpCBs	ND	10.0			
Sum of OcCBs	ND	10.0			
Sum of NcCBs	ND	10.0			
Total	0.0000				

Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	351	87.7	27:50	0.8	
13C-202-OcCB	400	359	89.8	38:42	0.91	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:53	0.79	
13C-167-HxCB	100			37:10	1.27	

*ac limits  
25-150% Rec*

Analyzed By: HMP  
Date: 03Oct01

Reviewed By: [Signature]  
Date: 10/3/01



Modified Method 680						
02801 R-EPA Reac Area						
Lockheed-Martin						
<b>Client Information</b>			<b>Sample Information</b>			
Project Name:	NYC WTC (R1A00236)		Matrix:	Air ✓		
Sample ID:	02801(R-EPA Reac Area) <i>for</i>		Weight:	11565 (L)		
<b>Laboratory Information</b>						
Project ID:	G381-34		Batch ID:	WG6216		
Sample ID:	28607P		Filename:	1002509		
Collection Date/Time:	27-Sep-01		ConCal:	1002501		
Receipt Date:	01-Oct-01		Initial Cal:	m580-5051001		
Extraction Date:	01-Oct-01					
Analysis Date:	03-Oct-01					
Analyte (IUPAC)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )	RT (min.)	Ratio	Qualifier	
209-DeCB	ND	0.865 ✓				
Total Targeted Analytes (IUPAC)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )			Qualifier	
Sum of MoCBs	ND	0.865				
Sum of DiCBs	ND	0.865				
Sum of TriCBs	ND	0.865				
Sum of TeCBs	ND	0.865				
Sum of PeCBs	ND	0.865				
Sum of HxCBs	ND	0.865				
Sum of HpCBs	ND	0.865				
Sum of OcCBs	ND	0.865				
Sum of NcCBs	ND	0.865				
Total	0.0000					
Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	367 ✓	91.8 ✓	27:49	0.79	
13C-202-OcCB	400	372	93.0	38:42	0.91	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.79	
13C-167-HxCB	100			37:10	1.27	

Analyzed By: HMPReviewed By: [Signature]Date: 03Oct01Date: 10/3/01

Modified Method 680						
02802 R-EPA Reac Area						
Lockheed-Martin						
<b>Client Information</b>			<b>Sample Information</b>			
Project Name:	NYC WTC (R1A00236)		Matrix:	Air		
Sample ID:	02802 R-EPA Reac Area <i>Joc</i>		Weight:	11606 ✓ L		
<b>Laboratory Information</b>						
Project ID:	G381-34		Batch ID:	WG6216		
Sample ID:	28608P		Filename:	1002510		
Collection Date/Time:	27-Sep-01		ConCal:	1002501		
Receipt Date:	01-Oct-01		Initial Cal:	m680-5051001		
Extraction Date:	01-Oct-01					
Analysis Date:	03-Oct-01					
Analyte (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )	RT (min.)	Ratio	Qualifier	
209-DeCB	ND	0.862 ✓				
Total Targeted Analytes (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )			Qualifier	
Sum of MoCBs	ND	0.862				
Sum of DiCBs	ND	0.862				
Sum of TriCBs	ND	0.862				
Sum of TeCBs	ND	0.862				
Sum of PeCBs	ND	0.862				
Sum of HxCBs	ND	0.862				
Sum of HpCBs	ND	0.862				
Sum of OcCBs	ND	0.862				
Sum of NoCBs	ND	0.862				
Total	0.0000					
Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	353	88.2	27:50	0.79	
13C-202-OcCB	400	369	92.3	38:42	0.91	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.79	
13C-167-HxCB	100			37:10	1.26	

Analyzed By: HMPReviewed By: EBTDate: 03 Oct 01Date: 10/3/01

Modified Method 680						
02803 A-Barclay/West Broadway						
Lockheed-Martin						
<b>Client Information</b>			<b>Sample Information</b>			
Project Name:	NYC WTC (R1A00236)		Matrix:	Air		
Sample ID:	02803 A-Barclay/West Broadway		Weight:	4060 L		
<b>Laboratory Information</b>						
Project ID:	G381-34		Batch ID:	WG6216		
Sample ID:	28609P		Filename:	1002511		
Collection Date/Time:	27-Sep-01		ConCal:	1002501		
Receipt Date:	01-Oct-01		Initial Cal:	m680-5051001		
Extraction Date:	01-Oct-01					
Analysis Date:	03-Oct-01					
Analyte (IUPAC)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )	RT (min.)	Ratio	Qualifier	
209-DeCB	ND	2.46				
Total Targeted Analytes (IUPAC)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )			Qualifier	
Sum of MoCBs	12.9	2.46				
Sum of DiCBs	ND	2.46				
Sum of TriCBs	20.7	2.46				
Sum of TeCBs	2.53	2.46				
Sum of PeCBs	ND	2.46				
Sum of HxCBs	2.56	2.46				
Sum of HpCBs	ND	2.46				
Sum of OcCBs	ND	2.46				
Sum of NoCBs	ND	2.46				
Total	35.7	21.0				
	45.4					
Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	388	97.0	27:50	0.78	
13C-202-OcCB	400	381	95.3	38:42	0.91	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.79	
13C-167-HxCB	100			37:10	1.27	

Analyzed By: HMPReviewed By: [Signature]Date: 03Oct01Date: 10/3/01

Modified Method 680  
02804 B-Church/Dey  
Lockheed-Martin

Client Information	Sample Information
Project Name: NYC WTC (R1A00236)	Matrix: Air
Sample ID: 02804 B-Church/Dey <i>loc</i>	Weight: 5120 ✓ L
Laboratory Information	
Project ID: G381-34	Batch ID: WG6216
Sample ID: 28610P	Filename: 1002512
Collection Date/Time: 27-Sep-01	ConCal: 1002501
Receipt Date: 01-Oct-01	Initial Cal: m680-5051001
Extraction Date: 01-Oct-01	
Analysis Date: 03-Oct-01	

Analyte (DEAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )	RT (min.)	Ratio	Qualifier
209-DeCB	ND	1.95 ✓			

Total Targeted Analytes (UPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )			Qualifier
Sum of MoCBs	ND	1.95			
Sum of DiCBs	ND	1.95			
Sum of TrCBs	4.99 ✓	1.95			
Sum of TeCBs	ND	1.95			
Sum of PeCBs	ND	1.95			
Sum of HxCBs	ND	1.95			
Sum of HpCBs	ND	1.95			
Sum of OcCBs	ND	1.95			
Sum of NoCBs	ND	1.95			
<b>Total</b>	<b>4.99 ✓</b>				

Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	375 ✓	93.7 ✓	27:50	0.78	
13C-202-OcCB	400	379	94.7	38:42	0.91	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.8	
13C-167-HxCB	100			37:10	1.27	

Analyzed By: HMP  
Date: 03Oct01

Reviewed By: APB  
Date: 10/9/01

Modified Method 680  
02805 F-Vesey/West  
Lockheed-Martin

Client Information	Sample Information
Project Name: NYC WTC (R1A00236)	Matrix: Air ✓
Sample ID: 02805(F-Vesey/West)	Weight: 6010 L
Laboratory Information	
Project ID: G381-34	Batch ID: WG6216
Sample ID: 28611P	Filename: 1002516
Collection Date/Time: 27-Sep-01	ConCal: 1002513
Receipt Date: 01-Oct-01	Initial Cal: m680-5051001
Extraction Date: 01-Oct-01	
Analysis Date: 03-Oct-01	

Analyte (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )	RT (min.)	Ratio	Qualifier
209-DeCB	ND	1.66			

Total Targeted Analytes (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )			Qualifier
Sum of MoCBs	ND	1.66			
Sum of DiCBs	ND	1.66			
Sum of TriCBs	ND	1.66			
Sum of TeCBs	ND	1.66			
Sum of PeCBs	ND	1.66			
Sum of HxCBs	ND	1.66			
Sum of HpCBs	ND	1.66			
Sum of OcCBs	ND	1.66			
Sum of NoCBs	ND	1.66			
Total	0.0000				

Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	345	86.3	27:50	0.79	
13C-202-OcCB	400	382	95.5	38:42	0.92	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.79	
13C-167-HxCB	100			37:10	1.27	

Analyzed By: HMP

Reviewed By: [Signature]

Date: 030401

Date: 10/3/01

Modified Method 680  
**02806 C1-Liberty/Broadway**  
 Lockheed-Martin

Client Information		Sample Information	
Project Name:	NYC WTC (R1A00236)	Matrix:	Air ✓
Sample ID:	02806 C1-Liberty/Broadway <i>JL</i>	Weight:	5540 L
Laboratory Information		Batch ID:	WG6216
Project ID:	G381-34	Filename:	1002517
Sample ID:	28612P	ConCal:	1002513
Collection Date/Time:	27-Sep-01	Initial Cal:	m680-5051001
Receipt Date:	01-Oct-01		
Extraction Date:	01-Oct-01		
Analysis Date:	03-Oct-01		

Analyte (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )	RT (min.)	Ratio	Qualifier
209-DeCB	ND	1.81			

Total Targeted Analytes (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )	RT (min.)	Ratio	Qualifier
Sum of MoCBs	ND	1.81			
Sum of DiCBs	ND	1.81			
Sum of TriCBs	ND	1.81			
Sum of TeCBs	ND	1.81			
Sum of PeCBs	ND	1.81			
Sum of HxCBs	ND	1.81			
Sum of HpCBs	ND	1.81			
Sum of OcCBs	ND	1.81			
Sum of NoCBs	ND	1.81			
Total	0.0000				

Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	393	98.2	27:50	0.78	
13C-202-OcCB	400	404	101	38:42	0.91	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.79	
13C-167-HxCB	100			37:10	1.28	

Analyzed By: HMP

Reviewed By: [Signature]

Date: 03 Oct 01

Date: 10/3/01

Modified Method 680  
**LMB**

Client Information	Sample Information
Project Name: LMB	Matrix: Air
Sample ID:	
Laboratory Information	
Project ID:	Batch ID: WG6217
Sample ID: WG6217-1P ✓	Filename: 1003504
Collection Date/Time:	ConCal: 1003501
Receipt Date:	Initial Cal: m680-5051001
Extraction Date: 02-Oct-01	
Analysis Date: 03-Oct-01	

Analyte (IUPAC#)	Amount (ng)	RL (ng)	RT (min.)	Ratio	Qualifier
209-DeCB	ND	10.0			

Total Targeted Analytes (IUPAC#)	Amount (ng)	RL (ng)	RT (min.)	Ratio	Qualifier
Sum of MoCBs	ND	10.0			
Sum of DiCBs	ND	10.0			
Sum of TriCBs	ND	10.0			
Sum of TeCBs	ND	10.0			
Sum of PeCBs	ND	10.0			
Sum of HxCBs	ND	10.0			
Sum of HpCBs	ND	10.0			
Sum of OcCBs	ND	10.0			
Sum of NoCBs	ND	10.0			
<b>Total</b>	<b>0.0000</b>				

Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	354	88.5	27:50	0.79	
13C-202-OcCB	400	367	91.8	38:42	0.91	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.79	
13C-167-HxCB	100			37:10	1.27	

Analyzed By: HMP

Reviewed By: [Signature]

Date: 05 Oct 01

Date: 10/5/01

Modified Method 680  
**02807 D-Greenwich/Albany**  
 Lockheed-Martin

Client Information		Sample Information	
Project Name:	NYC WTC (RIA00236)	Matrix:	Air
Sample ID:	02807 D-Greenwich/Albany	Volume:	5510 L
Laboratory Information		Batch ID:	WG6216
Project ID:	G381-34	Filename:	1003505
Sample ID:	28613P	ConCal:	1003501
Collection Date/Time:	27-Sep-01	Initial Cal:	m680-5051001
Receipt Date:	01-Oct-01		
Extraction Date:	01-Oct-01		
Analysis Date:	03-Oct-01		

Analyte (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )	RT (min.)	Ratio	Qualifier
209-DeCB	ND	1.81			

Total Targeted Analytes (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )	RT (min.)	Ratio	Qualifier
Sum of MoCBs	ND	1.81			
Sum of DiCBs	ND	1.81			
Sum of TriCBs	ND	1.81			
Sum of TeCBs	ND	1.81			
Sum of PeCBs	ND	1.81			
Sum of HxCBs	ND	1.81			
Sum of HpCBs	ND	1.81			
Sum of OcCBs	ND	1.81			
Sum of NoCBs	ND	1.81			
<b>Total</b>	<b>0.0000</b>				

Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	398	99.5	27:50	0.8	
13C-202-OcCB	400	385	96.3	38:41	0.91	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.8	
13C-167-HxCB	100			37:10	1.27	

Analyzed By: HMP  
 Date: 050401

Reviewed By: [Signature]  
 Date: 10/5/01



Modified Method 680						
02808 P-Albany/South End						
Lockheed-Martin						
<b>Client Information</b>			<b>Sample Information</b>			
Project Name: NYC WTC (R1A00296)			Matrix: Air			
Sample ID: 02808 P-Albany/South End			Volume: 5550 L			
<b>Laboratory Information</b>						
Project ID: G381-34			Batch ID: WG6217			
Sample ID: 28614P			Filename: 1003506			
Collection Date/Time: 27-Sep-01			ConCal: 1003501			
Receipt Date: 01-Oct-01			Initial Cal: m680-5051001			
Extraction Date: 02-Oct-01						
Analysis Date: 03-Oct-01						
Analyte (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )	RT (min.)	Ratio	Qualifier	
209-DeCB	ND	1.80				
Total Targeted Analytes (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )			Qualifier	
Sum of MoCBs	ND	1.80				
Sum of DiCBs	ND	1.80				
Sum of TriCBs	ND	1.80				
Sum of TeCBs	ND	1.80				
Sum of PeCBs	ND	1.80				
Sum of HxCBs	ND	1.80				
Sum of HpCBs	ND	1.80				
Sum of OcCBs	ND	1.80				
Sum of NoCBs	ND	1.80				
Total	0.0000					
Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	377	94.3	27:50	0.79	
13C-202-OcCB	400	385	96.3	38:42	0.92	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.8	
13C-167-HxCB	100			37:11	1.27	

Analyzed By: HMPReviewed By: ADTDate: 05 Oct 01Date: 10/5/01

*Modified Method 680*  
**02809 S-Rector PL/South End**  
 Lockheed-Martin

Client Information		Sample Information	
Project Name:	NYC WTC (R1A00236)	Matrix:	Air
Sample ID:	02809 S-Rector PL/South End	Volume:	5920 ✓ L
Laboratory Information		Batch ID:	WG6217
Project ID:	G381-34	Filename:	1003507
Sample ID:	28615P	ConCal:	1003501
Collection Date/Time:	27-Sep-01	Initial Cal:	m680-5051001
Receipt Date:	01-Oct-01		
Extraction Date:	02-Oct-01		
Analysis Date:	03-Oct-01		

Analyte (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )	RT (min.)	Ratio	Qualifier
209-DeCB	ND	1.69			

Total Targeted Analytes (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )			Qualifier
Sum of MoCBs	ND	1.69			
Sum of DiCBs	ND	1.69			
Sum of TriCBs	ND	1.69			
Sum of TeCBs	ND	1.69			
Sum of PeCBs	ND	1.69			
Sum of HxCBs	ND	1.69			
Sum of HpCBs	ND	1.69			
Sum of OcCBs	ND	1.69			
Sum of NoCBs	ND	1.69			
Total	0.0000				

Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	390	97.5	27:50	0.79	
13C-202-OcCB	400	381	95.3	38:42	0.91	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.79	
13C-167-HxCB	100			37:10	1.28	

Analyzed By: HMP

Reviewed By: CD

Date: 05 Oct 01

Date: 10/17/01

*Modified Method 680*  
**02810 E-Liberty/South End**  
 Lockheed-Martin

Client Information	Sample Information
Project Name: NYC WTC (R1A00236)	Matrix: Air
Sample ID: 02810(E-Liberty/South End)	Volume: 5640 L
Laboratory Information	
Project ID: G381-34	Batch ID: WG6217
Sample ID: 28616P	Filename: 1003508
Collection Date/Time: 27-Sep-01	ConCal: 1003501
Receipt Date: 01-Oct-01	Initial Cal: m680-5051001
Extraction Date: 02-Oct-01	
Analysis Date: 04-Oct-01	

Analyte (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )	RT (min.)	Ratio	Qualifier
209-DeCB	ND	1.77			

Total Targeted Analytes (IUPAC#)	Amount (ng/m <sup>3</sup> )	RL (ng/m <sup>3</sup> )			Qualifier
Sum of MoCBs	ND	1.77			
Sum of DiCBs	ND	1.77			
Sum of TrCBs	ND	1.77			
Sum of TeCBs	ND	1.77			
Sum of PeCBs	ND	1.77			
Sum of HxCBs	ND	1.77			
Sum of HpCBs	ND	1.77			
Sum of OcCBs	ND	1.77			
Sum of NoCBs	ND	1.77			
Total	0.0000				

Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	392	98.0	27:50	0.79	
13C-202-OcCB	400	359	92.3	38:42	0.91	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.79	
13C-167-HxCB	100			37:10	1.27	

Analyzed By: HMP  
 Date: 050601

Reviewed By: [Signature]  
 Date: 10/5/01

*Modified Method 680*  
**02831 Field Blank**  
 Lockheed-Martin

Client Information		Sample Information	
Project Name:	NYC WTC (R1A00236)	Matrix:	Air
Sample ID:	02831 Field Blank ✓		
<b>Laboratory Information</b>		NOL = 0	
Project ID:	G381-34	Batch ID:	WG6217
Sample ID:	28617P	Filename:	1003509
Collection Date/Time:	27-Sep-01	ConCal:	1003501
Receipt Date:	01-Oct-01	Initial Cal:	m680-5051001
Extraction Date:	02-Oct-01		
Analysis Date:	04-Oct-01		

Analyte (IUPAC)	Amount (ng)	RL (ng)	RT (min.)	Ratio	Qualifier
209-DeCB	ND	10.0			

Total Targeted Analytes (IUPAC)	Amount (ng)	RL (ng)	RT (min.)	Ratio	Qualifier
Sum of MoCBs	ND	10.0			
Sum of DiCBs	ND	10.0			
Sum of TriCBs	ND	10.0			
Sum of TeCBs	ND	10.0			
Sum of PeCBs	ND	10.0			
Sum of HxCBs	ND	10.0			
Sum of HpCBs	ND	10.0			
Sum of OcCBs	ND	10.0			
Sum of NoCBs	ND	10.0			
<b>Total</b>	<b>4.0000</b>				

Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	375	93.7	27:50	0.78	
13C-202-OcCB	400	376	94.0	38:41	0.91	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.79	
13C-167-HxCB	100			37:10	1.28	

Analyzed By: HMP  
 Date: 05 Oct 01

Reviewed By: [Signature]  
 Date: 10/5/01

Modified Method 680  
02832 Lot Blank  
Lockheed-Martin

<b>Client Information</b>		<b>Sample Information</b>	
Project Name:	NYC WTC (R1A00236)	Matrix:	Air
Sample ID:	02832 Lot Blank <i>LC</i>		<i>UCL = 0</i>
<b>Laboratory Information</b>		Batch ID:	WG6217
Project ID:	G381-34	Filename:	1003510
Sample ID:	23618P	ConCal:	1003501
Collection Date/Time:	27-Sep-01	Initial Cal:	m680-5051001
Receipt Date:	01-Oct-01		
Extraction Date:	02-Oct-01		
Analysis Date:	04-Oct-01		

Analyte (IUPAC#)	Amount (ng)	RL (ng)	RT (min.)	Ratio	Qualifier
209-DeCB	ND	10.0			

Total Targeted Analytes (IUPAC#)	Amount (ng)	RL (ng)	Qualifier
Sum of MoCBs	ND	10.0	
Sum of DiCBs	ND	10.0	
Sum of TriCBs	ND	10.0	
Sum of TeCBs	ND	10.0	
Sum of PeCBs	ND	10.0	
Sum of HxCBs	ND	10.0	
Sum of HpCBs	ND	10.0	
Sum of OcCBs	ND	10.0	
Sum of NoCBs	ND	10.0	
<b>Total</b>	<b>0.0000</b>		

Labeled Standard	Amount Spiked (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
<b>Extraction Standards</b>						
13C-77-TeCB	400	377	94.3	27:50	0.79	
13C-202-OcCB	400	374	93.5	38:41	0.91	
<b>Injection Standards</b>						
13C-47-TeCB	100			18:55	0.79	
13C-167-HxCB	100			37:10	1.27	

Analyzed By: HMP  
Date: 05 Oct 01

Reviewed By: [Signature]  
Date: 10/15/01

(712) 321-4  
EPA Contract # 99-223

Project Name: NY 48  
Project Number: 121  
LM Contact: DRIVE DEBRIS Phone: 732-321-4200

No: 49  
Sheet 01 of 01 (Do not copy)  
(for addn. analyses only)

REACT	Sample Identification		Date Collected	# of Bottles	Container/Preservative	Analyses Requested		END TIME	TOTAL ANALYSES	
	Sample No	Sampling Location				DOUGLAS	SWMT TIME			
✓	02801	R-EM BEAK AREA	9/27/01	1	AMBER VIAL / ICE	✓	11:565	848	2119	771
✓	02802	R-EPA BEAK AREA	9/27/01	1		✓	11:005.5	848	2119	773.7
✓	02803	A-BARCLAY W/ST BARRIERS	9/27/01	1		✓	4:000	916	2050	4606
✓	02804	B-CANARY DEST	9/27/01	1		✓	5:120	924	1971	572
✓	02805	F-VESEY LANE	9/27/01	1		✓	6:010	1030	2035	601
✓	02806	E1-LIBERT BROADWAY	9/27/01	1		✓	5:540	934	1978	5574
✓	02807	D-GREENWICH/ALBANY	9/27/01	1		✓	5:570	940	1935	571
✓	02808	E-ALBANY/STANBURY	9/27/01	1		✓	5:530	958	1945	553
✓	02809	S-ROCKAWAY/STANBURY	9/27/01	1		✓	5:920	1016	1985	572
✓	02810	E-LIBERT/STANBURY	9/27/01	1		✓	5:640	1005	2011	584
✓	02831	FIELD BLANK	9/27/01	1		✓	0	0	0	0
✓	02832	LOT BLANK	9/27/01	1		✓	0	0	0	0
✓	11	B3/BSD	9/27/01	2		✓	0	0	0	0

Special Instructions: PUF WITH 6078 (SAPPECO) QUARTZ LOT # (HAS NONE) SUPPLCO

Handwritten notes: PUF WITH 6078 (SAPPECO) QUARTZ LOT # (HAS NONE) SUPPLCO

SAMPLES TRANSFERRED FROM \_\_\_\_\_  
CHAIN OF CUSTODY #:

Received by	Date	Received by	Date
DRIVE DEBRIS	9/27/01		

NYC Response  
 Asbestos Bulk Sample Analysis Results  
 Sampling Date: 10/08/01

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
10/8/01	03801	600 Gateway 35th	solid	ND	
10/8/01	03802	22 Cortland 35th	solid	0.8% Chrysotile	
10/8/01	03803	22 Cortland 7th	solid	ND	

606# 84233

PLM Polarized Light Microscope by Method NY State ELAP 198.1  
 ND: None Detected

ERT: 10/09/01 2:00 PM

FL-10-08-01apl.m.xls

**FILE**

New York Lab

307 West 38th Street, New York, NY 10018

tel: 212-280-0661 Fax: 212-280-0588 Email:



Attn: Robert Fitzpatrick  
 U.S. EPA - Air Compliance Branch  
 280 Broadway Room 2125  
 New York, NY 10007  
 Fax: (212) 637-4025 Phone: 212-637-4042  
 Project: "Suspect Asbestos"

Customer ID: +03usaeps  
 Customer PO:  
 Received: 10/09/01 3:23 PM  
 EMSL Order: 030105751  
 EMSL Project ID:  
 Analysis Date: 10/9/01

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos
				% Fibrous	% Non-Fibrous	% Type
1 030105751-0001	Debris off structural Steel / Metal Mngmt. Newark	White Fibrous Heterogeneous	Dissolved Teased	55% Min. Wool <1% Cellulose	35% Non-fibrous (other)	None Detected
2 030105751-0002	Debris off structural Steel / Metal Mngmt. Newark	Gray Fibrous Heterogeneous	Dissolved Teased	35% Glass 25% Cellulose	20% Non-fibrous (other)	None Detected
3 030105751-0003	Debris off structural Steel / Metal Mngmt. Newark	Gray Fibrous Heterogeneous	Dissolved Teased	58% Min. Wool 2% Cellulose	30% Non-fibrous (other)	None Detected
4 030105751-0004	Debris off structural Steel / Metal Mngmt. Newark	Gray Fibrous Heterogeneous	Dissolved Teased	65% Min. Wool <1% Cellulose	35% Non-fibrous (other)	None Detected
5 030105751-0005	Debris off structural Steel / Metal Mngmt. Newark	Gray Fibrous Heterogeneous	Dissolved Teased	70% Min. Wool <1% Cellulose	30% Non-fibrous (other)	None Detected
6 030105751-0006	Debris off structural Steel / Metal Mngmt. Newark	Gray Fibrous Heterogeneous	Dissolved Teased	67% Min. Wool 3% Cellulose	30% Non-fibrous (other)	<1% Chrysotile
7 030105751-0007	Debris off structural Steel / Metal Mngmt. Newark	Gray Fibrous Heterogeneous	Dissolved Teased	65% Min. Wool 2% Cellulose	33% Non-fibrous (other)	None Detected

Analyst(s)

Rem Yalabandi (25)

*Rem Yalabandi*

Laboratory Manager  
 or other approved signatory

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FILE



New York Lab

375 West 38th Street, New York, NY 10018

Tel: 212-269-0001 Fax: 212-269-0000 Email:



Attn: Robert Fitzpatrick  
U.S. EPA - Air Compliance Branch  
290 Broadway Room 2125  
New York, NY 10007  
Fax: (212) 637-4035 Phone: 212-637-4042  
Project: "Suspect Asbestos"

Customer ID: +03usaepa  
Customer PO:  
Received: 10/09/01 3 23 PM  
EMSL Order: 030105751  
EMSL Project ID:  
Analysis Date: 10/9/01

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos
				% Fibrous	% Non-Fibrous	% Type
8 030105751-0008	Debris off structural Steel / Metal Mngmt Newark	Gray Fibrous Heterogeneous	Dissolved Teased	68% Min. Wool 2% Cellulose	30% Non-fibrous (other)	None Detected
9 030105751-0009	Debris off structural Steel / Metal Mngmt Newark	Gray Fibrous Heterogeneous	Dissolved Teased	70% Min. Wool <1% Cellulose	30% Non-fibrous (other)	None Detected
10 030105751-0010	Debris off structural Steel / Metal Mngmt Newark	Gray Fibrous Heterogeneous	Dissolved Teased	65% Min. Wool	35% Non-fibrous (other)	None Detected
11 030105751-0011	Debris off structural Steel / Metal Mngmt Newark	Gray Fibrous Heterogeneous	Dissolved Teased	20% Glass 25% Cellulose	35% Non-fibrous (other) 20% Mica	None Detected
12 030105751-0012	Debris off structural Steel / Metal Mngmt Newark	Gray Fibrous Heterogeneous	Dissolved Teased	20% Glass 30% Cellulose	25% Non-fibrous (other) 25% Mica	None Detected
13 030105751-0013	Debris off structural Steel / Metal Mngmt Newark	Gray Fibrous Heterogeneous	Dissolved Teased	20% Glass 35% Cellulose	25% Non-fibrous (other) 20% Mica	None Detected
14 030105751-0014	Debris off structural Steel / Metal Mngmt Newark	White Fibrous Heterogeneous	Dissolved Teased	68% Min. Wool <1% Cellulose	32% Non-fibrous (other)	None Detected

Analyst(s)

Ram Yafabandi (2)

Laboratory Manager  
or other approved signatory

PL 90-269 (11-15-67) (as amended) is a public law which governs asbestos. Negative PLM results cannot be guaranteed. Asbestos removed as 1%, or more, should be tested with TEM. The above test report refers only to the items listed. This report may not be reproduced, stored in a retrieval system, or used by any agency of the United States Government. Analysis performed by EMSL International (NY) Lab #10104-01, NY ELAP 11505



FILE

New York Lab

307 West 34th Street, New York, NY 10018

Phone: 212-350-0861 Fax: 212-250-0581 Email:



Attn: Robert Fitzpatrick  
 U.S. EPA - Air Compliance Branch  
 250 Broadway Room 2126  
 New York, NY 10007  
 Fax: (212) 637-4035 Phone: 212-637-4342  
 Project: "Suspect Asbestos"

Customer ID: +03uspepa  
 Customer PO:  
 Received: 10/09/01 3:23 PM  
 EMSL Order: 030105751  
 EMSL Project ID:  
 Analysis Date: 10/8/01

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos
				% Fibrous	% Non-Fibrous	% Type
16 030105751-0016	Debris off structural Steel / Metal Mgmt. Newark	White Fibrous Heterogeneous	Dissolved Teased	70% Min. Wool <1% Cellulose	30% Non-fibrous (other)	None Detected
16 030105751-0016	Debris off structural Steel / HNSE Jersey City, NJ	Yellow Fibrous Heterogeneous	Teased	75% Min. Wool	5% Non-fibrous (other) 20% CA Carbonite	None Detected
17 030105751-0017	Debris off structural Steel / HNSE Jersey City, NJ	Grey Fibrous Heterogeneous	Teased	10% Cellulose	28% Non-fibrous (other) 20% Gypsum 20% CA Carbonite	24% Chrysotile
18 030105751-0018	Debris off structural Steel / HNSE Jersey City, NJ	Gray Fibrous Heterogeneous	Teased	2% Glass 5% Cellulose	22% Non-fibrous (other) 20% Gypsum 20% CA Carbonite	31% Chrysotile
19 030105751-0019	Debris off structural Steel / HNSE Jersey City, NJ	White Fibrous Heterogeneous	Teased	65% Min. Wool	10% Non-fibrous (other) 25% CA Carbonite	<1% Chrysotile
20 030105751-0020	Debris off structural Steel / HNSE Jersey City, NJ	White Fibrous Heterogeneous	Teased	70% Min. Wool 2% Cellulose	3% Non-fibrous (other) 25% CA Carbonite	None Detected
21 030105751-0021	Debris off structural Steel / HNSE Jersey City, NJ	White Fibrous Heterogeneous	Teased	50% Min. Wool 5% Cellulose	20% Non-fibrous (other) 10% Gypsum 15% CA Carbonite	<1% Chrysotile

Analyst(s)  
 Ram Yaliscardi (25)

Laboratory Manager  
 or other approved signatory

PL has been shown to have asbestos in a small percentage of samples which contain asbestos. Negative PLM results cannot be guaranteed. Samples analyzed by TEM or other methods should be used with TEM. The above data represent only the items listed. This report may not be reproduced, stored in a retrieval system, or transmitted in any form or by any means, without written approval by EMSL. Analysis performed by EMSL, Manhattan (NY) EPA 600/R-93/116, NY EPA 11528.



FILE

**New York Lab**

307 West 38th Street, New York, NY 10018

Phone: 212-260-6031 Fax: 212-260-0036 Email:



Attn: Robert Fitzpatrick  
 U.S. EPA - Air Compliance Branch  
 280 Broadway Room 2125  
 New York, NY 10007  
 Fax: (212) 637-4035 Phone: 212-637-4042  
 Project: "Suspect Asbestos"

Customer ID: #6345aape  
 Customer PO:  
 Received: 10/05/01 3:23 PM  
 EMSL Order: 030105751  
 EMSL Project ID:  
 Analysis Date: 10/9/01

**Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy**

Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos
				% Fibrous	% Non-Fibrous	% Type
22 030105751-0022	Debris off structural Steel / HNSE Jersey City, NJ	White Fibrous Heterogeneous	Teased	55% Min. Wool 5% Cellulose	20% Non-fibrous (other) 5% Gypsum 15% CA Carbonite	<1% Chrysotile
23 030105751-0023	Debris off structural Steel / HNSE Jersey City, NJ	Gray Fibrous Heterogeneous	Teased	10% Min. Wool 25% Cellulose	20% Perlite 15% Non-fibrous (other) 30% Gypsum	None Detected
24 030105751-0024	Debris off structural Steel / HNSE Jersey City, NJ	White Fibrous Heterogeneous	Teased	75% Min. Wool	25% Non-fibrous (other)	None Detected
25 030105751-0025	Debris off structural Steel / HNSE Jersey City, NJ	White Fibrous Heterogeneous	Teased	70% Min. Wool	15% Non-fibrous (other) 5% Gypsum 10% CA Carbonite	None Detected

10/9/01

am Yallebendi (25)

Laboratory Manager  
 or other approved signatory

It has been shown in this section in a small percentage of sample which contain asbestos. Negative PLM results cannot be guaranteed. Samples prepared at 4% or more of so mixed with TEM. The above test result relates only to the sample tested. This report may not be reproduced, copied, or used in any way without approval by EMSL. This report may not be used by the client in any process undertaken by NYCLAP nor any agency of the United States Government.  
 EMSL certified by EMSL, Manhattan, NY, NYCLAP #01048-B, NY ELAP 11526



10/9/01

CHAIN OF CUSTODY RECORD

ENVIRONMENTAL PROTECTION AGENCY - REGION 1  
Environmental Services Division  
EDISON, NEW JERSEY 07027

1 of 2

Name of User and Address		Robert Fitzpatrick US EPA - Air Compliance Branch 290 Broadway, Room 2125 New York, NY 10007-1856		212-637-4022		
Sample Number	Number of Containers	Description of Sample	Suspect Asbestos			
1	1	Debris off Structural Steel				
2	1	"				
3	1	"			Suspect Asbestos	
4	1	"				
5	1	"			Site: Metal Management.	
6	1	"			Newark, N.J.	
7	1	"				
8	1	"				
9	1	"				
10	1	"				
11	1	"				
12	1	"				
13	1	"				
14	1	"				
15	1	"				
Person Assuming Responsibility for Sample:				Robert Fitzpatrick Environmental Scientist	Time 12:30 P	Date 1/15/81
Sample Number	Relinquished By	Received By	Time	Date	Reason for Change of Custody	
1-15	Robert Fitzpatrick 1/19/81 3:52 PM	EDDCHSL	3:30 PM	1/19/81	Lab Analysis	
Sample Number	Relinquished By	Received By	Time	Date	Reason for Change of Custody	
Sample Number	Relinquished By	Received By	Time	Date	Reason for Change of Custody	
Sample Number	Relinquished By	Received By	Time	Date	Reason for Change of Custody	

EPA  
CLASS CONTROL

CHAIN OF CUSTODY RECORD

ENVIRONMENTAL PROTECTION AGENCY - REGION 2  
Environmental Services Division  
BOSTON, NEW JERSEY 08817

FAX  
212-637-3995  
212-637-4035

2 of 2

Name of User and Address		Robert Fitzpatrick U.S. EPA - Air Compliance Branch 298 Broadway, Room 2125 New York, NY 10013-1566		212-637-4022	
Sample Number	Number of Containers	Description of Samples			
"Suspect Asbestos"					
16	1	Debris off Structural Steel			
17	1	" "			
18	1	" "			
19	1	" "			
20	1	" "			
21	1	" "			
22	1	" "			
23	1	" "			
24	1	" "			
25	1	" "			
Person Assuming Responsibility for Sample				Time	Date
Robert Fitzpatrick Environmental Scientist				7:20	10/9/91
Sample Number	Relinquished By	Received By	Time	Date	Reason for Change of Custody
16-25	<i>[Signature]</i> 10/9/91 3:22 PM	<i>[Signature]</i> 3:22 PM		10/9/91	Lab Analysis
Sample Number	Relinquished By	Received By	Time	Date	Reason for Change of Custody
Sample Number	Relinquished By	Received By	Time	Date	Reason for Change of Custody
Sample Number	Relinquished By	Received By	Time	Date	Reason for Change of Custody

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Thursday, October 11, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 17 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 5:00 p.m. 10/11):**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 17 samples taken in and around ground zero on October 10. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities (Link to map). This brings the total number of air samples collected and analyzed for lower Manhattan to 693, with 27 samples above the standard.

Four air samples taken in New Jersey on October 8 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 90, with zero above the standard.

**Staten Island Landfill**

**Air (Asbestos)** - Twelve samples were taken between October 3 and October 4, all of the results were below the AHERA standard used for allowing re-entry into schools. An additional seventeen samples were collected between October 9 and October 10, all were below the AHERA standard used for allowing re-entry into schools.

**Dust Samples**

Ten samples taken on October 9 were analyzed for asbestos. All results either showed no detection of asbestos or asbestos present at concentrations of less than 1%.

**Ambient Air Sampling:**

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted October 8 at Pace University, the Borough of Manhattan Community College and the U.S. Coast Guard building, located in Battery Park. All 24-hour average values were below

the National Ambient Air Quality Standard (65 ug/m<sup>3</sup>) for all stations.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 10 in the plume on the debris pile. VOC levels, including benzene, have decreased in comparison with previous readings.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Thursday, October 11, 2001 (12:00 noon)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 9, 1200 to 2400 hrs)
  - Results pending.
- NYC / ER (Oct 10, 0001 to 1200 hrs)
  - All 17 samples analyzed were below the TEM AHERA standard.
- NJ (Oct 8)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 3, 1800 - Oct 4 0700 hrs) - Asbestos
  - All 12 samples were below the TEM AHERA standard.
- Fresh Kills (Oct 9, 1900 - Oct 10, 0600 hrs) - Asbestos
  - All 17 samples were below the TEM AHERA standard.

Ambient Air Sampling Locations

- NYC / ER (Oct 8) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was 8.27 ug/m<sup>3</sup>.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was 6.77 ug/m<sup>3</sup>.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was 6.34 ug/m<sup>3</sup>.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 10) - Particulate Monitoring (dataram)
  - Levels noted at two locations (Stations M1 and N) were well below the OSHA TWA (respirable) for particulates. Test was run for approximately 6 hours.
  - No results available for Station L due to a pump fault.
  - Establishment of Location M1 (West and Harrison) was necessitated due to crane damage of the sampling pump station at Location M. Points are within approximately 150 feet of each other.
- NYC / ER (Oct 10) - Volatile organics (TAGA)
  - General decrease in overall volatile organic levels (including benzene) noted in plume samples collected in debris area as compared to previously received date (Note: TAGA data for Oct 7, 8, and 9 are not yet available).
  - However, benzene levels in the plume on the debris pile were above the OSHA PEL.



Bulk/Dust Samples

- Fresh Kills (Oct 9) - Asbestos
  - Asbestos was either not detected or less than 1% chrysotile in 10 samples collected from various steel and debris piles.

Direct Reading Instruments

- NYC / ER (Oct 10)
  - Nothing of significance reported.

NYC Responses  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/10/01 (00:01) to 10/10/01 (12:00)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fec*
					f/m <sup>3</sup>	f/cc	Structures (#) 0.5µ-5µ	S/mm <sup>2</sup>	
10/10/01	05381	A	1440	Air	24.2	0.036	0	<15.50	<0.0041
10/10/01	05382	A	1440	Air	33.12	0.039	0	15.5	0.0041
10/10/01	05383	C1	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/10/01	05385	D	1440	Air	8.92	0.012	0	<15.50	<0.0041
10/10/01	05390	E	1440	Air	45.86	0.095	0	<15.50	<0.0041
10/10/01	05391	F Dup	1440	Air	20.39	0.095	0	<15.50	<0.0041
10/10/01	05392	F	1440	Air	17.83	0.095	0	<15.50	<0.0041
10/10/01	05393	H	1440	Air	18.19	0.093	0	<15.50	<0.0041
10/10/01	05386	I	1440	Air	10.19	0.093	0	<15.50	<0.0041
10/10/01	05387	J	1440	Air	10.19	0.093	0	<15.50	<0.0041
10/10/01	05397	K	1440	Air	NA	NA	0	<15.50	<0.0041
10/10/01	05398	L	1440	Air	8.92	0.062	0	<15.50	<0.0041
10/10/01	05395	M	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/10/01	05394	N	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/10/01	05396	O	1440	Air	8.92	0.062	0	<15.50	<0.0041
10/10/01	05394	P	1440	Air	8.92	0.062	0	<15.50	<0.0041
10/10/01	05398	S	1440	Air	<7.0	<0.002	0	<15.50	<0.0041

cc: 04/05/08

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: NE corner of West Broadway & Duane St.
- C: Trinity (E.M.A. Church) & Liberty St.
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- F: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: NE corner of West Broadway & Broadway
- I: SE corner of West Broadway & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 26 (next to volleyball court)
- O: E corner of South End Ave. & Albany
- P: E corner of West St. (Center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

NS: Not sampled  
\*Structure (S) roughly equivalent to fiber (f)  
NA: Not requested  
NR: Not analyzed due to overloading of particulates

\*\* Chrysotile; no other types of asbestos were detected

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TFM)

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
10/08/01	01981	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/08/01	09182	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/08/01	09183	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/08/01	09184	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

00041317

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

**Sampling Location**  
Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

**Period in which samples were collected and retrieved**  
Sampling Times  
1320 (10/08/01) - 2120 (10/08/01)  
1405 (10/08/01) - 2205 (10/08/01)  
1245 (10/08/01) - 2045 (10/08/01)  
1230 (10/08/01) - 2030 (10/08/01)

ERT: 10/11/01 09:50 AM

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/03/01 1800 to 10/04/01 0700

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/min*	f/cc	Structures (f)	S-f/cc*
10/4/01	016894	#1	720	Air	<7.0	<0.004	0	<8.89
10/4/01	016895	#2	620	Air	<7.0	<0.004	0	<8.89
10/4/01	016896	#3	720	Air	10.83	0.006	0	<8.89
10/4/01	016897	#4	720	Air	<7.0	<0.004	0	<8.89
10/4/01	016898	#5	720	Air	<7.0	<0.004	0	<8.89
10/4/01	016899	#6	720	Air	<7.0	<0.004	0	<8.89
10/4/01	017000	#7	720	Air	<7.0	<0.004	0	<8.89
10/4/01	017001	#8	720	Air	<7.0	<0.004	0	<8.89
10/4/01	017002	#9A	720	Air	35.03	0.019	1**	28.87
10/4/01	017003	#9B	720	Air	15.29	0.008	0	<8.89
10/4/01	017004	#9C	720	Air	17.83	0.009	0	<8.89
10/4/01	017004	#10	720	Air	14.65	0.008	1**	8.89

sc08 03218

\*\* Chrysotile

NS: Not sampled  
Sample value is below recommended limit of the method:  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/06/01 9:50 AM

Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/09/01 18:00 to 18/16/01 06:30

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/cc	f/mm <sup>2</sup>	Structures (S) 0.5-5µ	S-f/cc*
10/9-10/2/001	03035	P Loc # 1	661	Air	7.64	0.004	0	<8.00
10/9-10/2/001	03036	P Loc # 2	669	Air	8.92	0.005	0	<8.00
10/9-10/2/001	03037	P Loc # 3	670	Air	15.29	0.009	2**	16
10/9-10/2/001	03038	P Loc # 4	491.9	Air	<7.00	<0.005	0	<8.16
10/9-10/2/001	03039	P Loc # 5	661.2	Air	<7.00	<0.004	0	<8.00
10/9-10/2/001	03040	P Loc # 6	657	Air	<7.00	<0.004	0	<8.00
10/9-10/2/001	03041	P Loc # 7	664.5	Air	<7.00	<0.004	0	<8.00
10/9-10/2/001	03042	P Loc # 8	666.7	Air	<7.00	<0.004	0	<8.00
10/9-10/2/001	03043	S Loc # 9A	609	Air	10.19	0.006	1**	8
10/9-10/2/001	03044	S Loc # 9B	590	Air	<7.00	<0.005	0	<7.27
10/9-10/2/001	03045	S Loc # 9C	581	Air	8.92	0.006	1**	7.27
10/9-10/2/001	03046	S Loc # 10A	611.8	Air	<7.00	<0.005	0	<7.27
10/9-10/2/001	03047	S Loc # 10B	610	Air	<7.00	<0.004	0	<7.27
10/9-10/2/001	03048	W Loc # 11	619.8	Air	10.19	0.006	0	<7.27
10/9-10/2/001	03049	W Loc # 12	620	Air	<7.00	0.005	0	<8.00
10/9-10/2/001	03050	B Loc # 13	717.8	Air	<7.00	<0.005	0	<8.00
10/9-10/2/001	03051	B Loc # 14	717	Air	11.46	0.006	0	<8.89

code 04617

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 \*\* Chrysotile; no other types of asbestos were detected.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

EPT: 10/11/01 9:50 AM



U.S. EPA/Environmental Response Team Center  
 Response Engineering Analytical Contract  
~~SEPA~~ Sampling Work Sheet  
 DATA



Lockheed Martin Corp., Edison, NJ  
 EPA Contract No. 68-C99-223

Site: NYCER  
 Sampler: H5, mm. 03  
 Date: 10-10-01

WA#: RJA00236  
 U.S. EPA/ERTC WAM: CPMPCNA  
 REAC Task Leader: BWOSMERT

Sample #					
Location	STUN H.S.	WEST+HARRISON	PIER 25 YBANK		
	(L)	(M)	(N)		
DATE/TIME	4	2	5		
Orifice Used?	Y/N	Y/N	Y/N	Y/N	Y/N
Analysis/Method					
Time/Counter (Start)	0848	0850	0900		
Time/Counter (Stop)	FAULT	1501	1505		
Total Time	/	371 MIN.	365 MIN.		
AVG P.D.G. Initial Pressure	/	2.6 ug/m <sup>3</sup>	11.3 ug/m <sup>3</sup>		
MIN MAX Post Pressure	/	0.49/m <sup>3</sup> - 26.49/m <sup>3</sup>	0.49/m <sup>3</sup> - 28.349/m <sup>3</sup>		
Flow Rate (Start)	2L	2L	2L		
Flow Rate (End)					
Flow Rate Average					
Sample Volume					

MET Station on Site? Y/N

FAULT @ LOCATION L

DRAFT GC/MS Results for 10/10/01 DRAFT  
Page 1 of 2

File name	NYC238	NYC289	NYC290	NYC291	NYC292
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient	Plume	Plume
Sample Number			10001	11004	10002
Sample Height			Breathing	Ground	Ground
Volume		100 mL	100 mL	50 mL	50 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3700 ppbv	3900 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	66 ppbv	RL=20 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1100 ppbv	1900 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	22 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	310 ppbv	70 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	81 ppbv	190 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	44 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	180 ppbv	45 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	32 ppbv	3600 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	4100 ppbv	3600 ppbv
Trichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	220 ppbv	210 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	650 ppbv	860 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	20 ppbv	27 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	130 ppbv	490 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	8900 ppbv	9800 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	150 ppbv	130 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	40 ppbv	170 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	48 ppbv	40 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1400 ppbv	2800 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	96 ppbv	46 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	130 ppbv	120 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1000 ppbv	3200 ppbv
m,p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	90 ppbv	150 ppbv
O-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	100 ppbv	120 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	520 ppbv	11400 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	44 ppbv	78 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	36 ppbv	63 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	28 ppbv	44 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	21 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv

NO GC EVALUATION HAS BEEN PERFORMED  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED  
 WITH DISCRETION

DRAFT GC/MS Results for 10/10/01 DRAFT  
Page 2 of 2

File name	NYC284	NYC283
Sample Location	Churn & Day	Center of S. Tower
Sample Number	downwind	10003
Sample Height	breathing	breathing
Volume	100 mL	100 mL
Propylene	RL=20 ppbv	1300 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	860 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	29 ppbv
Chloroethane	RL=20 ppbv	87 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	40 ppbv
Acetone	87 ppbv	1500 ppbv
Trichlorofluoroethane	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	77 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	340 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	200 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv
Benzene	37 ppbv	2600 ppbv
Heptane	RL=20 ppbv	48 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	20 ppbv	83 ppbv
Methyl isobutyl Ketone	RL=20 ppbv	RL=20 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv
Toluene	23 ppbv	900 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	20 ppbv
Tetrachloroethane	RL=20 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	29 ppbv
Ethylbenzene	39 ppbv	950 ppbv
m,p-Xylenes	RL=20 ppbv	51 ppbv
o-Xylene	RL=20 ppbv	42 ppbv
Styrene	32 ppbv	330 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	27 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	21 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION



NYC Response  
 Asbestos Bulk Sample Analysis Results  
 Sampling Date: 10/09/01

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
10/9/01	03804	L F Bulk Steel SW	solid	<1% Chrysotile	
10/9/01	03805	L F Bulk Steel SW	solid	<1% Chrysotile	
10/9/01	03806	L F Build 7 Sift	solid	ND	
10/9/01	03807	L F Build 7 Sift	solid	ND	
10/9/01	03808	L F Build 7 NE	solid	ND	
10/9/01	03809	L F Build 7 NE	solid	ND	
10/9/01	03810	L F Build 7 NE	solid	ND	
10/9/01	03811	L F WTC n Sift	solid	ND	
10/9/01	03812	L F WTC n Sift	solid	<1% Chrysotile	
10/9/01	03813	L F WTC n Pile	solid	ND	

0008 0424

PLM Polarized Light Microscope by Melfrod NY State ELAP 198.1  
 ND: None Detected

ERT: 10/11/01 9:50 AM

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING) ND = not detected

Location	Date	Time	Wind Dir.	Type Meters										CAL		EVA-1000		
				CO <sub>2</sub> ppbv	H <sub>2</sub> O ppbv	H <sub>2</sub> S ppbv	HCl ppbv	NO <sub>2</sub> ppbv	SO <sub>2</sub> ppbv	LEL %	O <sub>2</sub> %	CO ppm	HCM ppm	OVA ppm	FID ppm			
L	10/19/01	0840	SW	ND	ND	ND	ND	X	ND	1.0	ND	ND	20.2	1.5	ND	ND	ND	ND
M	10/19/01	0850	SW	ND	ND	ND	ND	X	ND	1.0	ND	ND	20.2	1.6	ND	ND	ND	ND
N	10/19/01	0902	SW	ND	ND	ND	ND	X	ND	1.0	ND	ND	20.3	1.3	ND	ND	ND	ND
J	10/19/01	0909	SW	ND	ND	ND	ND	X	ND	1.0	ND	ND	20.3	2.0	ND	ND	ND	ND
A	10/19/01	0915	-	ND	ND	ND	ND	X	ND	1.0	ND	ND	20.3	0.4	ND	ND	ND	ND
B	10/19/01	0922	-	ND	ND	ND	ND	X	ND	1.0	ND	ND	20.3	6.6	ND	ND	ND	ND
CA	10/19/01	0929	-	ND	ND	ND	ND	X	ND	ND	ND	ND	20.3	ND	ND	ND	ND	ND
H	10/19/01	0935	-	ND	ND	ND	ND	X	ND	ND	ND	ND	20.3	ND	ND	ND	ND	ND
I	10/19/01	0940	-	ND	ND	ND	ND	X	ND	ND	ND	ND	20.3	ND	ND	ND	ND	ND
D	10/19/01	0946	-	ND	ND	ND	ND	X	ND	ND	ND	ND	20.3	ND	ND	ND	ND	ND
K	10/19/01	0951	-	ND	ND	ND	ND	X	ND	ND	ND	ND	20.3	ND	ND	ND	ND	ND
S	10/19/01	0956	-	ND	ND	ND	ND	X	ND	ND	ND	ND	20.3	ND	ND	ND	ND	ND
P	10/19/01	1000	-	ND	ND	ND	ND	X	ND	ND	ND	ND	20.4	ND	ND	ND	ND	ND
E	10/19/01	1007	-	ND	ND	ND	ND	X	ND	2.0	ND	ND	20.3	1.7	ND	ND	ND	ND
F	10/19/01	1017	-	ND	ND	ND	ND	X	ND	ND	ND	ND	20.4	ND	ND	ND	ND	ND
Q	10/19/01	1022	-	ND	ND	ND	ND	X	ND	ND	ND	ND	20.5	ND	ND	ND	ND	ND

R: GREENWICH + LIBERTY  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C-1: BRADDOCK + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOUTHEND + LIBERTY  
 F: WEST + WESLEY  
 H: CHURCH PARK  
 I: BRADDOCK + LIBERTY  
 J: WEST + LIBERTY  
 K: WEST + ALBANY  
 L: ST. JOSEPH (FREE)  
 M: THOMPSON (FREE) + N DEER 25  
 P: SOUTHEND + LIBERTY  
 Q: CG COMMAND POST  
 1: LIBERTY + WEST  
 2: GREENWICH + LIBERTY  
 3: THORNTON FROM DEY

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

1/2

note: access to Loc #3 - NR

Location	Date	Time	Wind Dir.	Tape Meters					Multi-Gas FHD-5					CGM		TVA-1000	
				CO <sub>2</sub> ppbw	H <sub>2</sub> SO <sub>4</sub> ppbw	H <sub>2</sub> ppbw	HCl ppbw	SO <sub>2</sub> ppm	CO ppm	O <sub>2</sub> %	LEL %	HCN ppm	CO ppm	HCN ppm	FID ppm	TVB ppb	
A	10/14/01	17:44	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	10/14/01	17:55	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Z	10/14/01	17:58	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C-1	10/14/01	18:01	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	10/14/01	18:06	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	10/14/01	18:12	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J	10/14/01	18:16	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	10/14/01	18:21	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L	10/14/01	18:24	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	10/14/01	18:27	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	10/14/01	18:34	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	10/14/01	18:42	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	10/14/01	18:48	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	10/14/01	18:52	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	10/14/01	18:57	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MI	10/14/01	19:03	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

8: GREENWICH + LIBERTY  
9: CHURCH + DEY  
C-1: BRADDOCK + LIBERTY  
I: BRADDOCK + LIBERTY  
Z: GREENWICH + LIBERTY

E: SOUTHEND + LIBERTY  
F: WEST + ALBANY  
H: CHINESE PARK  
I: BRADDOCK + LIBERTY

J: WEST + ALBANY  
K: WEST + ALBANY  
L: STUR. WS. (GRUE)  
M: THROCKEN (WEE) + N. DEER C.S.

Y: SOUTHEND + ALBANY  
Q: CO. GAMING TEST  
1: LIBERTY + WEST  
2: GREENWICH + LIBERTY  
3: TRUMP BRASS FROM DEY

ND = not detected



**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Friday, October 12, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 17 fixed monitors (Link to the map) in and around ground zero and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 9:00 p.m. 10/12)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 34 samples taken in and around ground zero on October 9 and October 10. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 727, with 27 samples above the standard.

Four air samples taken in New Jersey on October 9 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 94, with zero above the standard.

**Staten Island Landfill**

**Air (Asbestos)** - 17 samples were taken between 6:00 AM and 10:00 PM on October 10; all of the results were below the AHERA standard used for allowing re-entry into schools.

**Particulate Monitoring** - Samples were collected at the landfill from October 6 through October 11 using portable monitors. There were no significant readings on October 6, 9 and 10. On October 7 and 8, at Location #9, which is in the area where the debris is being sifted, elevated particulate matter levels were detected based on a daily average concentration. It was also observed that there were elevated wind speeds on October 7 and 8, which may have contributed to the elevated readings.

**Ambient Air Sampling:**

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted October 9 and 10 at Pace University, the Borough of Manhattan Community College and the U.S. Coast Guard building, located in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standard (65 ug/m<sup>3</sup>) for all stations.

**Particulate Monitoring** - Using portable monitors, EPA also collected particulate matter samples on October 11 in the same area of the following Fixed Asbestos Air Monitors: L (North side of Stuyvesant High), M (Western end of Harrison Street at West Street), and N (South side of Pier 25). All samples were well below the OSHA time-weighted average for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 11 in the smoke plume on the debris pile at ground zero. There was a general increase in VOC levels, including benzene, compared to data collected on October 10. Benzene exceeded the OSHA time-weighted average permissible exposure level at two locations in the smoke plume.

**Dioxin** - Ten samples were collected on September 27 and analyzed for dioxin/furans. Two of the samples showed results above the guideline level at which EPA would take some type of action to reduce people's exposure. This guideline level assumes a 30-year exposure scenario. One of the samples (Location A at West Broadway and Barclay) was nominally above the EPA guideline level when adjusted to a 1-year exposure duration. These levels do not pose a short-term health affect but should be monitored if they persist for a longer period of time. All other locations had results that were generally lower than previous dioxin data reported on September 16 and 23.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Friday, October 12, 2001 (12:00 noon)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 9, 1200 to 2400 hrs)
  - All 17 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 10, 1200 to 2400 hrs)
  - All 17 samples analyzed were below the TEM AHERA standard.
- NJ (Oct 9)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 10, 0600 - 2000 hrs) - Asbestos
  - All 17 samples were below the TEM AHERA standard.
- Fresh Kills (Oct 6) - Particulate Monitoring (Dataram)
  - Nothing of significance to report based on daily average concentration.
- Fresh Kills (Oct 7) - Particulate Monitoring (Dataram)
  - Location 9 (sift area) had elevated readings based on daily average concentration.
  - Elevated wind speeds observed on this date.
  - Nothing of significance noted in all other locations.
- Fresh Kills (Oct 8) - Particulate Monitoring (Dataram)
  - Location 9 (sift area) had elevated readings based on daily average concentration.
  - Elevated wind speeds observed on this date.
  - Nothing of significance noted in all other locations.
- Fresh Kills (Oct 9) - Particulate Monitoring (Dataram)
  - Nothing of significance to report based on daily average concentration.
- Fresh Kills (Oct 10) - Particulate Monitoring (Dataram)
  - Nothing of significance to report based on daily average concentration.

Ambient Air Sampling Locations

- NYC / ER (Sept 27) - Dioxin
  - No occupational standards available.
  - 2 of the 10 samples collected were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - 1 of the 10 samples (Location A - West Broadway/Barclay) was nominally above the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.
  - Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for long-term (chronic exposure).
  - Other than Location A, overall levels were generally lower than the previously reported round of dioxin sampling (Sep 23).
  - All current results are below the dioxin levels noted at the 4 locations (Locations B, C, D, and F) sampled during the initial round of dioxin sampling (Sep 16).
- NYC / ER (Oct 9) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was 15.84 ug/m<sup>3</sup>.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was 13.70 ug/m<sup>3</sup>.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was 10.36 ug/m<sup>3</sup>.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 10) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was 18.04 ug/m<sup>3</sup>.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was 17.77 ug/m<sup>3</sup>.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was 12.36 ug/m<sup>3</sup>.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 11) - Particulate Monitoring (Dataram)
  - Levels noted at three locations (Stations L, M, and N) were well below the OSHA TWA (respirable) for particulates.
- NYC / ER (Oct 11) - Volatile organics (TAGA)
  - General increase in overall volatile organic levels (including benzene) noted in plume samples collected in debris area as compared to yesterday's data.
  - Benzene exceeded OSHA TWA PEL at two locations on the debris pile in the plume at ground level.

Direct Reading Instruments

- NYC / ER (Oct 11)
  - Nothing of significance reported.



NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/10/01 (06:01) to 10/10/01 (12:00)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-1/cc*	
					f/m <sup>3</sup>	f/cc	Structures (#) <sup>†</sup>	f/cc		
10/10/01	05281	A	1440	Air	24.2	0.006	0	0	<15.50	<0.0041
10/10/01	05282	B	1440	Air	33.12	0.009	1**	0	15.5	0.0041
10/10/01	05283	C 1	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/10/01	05286	D	1440	Air	8.92	0.012	0	0	<15.50	<0.0041
10/10/01	05290	E	1440	Air	45.85	0.012	0	0	<15.50	<0.0041
10/10/01	05291	F	1440	Air	20.38	0.005	0	0	<15.50	<0.0041
10/10/01	05292	F Dup	1440	Air	17.83	0.005	0	0	<15.50	<0.0041
10/10/01	05284	H	1440	Air	7.64	0.002	0	0	<15.50	<0.0041
10/10/01	05285	I	1440	Air	10.19	0.003	0	0	<15.50	<0.0041
10/10/01	05293	J	1440	Air	10.19	0.003	0	0	<15.50	<0.0041
10/10/01	05287	K	1440	Air	NA	NA	0	0	<15.50	<0.0041
10/10/01	05297	L	1440	Air	8.92	0.002	0	0	<15.50	<0.0041
10/10/01	05296	M	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/10/01	05295	N	1440	Air	16.58	0.002	0	0	<15.50	<0.0041
10/10/01	05294	O	1440	Air	8.92	0.002	0	0	<15.50	<0.0041
10/10/01	05288	S	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041

cccccccc

\*\* Chrysotile; no other types of asbestos were detected

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Doy St.
- C: Trinity (a.k.a. Church) & Liberty St.
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at South End Ave
- E: Western median strip of Vesey & West St
- F: Northern median strip of Vesey & West St
- G: Church & Doy St.
- H: South side of Church Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pair 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Iss. 1, 2, 8/15/94  
Asbestos - Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 10CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 f/m<sup>3</sup>, volume 100 L, for 25 mm filter (TEM)  
ERT: 10/11/01 09:50 AM  
FL-10-10-01.xls

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/10/01 0600 to 10/10/01 2000

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mmm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*
10/10/01	03055	P Loc # 1	720	Air	7.01	0.004	0	<0.0048
10/10/01	03056	P Loc # 2	720	Air	8.92	0.005	1**	0.0048
10/10/01	03057	P Loc # 3	720	Air	8.26	0.004	1**	0.0048
10/10/01	03058	P Loc # 4	720	Air	7.19	0.005	0	<0.0048
10/10/01	03059	P Loc # 5	720	Air	<7.00	<0.004	0	<0.0048
10/10/01	03060	P Loc # 6	720	Air	<7.00	<0.004	0	<0.0048
10/10/01	03061	P Loc # 7	744	Air	<7.00	<0.004	0	<0.0048
10/10/01	03062	P Loc # 8	744	Air	<7.00	<0.004	0	<0.0048
10/10/01	03063	S Loc # 9A	720	Air	26.75	0.013	0	<0.0048
10/10/01	03064	S Loc # 9B	615	Air	22.93	0.012	1**	0.0048
10/10/01	03065	S Loc # 9C	720	Air	31.85	0.017	0	<0.0048
10/10/01	03066	S Loc # 10A	720	Air	16.56	0.009	2**	35.56
10/10/01	03067	S Loc # 10B	720	Air	22.93	0.011	0	<0.0043
10/10/01	03068	W Loc # 11	746	Air	25.48	0.013	3**	26.67
10/10/01	03069	W Loc # 12	746	Air	17.83	0.011	0	<0.0056
10/10/01	03070	B Loc # 13	689.4	Air	17.83	0.014	0	<0.0056
10/10/01	03071	B Loc # 14	687.3	Air	21.66	0.014	6**	62.22

code 04622

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/19/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/12/01 9:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*	
10/09/01	01986	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/09/01	01987	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/09/01	01988	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/09/01	01989	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

CC-PC-188

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA-40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1245 (10/09/01) - 2045 (10/09/01)
CITGO Terminal	1340 (10/09/01) - 2140 (10/09/01)
FMC Terminal	1410 (10/09/01) - 2210 (10/09/01)
Shell Terminal	1440 (10/09/01) - 2240 (10/09/01)

ERT: 10/12/01 09:50 AM

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/09/01 (1200 to 2400)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (#) 0.5µ - 5µ	f/m <sup>3</sup>	f/cc	S-f/cc*
10/9/01	05365	A	1440	Air	NA	NA	0	0	<15.50	<0.0041
10/9/01	05366	B	1440	Air	58.6	0.016	0	0	<15.50	<0.0041
10/9/01	05367	C-1	1440	Air	8.92	0.002	0	0	<15.50	<0.0041
10/9/01	05370	D	1440	Air	30.57	0.008	3**	1	82.02	0.0166
10/9/01	05375	E	1440	Air	22.93	0.006	0	0	<15.50	<0.0041
10/9/01	05376	F	1440	Air	73.89	0.02	0	0	<15.50	<0.0041
10/9/01	05385	H	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/9/01	05386	I	1440	Air	28.03	0.007	0	0	<15.50	<0.0041
10/9/01	05387	J	1440	Air	27.06	0.007	0	0	<15.50	<0.0041
10/9/01	05388	K	1440	Air	35.67	0.009	0	0	<15.50	<0.0041
10/9/01	05361	L	1440	Air	20.38	0.005	0	0	<15.50	<0.0041
10/9/01	05362	M	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/9/01	05373	N	1440	Air	81.53	0.022	0	0	<15.50	<0.0041
10/9/01	05374	P QUP	1440	Air	54.78	0.015	0	0	<15.50	<0.0041
10/9/01	05377	Q	1440	Air	40.76	0.011	0	0	<15.50	<0.0041
10/9/01	05372	S	1440	Air	14.01	0.004	0	0	<15.50	<0.0041

cc=ccm

Sampling Locations:

- A: SE corner of West Broadway & Barclay
- B: SE corner of Church & Ely St.
- C: Trinity (a.k.a. Church & Liberty)
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Sluysenant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bullhead)
- N: South side of Pier 25 (next to waterball court)
- P: NE corner of West End Ave. & Albany
- Q: Barclay & West St.
- R: TAGA Bus Location (Center Island) in proximity to USCC command post
- S: Rector & South End

NS: Not sampled

Sample volume is below recommended limit of the method:

\*f/cc are (S) roughly equivalent to fiber (f)

NR: Not Reported

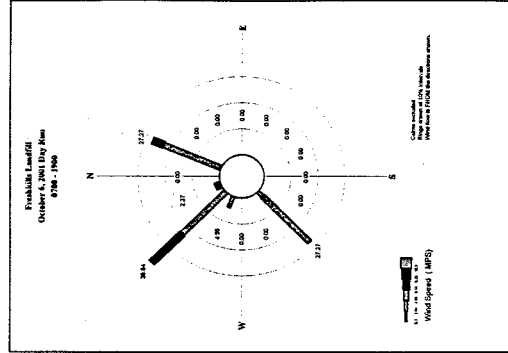
NA: not analyzed due to overloading of particulates

\*\* Chrysotile, no other asbestos fibers found

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM); 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

**Daily DataRam Particulate Monitoring Summary Sheet  
Fresh Kills Landfill  
October 6, 2001**

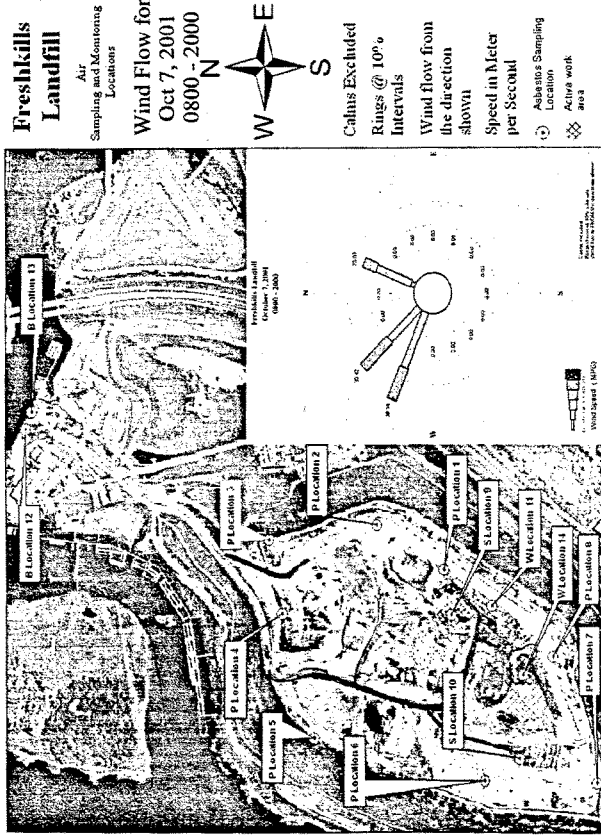
Loc	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Cal Factor	STEL ug/m3	Min Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2294	1	59	14:45:00	10	00:15:00	100	0.0	2.2	46.2	1318.1
2	-74.198262	40.566883	2012	1	28	07:00:00	10	00:15:00	100	0.0	0.0	1.7	348.9
3	-74.198685	40.570654	2010	1	58	14:30:00	10	00:15:00	100	0.0	0.0	12.9	262.5
4	-74.201380	40.569790	2224	1	28	07:00:00	10	00:15:00	100	0.0	0.0	10.0	1702.8
5	-74.205873	40.568892	2295	1	57	14:15:00	10	00:15:00	100	0.0	0.2	12.9	397.9
6	-74.207406	40.563818	2480	1	35	08:45:00	10	00:15:00	100	0.0	0.0	18.4	425.1
7	-74.205414	40.560434	2226	1	57	4:15:00	10	00:15:00	100	0.0	0.0	15.1	538.4
8	-74.203019	40.561915	2152	1	57	4:15:00	10	00:15:00	100	0.0	0.0	11.2	250.4



**Daily DataRam Particulate Monitoring Summary Sheet**  
**Fresh Kills Landfill**  
**October 7, 2001**

Loc	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Ave Time (hrs)	Logging Period	Cal Factor	STEL ug/m3	Min Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2224	1	57	14:15:00	10	06:15:00	100	0.0	5.1	61.7	753.6
2	-74.199262	40.568083	2163	1	57	14:15:00	10	06:15:00	100	0.0	0.4	11.1	1212.2
3	-74.199685	40.570054	2012	1	58	14:30:00	10	06:15:00	100	0.0	0.6	8.6	682.8
4	-74.201380	40.569790	2152	1	58	14:30:00	10	06:15:00	100	0.0	0.0	4.4	269.2
5	-74.202873	40.568892	2294	1	57	14:15:00	10	06:15:00	100	0.0	1.7	5.8	135.7
6	-74.207406	40.563818	2226	1	58	14:30:00	10	06:15:00	100	0.0	1.1	4.4	81.2
7	-74.205414	40.560434	2480	1	58	14:30:00	10	06:15:00	100	0.0	0.4	4.8	458.9
8	-74.203019	40.561915	2010	1	58	14:30:00	10	06:15:00	100	0.0	0.0	3.0	715.9
9	-74.201433	40.564822	2395	1	45	11:15:00	10	06:15:00	100	0.0	105.0	228.3	2705.3

\*Monitoring point #9 is in the sitting area where personnel are required to be masked, and the particulate elevations are expected to be elevated. No additional dust control can be used due to evidence collection in that area.



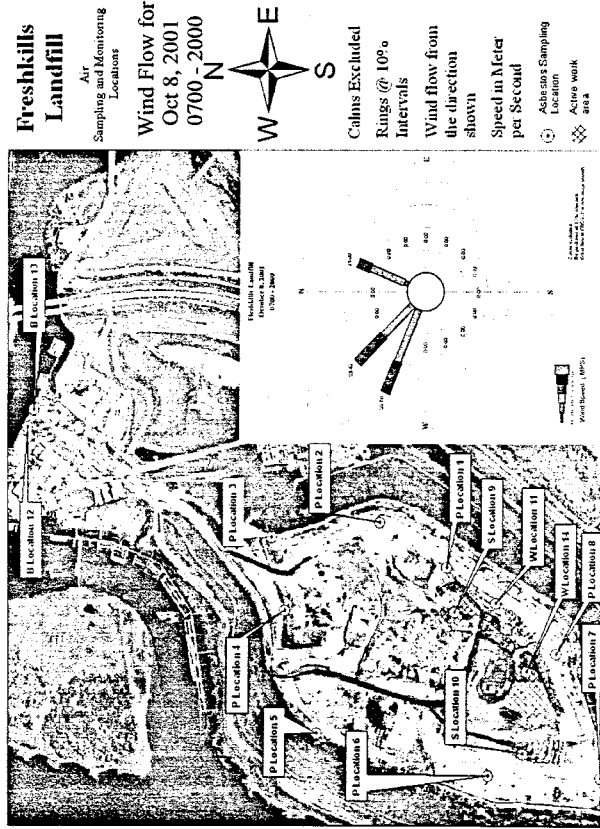
Map Mismarkings:  
 W Location 4 is actually W Location 11  
 W Location 11 is actually W Location 12  
 B Location 12 is actually B Location 14

**Daily DataRam Particulate Monitoring Summary Sheet  
Fresh Kills Landfill  
October 8, 2001**

Loc	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Wind (ft/s)	Logging Period	Cal Factor	STEL ug/m3	Min Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2224	1	54	13:30:00	10	00:15:00	100	0.0	2.3	59.2	546.8
2	-74.198262	40.566883	2152	1	54	13:30:00	10	00:15:00	100	0.0	0.0	15.4	1432.3
3	-74.198685	40.570054	2480	1	54	13:30:00	10	00:15:00	100	0.0	0.0	9.9	367.1
4	-74.201380	40.569790	2226	1	54	13:30:00	10	00:15:00	100	0.0	0.0	9.8	370.4
5	-74.203873	40.568892	2012	1	54	13:30:00	10	00:15:00	100	0.0	0.0	1.6	143.1
6	-74.207406	40.563818	2295	1	54	13:30:00	10	00:15:00	100	0.0	0.0	4.1	762.3
7	-74.205414	40.560434	2294	1	54	13:30:00	10	00:15:00	100	0.0	0.0	3.6	165.4
8	-74.203019	40.561915	2011	1	54	13:30:00	10	00:15:00	100	0.0	0.0	24.5	2367.4
9	-74.201433	40.564822	2363	1	53	13:15:00	10	00:15:00	100	0.0	0.0	262.1	17387.9

\*Monitoring point #9 is in the sifting area where personnel are required to be masked, and the particulate elevations are expected to be elevated. No additional dust control can be used due to evidence collection in that area.





Map Misreadings:  
 W Location 14 is actually W Location 11  
 W Location 15 is actually W Location 12  
 W Location 12 is actually W Location 14

**Daily DataRam Particulate Monitoring Summary Sheet**  
**Fresh Kills Landfill**  
**October 9, 2001**

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	MingConc ug/m3	AvgConc ug/m3	MaxConc ug/m3
1	-74.199795	40.565139	2224	1	22	05:30:00	10	00:00:15	100	0.0	0.0	32.1	263.8
2	-74.198262	40.566883	2295	1	55	13:45:00	10	00:00:15	100	0.0	0.0	19.5	1670.3
3	-74.198685	40.570054	2152	1	56	14:00:00	10	00:00:15	100	0.0	0.0	14.5	727.4
4	-74.201380	40.569790	2480	1	56	14:00:00	10	00:15:00	100	0.0	0.0	28.2	1413.4
5	-74.205873	40.568892	2012	1	23	05:45:00	10	00:00:15	100	0.0	0.6	6.6	60.5
6	-74.207406	40.563818	2226	1	42	10:30:00	10	00:15:00	100	0.0	0.0	6.8	253.3
7	-74.205414	40.560434	2363	1	56	14:00:00	10	00:00:15	100	0.0	0.0	10.5	1056.0
8	-74.203019	40.561915	2011	1	56	14:00:00	10	00:00:15	100	0.0	0.0	4.8	656.1
9a	-74.201433	40.564822	2294	1	54	13:30:00	10	00:15:00	100	0.0	0.0	61.4	2598.5

Daily DataRam Particulate Monitoring Summary Sheet  
 Fresh Kills Landfill  
 October 10, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	MingConc ug/m3	AvgConc ug/m3	MaxConc ug/m3
1	-74.199795	40.565139	2295	1	59	14:45:00	10	00:00:15	100	0.0	0.0	32.0	558.0
2	-74.198262	40.566883		1			10	00:00:15	100	0.0			
3	-74.198685	40.570054	2224	1	58	14:30:00	10	00:00:15	100	0.0	0.0	24.4	1445.6
4	-74.201380	40.569790	2294	1	58	14:30:00	10	00:15:00	100	0.0	0.0	35.3	3001.4
5	-74.205873	40.568892	2480	1	58	14:30:00	10	00:00:15	100	0.0	0.0	17.8	459.1
6	-74.207406	40.563818	2363	1	56	14:00:00	10	00:15:00	100	0.0	0.0	17.6	3819.7
7	-74.205414	40.560434	2011	1	58	14:30:00	10	00:00:15	100	0.0	0.0	4.1	82.4
8	-74.203019	40.561915	2226	1	57	14:15:00	10	00:00:15	100	0.0	0.0	20.1	2224.1
9a	-74.201433	40.564822	2152	1	53	13:15:00	10	00:15:00	100	0.0	2.5	43.3	2806.7

- Sampling Locations:**
- A: NE corner of West Broadway & Barclay
  - B: SE corner of Church & Day St.
  - C: Trinity (a.k.a. Church) & Liberty
  - C1: SW corner of Broadway & Liberty St.
  - D: NE corner of Church & Day St.
  - E: Western end of Liberty St. at South End Ave
  - F: Northern median strip of Vesey & West St
  - G: Church and Duane St.
  - H: South side of Chase Manhattan Plaza at Pine St.
  - I: SE corner of Wall St. & Broadway
  - J: Eastern median strip of West St.
  - K: West St. & Albany in median strip
  - L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TADA bus area
  - M: Western end of Harrison St. at West St. (on tree next to bulbhead)
  - N: South side of Pier 26 (next to volleyball court)
  - P: NE corner of South End Ave. & Albany
  - Q: Eastern median strip of Vesey St. (adjacent to USCG command post)
  - R: TADA Bus Location (same as EPA/REAC Command area)
  - S: Reclor & South End

ERT: 10/11/01 9:50

NO QC EVALUATION HAS BEEN PERFORMED  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED  
 WITH DISCRETION

File name	DRAFT GCMS Results for 1011161 DRAFT				
	NYC299 Instrument Blank	NYC300 Ambient N. Park Pier 10006 Breathing level 250 mL	NYC301 Austin Tobin Plaza 10009 Breathing level 250 mL	NYC303 North Tower 10007 Ground level 50 mL	NYC304 South Tower 10005 Ground level 50 mL
Benzene	RL*20 ppb	RL*20 ppb	RL*20 ppb	36500 ppb	400 ppb
Dibromodifluoromethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	98 ppb	RL*20 ppb
Dichlorodifluoromethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
Chloromethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	27000 ppb	170 ppb
Vinyl Chloride	RL*20 ppb	RL*20 ppb	RL*20 ppb	190 ppb	RL*20 ppb
1,1-Dichloroethene	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
Bromomethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
Chloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	3200 ppb	RL*20 ppb
Trichlorofluoromethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
Isopropanol Alcohol	RL*20 ppb	RL*20 ppb	20 ppb	RL*20 ppb	RL*20 ppb
Acetone	RL*20 ppb	11 ppb	130 ppb	53000 ppb	680 ppb
Trichlorotrifluoroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
1,1-Dichloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
1,1-Dichloroethene	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
Methylene Chloride	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
NTPB	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
trans-1,2-Dichloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
Hexane	RL*20 ppb	RL*20 ppb	RL*20 ppb	3200 ppb	RL*20 ppb
1,1-Dichloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
Vinyl Acetate	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
2-Butanone	RL*20 ppb	RL*20 ppb	18 ppb	13000 ppb	81 ppb
trans-1,2-Dichloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
ethyl acetate	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
1,2-Dichloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
Tetrahydrofuran	RL*20 ppb	RL*20 ppb	RL*20 ppb	58000 ppb	44 ppb
1,1,1-Trichloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
Chloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
Carbon Tetrachloride	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
1,1,2-Dichloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
Benzene	RL*20 ppb	RL*20 ppb	40 ppb	58000 ppb	1500 ppb
Isoprene	RL*20 ppb	RL*20 ppb	RL*20 ppb	1600 ppb	RL*20 ppb
Trichloroethene	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
1,1-Dichloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
1,1-Dichloroethene	RL*20 ppb	RL*20 ppb	100 ppb	2600 ppb	180 ppb
Methyl Isobutyl Sulfone	RL*20 ppb	RL*20 ppb	RL*20 ppb	790 ppb	RL*20 ppb
trans-1,2-Dichloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
Toluene	RL*20 ppb	RL*20 ppb	30 ppb	23000 ppb	270 ppb
trans-1,2-Dichloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
1,1,2-Trichloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
2-Butanone	RL*20 ppb	RL*20 ppb	RL*20 ppb	770 ppb	RL*20 ppb
Tetrachloroethene	RL*20 ppb	RL*20 ppb	RL*20 ppb	140 ppb	RL*20 ppb
Dibromochloromethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb
1,1-Dibromochloroethane	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb	RL*20 ppb

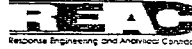
**DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION**

Sample Location Sample Number Sample Height Volume	Instrument Blank	Ambient N. Park Pier 10006 Breathing level 250 mL	Austin Tobin Plaza 10009 Breathing level 250 mL	North Tower 10007 Ground level 50 mL	South Tower 10008 Ground level 50 mL
Chlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	960 ppb	32 ppb
Ethylbenzene	RL=20 ppb	RL=20 ppb	67 ppb	23000 ppb	250 ppb
m,p-Xylenes	RL=20 ppb	RL=20 ppb	RL=20 ppb	2200 ppb	16 ppb
o-Xylene	RL=20 ppb	RL=20 ppb	RL=20 ppb	1600 ppb	15 ppb
Styrene	RL=20 ppb	RL=20 ppb	56 ppb	18000 ppb	180 ppb
Bromoform	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2,2-Tetrachloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
4-Ethyltoluene	RL=20 ppb	RL=20 ppb	RL=20 ppb	1300 ppb	RL=20 ppb
1,3,5-Trimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	1100 ppb	RL=20 ppb
1,2,4-Trimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	770 ppb	RL=20 ppb
1,3-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	170 ppb	RL=20 ppb
1,4-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	35 ppb	RL=20 ppb
Benzyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	320 ppb	RL=20 ppb
1,2,4-Trichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	46 ppb	RL=20 ppb
Hexachloro-1,3-Dioxane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb

RL=Reporting Limit (20 ppb)



U.S. EPA/Environmental Response Team Center  
 Response Engineering Analytical Contract  
 SUMMA® Sampling Work Sheet



Lockheed Martin Corp., Edison, NJ  
 EPA Contract No. 68-C99-223

Site: NYC ER  
 Sampler: MJL/SSE  
 Date: 10/1/01

WA#: RIAC0236

U.S. EPA/ERTC WAM: CAMPAGNA

REAC Task Leader: FRANZBREIT

Sample #					
Location	<u>(L)</u>	<u>(M)</u>	<u>(N)</u>	<u>VSOL</u>	
Location ID	<u>799162</u>	<u>22375</u>	<u>799161</u>		
Grubbs Used	<u>Y/N</u>	<u>Y/N</u>	<u>Y/N</u>	<u>Y/N</u>	<u>Y/N</u>
Analysis Method					
Time Counter (Start)	<u>1102/0</u>	<u>1112/0</u>	<u>1115/0</u>		
Time Counter (Stop)	<u>1524/58</u>	<u>1531/359</u>	<u>1211/50</u>		
Total Time	<u>2:58</u>	<u>2:59</u>	<u>50</u>		
Flow Rate (Start)	<u>33.8</u>	<u>50.3</u>	<u>31.5</u>		
Flow Rate (End)	<u>14.7/247</u>	<u>11.8/121.0</u>	<u>20.2/79.9</u>		
Flow Rate (Start)	<u>2 L</u>	<u>2 L</u>	<u>2 L</u>		
Flow Rate (End)					
Flow Rate Average					
Sample Volume					
MET Status on Site	<u>Y/N</u>				











**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Saturday, October 13, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 17 fixed monitors (Link to the map) in and around ground zero and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 9:00 p.m. 10/13)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 17 samples taken in and around ground zero on October 11. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 744, with 27 samples above the standard.

Four air samples taken in New Jersey on October 11 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 98, with zero above the standard.

**Bulk Asbestos Samples:**

One sample collected on October 7 at 108 Liberty Street (FDNY station) showed no detectable levels of asbestos.

Five bulk samples were collected on October 10 from various floors in the WTC Building #6. One sample from the 1<sup>st</sup> floor contained 40% asbestos (chrysotile); the other four samples showed no detectable levels of asbestos.

**Staten Island Landfill:**

**Particulate Monitoring** - Samples collected on October 11 using portable monitors showed no significant readings.

**Ambient Air Sampling:**

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted October 11 at Pace University, the Borough of Manhattan Community College and the U.S. Coast Guard building, located in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standard (65 ug/m<sup>3</sup>) for all stations.

**Particulate Monitoring** - Using portable monitors, EPA also collected particulate matter samples on October 12 in the same area of the following Fixed Asbestos Air Monitors: L (North side of Stuyvesant High), M (Western end of Harrison Street at West Street), and N (South side of Pier 25) were well below the OSHA time-weighted average for particulates.

**PCBs** - The results of ten samples collected on October 2 showed detectable levels of PCBs in four of the samples. However, the levels were below the level at which EPA would take some type of action to reduce people's exposure. This action level is based on a 30-year exposure scenario.

760

U.S. Environmental Protection Agency  
Air/Bulk Sampling Situation Report  
**Errata Sheet (Oct. 16, 2001)**

**Saturday, October 13, 2001**

The cover summary sheet for Oct 13, 2001 is corrected and provided as an attachment to replace the previous cover sheet. Note: the individual data reports and attachments to the cover summary sheet, as well as the analytical data reported on the data sheets, remains the same.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Saturday, October 13, 2001 (10:00 AM)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 11, 0001 to 1200 hrs)
  - All 17 samples analyzed were below the TEM AHERA standard.
- NJ (Oct 10)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 11) - Particulate Monitoring (Dataram)
  - Nothing of significance to report based on daily average concentration.

Ambient Air Sampling Locations

- NYC / ER (October 2) - PCBs
  - PCBs detected in 4 of 10 samples.
  - All levels were below the EPA Removal Action level guidelines (based on a 30-year exposure).
- NYC / ER (Oct 11) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was 17.40 ug/m<sup>3</sup>.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was 17.18 ug/m<sup>3</sup>.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was 13.28 ug/m<sup>3</sup>.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (October 12) - Particulate Monitoring (Dataram)
  - Levels noted at three locations (Stations L, M, and N) were well below the OSHA TWA (respirable). At Station L the values ranged from 31.1 - 70.8 ug/3 with an average of 30.8 ug/m3. At Station M the values ranged from 38.1 - 41.7 ug/m3 with an average of 38.2 ug/m3. At Station N the values ranged from 35.3 to 92.0 ug/m3 with an average of 44.6 ug/m3.

Bulk/Dust Samples

- NYC / ER (Oct 7) - Asbestos
  - Asbestos was not detected in a sample collected at 108 Liberty Street (F.D.N.Y. station).

- NYC / ER (Oct 10) - Asbestos
  - Asbestos was detected in 1 of 5 samples collected in WTC-Building 6.
  - 40% chrysotile asbestos identified in the sample from the 1<sup>st</sup> floor.

Dewatering Activities - Exchange Place Path Tunnel

- October 3 - Remaining results received for asbestos, dioxin/furans, BOD5. Results are below levels of concern for asbestos and BOD5. Dioxin results below levels found in routine Hudson River monitoring.
- October 13 - Results received for all compounds except for asbestos, dioxins/furans, toxicity and BOD5. Results similar to findings of October 3 sampling event and findings were not above levels of concern. Zinc was detected at more than twice the federal marine ambient water quality criteria.



NYC Response  
Asbestos Bulk Sample Analysis Results  
Sampling Date: 10/07/01

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
10/7/01	A 06224	108 Liberty Street	solid	ND	

0004-01238

PLM Polarized Light Microscope by Method NY State ELAP 188.1  
ND: None Detected

ERT: 10/12/01 9:50 AM

NYC Response  
 Asbestos Bulk Sample Analysis Results  
 Sampling Date: 10/10/01

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
10/10/01	03816	Bldg 6 - 5th	solid	ND	
10/10/01	03817	Bldg 6 - 5th	solid	ND	
10/10/01	03818	Bldg 6 - 3rd	solid	ND	
10/10/01	03819	Bldg 6 - 1st	solid	40%	Chrysotile
10/10/01	03820	Bldg 6 - B1	solid	ND	

cc:ff 6/2/00

PLM - Polarized Light Microscope by Method NY State ELAP 198.1  
 ND: None Detected

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/11/01 (00:01) to 10/11/01 (12:00)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-f/cc*
					f/mm <sup>2</sup>	f/cc	Structures (#)*	S/mm <sup>2</sup>	
10/11/01	17550	A	1440	Air	NA	NA	0	<15.50	<0.0041
10/11/01	17551	B	1440	Air	30.37	0.009	0	<15.50	<0.0041
10/11/01	17552	C-1	1440	Air	8.92	0.002	0	<15.50	<0.0041
10/11/01	17553	D	1440	Air	8.92	0.002	0	<15.50	<0.0041
10/11/01	17554	E	1440	Air	26.75	0.007	0	<15.50	<0.0041
10/11/01	17555	F	1440	Air	7.64	0.002	0	<15.50	<0.0041
10/11/01	17556	G	1440	Air	11.46	0.003	0	<15.50	<0.0041
10/11/01	17557	H	1440	Air	10.19	0.003	0	<15.50	<0.0041
10/11/01	17558	I	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/11/01	17559	J	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/11/01	17560	K	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/11/01	17561	L	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/11/01	17562	M	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/11/01	17563	N	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/11/01	17564	O	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/11/01	17565	P	1440	Air	10.19	0.003	0	<15.50	<0.0041
10/11/01	17566	Q	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/11/01	17567	R	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/11/01	17568	S	1440	Air	<7.0	<0.002	0	<15.50	<0.0041

ceaf 04 100

NS: Not sampled  
NA: Not analyzed  
f/mm<sup>2</sup>: fiber count per square foot (roughly equivalent to fiber (f)  
f/cc: fiber count per cubic foot  
NA: Not analyzed due to overscolding of particulates

- Sampling Locations:  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Day St.  
 C: Trinity (a.k.a. Church & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of West St. & Broadway  
 I: SE corner of Warren & West St.  
 J: West St. & Albany in median strip  
 K: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area  
 L: Western end of Harrison St. at West St. (on trees next to bulkhead)  
 M: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball court)  
 O: NE corner of South End Ave. & Albany  
 P: Barclay & West St. (center island) in proximity to USCG command post  
 R: USCG command post  
 S: Recar & South End

ERT: 10/12/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Air Samples - Modified Method 680 PCB results  
Sampling Date 10/02/01

Sample No.	WG6222-IP	00981	00982	00983	00984	00985	00986			
Sample Volume (L)	Method Blank	R	R	A	B	Loc 3	C1			
Analyte	Result	MDL	Result	MDL	Result	MDL	Result			
	ng	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>			
209-DeCB	U	10.0	U	1.47	U	2.14	U	1.82	U	2.33
Sum of MeCBs	U	10.0	U	1.47	U	2.14	U	2.11	U	2.33
Sum of DiCBs	U	10.0	U	1.47	U	2.14	U	2.11	U	2.33
Sum of TeCBs	U	10.0	U	1.47	U	6.14	U	15.6	U	8.16
Sum of PeCBs	U	10.0	U	1.47	U	2.14	U	2.26	U	2.33
Sum of HxCBs	U	10.0	U	1.47	U	2.14	U	2.11	U	2.33
Sum of HpCBs	U	10.0	U	1.47	U	2.14	U	2.11	U	2.33
Sum of OcCBs	U	10.0	U	1.47	U	2.14	U	2.11	U	2.33
Sum of NcCBs	U	10.0	U	1.47	U	2.14	U	1.95	U	2.33
Total	0	0	0	8.30	17.9	153	8.16			

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

ERT: 10/11/01 03:00 PM

10-02-01PCBar.xls

NYC Response  
 Air Samples - Modified Method 680 PCB results  
 Sampling Date 10/02/01  
 COC.00146

Sample No.	00987	00988	00989	00990	00991	00992
Sampling Location	D	P	S	E	Field Blank	Lot Blank
Sample Volume (L)	4800	4800	4820	4480	0	0
Analyte	Result	MDL	Result	MDL	Result	MDL
	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng	ng
209-DcCB	U 2.08	U 2.08	U 2.16	U 10.0	U 10.0	U 10.0
Sum of McCBs	U 2.08	U 2.08	U 2.16	U 10.0	U 10.0	U 10.0
Sum of DiCBs	U 2.08	U 2.08	U 2.16	U 10.0	U 10.0	U 10.0
Sum of TrCBs	U 2.08	U 2.08	U 2.16	U 10.0	U 10.0	U 10.0
Sum of TeCBs	U 2.08	U 2.08	U 2.16	U 10.0	U 10.0	U 10.0
Sum of HxCBs	U 2.08	U 2.08	U 2.16	U 10.0	U 10.0	U 10.0
Sum of HpCBs	U 2.08	U 2.08	U 2.16	U 10.0	U 10.0	U 10.0
Sum of OcCBs	U 2.08	U 2.08	U 2.16	U 10.0	U 10.0	U 10.0
Sum of NcCBs	U 2.08	U 2.08	U 2.16	U 10.0	U 10.0	U 10.0
Total	0	0	0	0	0	0

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Sluyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

10-02-01PCBair.xls

ERT: 10/11/01 03:00 PM

NYC Response  
Air Samples - Modified Method 680 PCB results  
Sampling Date 10/02/01  
COC 00146

Sample No.	Method Blank	00981		00982		00983		00984		00985		00986	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Sample Volume (L)	ng	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
209-DecB	U	10.0	U	1.47	U	1.47	U	2.14	U	2.11	U	1.82	U
Sum of MoCBs	U	10.0	U	1.47	U	2.16	U	2.14	U	2.11	U	1.82	U
Sum of DiCBs	U	10.0	U	1.47	U	1.47	U	2.14	U	2.11	U	1.82	U
Sum of TeCBs	U	10.0	U	1.47	U	6.14	U	15.6	U	2.11	U	14.4	U
Sum of PeCBs	U	10.0	U	1.47	U	1.47	U	2.14	U	2.11	U	1.82	U
Sum of HxCBs	U	10.0	U	1.47	U	1.47	U	2.14	U	2.11	U	1.82	U
Sum of HpCBs	U	10.0	U	1.47	U	1.47	U	2.14	U	2.11	U	1.82	U
Sum of OxCBs	U	10.0	U	1.47	U	1.47	U	2.14	U	2.11	U	1.82	U
Sum of NoCBs	U	10.0	U	1.47	U	1.47	U	2.14	U	1.95	U	1.82	U
Total	0	0	0	0	8.30	17.9	153	8.16					

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to volleyball court)
- N: South side of Pier 23 (next to volleyball court)
- O: NE corner of South End Ave. & Albany
- P: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

10-02-01PCBair.xls

ERT: 10/11/01 03:00 PM

U: denotes not detected  
MDL: denotes method detection limit

NYC Response  
Air Samples - Modified Method 680 PCB results  
Sampling Date 10/02/01  
COC.00146

Sample No.	00987	00988	00989	00990	00991	00992
Sampling Location	D	P	S	E	Field Blank	Lot Blank
Sample Volume (L)	4800	4800	4820	4480	0	0
Analyte	Result	MDL	Result	MDL	Result	MDL
	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng	ng
209-DiCB	U	2.08	U	2.16	U	10.0
Sum of MoCBs	U	2.08	U	2.16	U	10.0
Sum of DiCBs	U	2.08	U	2.16	U	10.0
Sum of TeCBs	U	2.08	U	2.16	U	10.0
Sum of PeCBs	U	2.08	U	2.16	U	10.0
Sum of HxCBs	U	2.08	U	2.16	U	10.0
Sum of HpCBs	U	2.08	U	2.16	U	10.0
Sum of OcCBs	U	2.08	U	2.16	U	10.0
Sum of NoCBs	U	2.08	U	2.16	U	10.0
Total	0	0	0	0	0	0

Sampling Locations:

- A: NE corner of West Broadway & Barclay
  - B: SE corner of Church & Day St.
  - C: Trinity (a.k.a. Church) & Liberty
  - C1: SW corner of Broadway & Liberty St.
  - D: East end of Albany St. at Greenwich St.
  - E: Western end of Liberty St. at South End Ave
  - F: Northern median strip of Vesey & West St
  - G: Church and Duane St.
  - H: South side of Chase Manhattan Plaza at Pine St.
  - I: SE corner of Wall St. & Broadway
  - J: NE corner of Warren & West St.
  - K: West St. & Albany in median strip
  - L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area
  - M: Western end of Harrison St. at West St. (on tree next to volleyball court)
  - N: South side of Pier 25 (next to volleyball court)
  - P: NE corner of South End Ave. & Albany
  - Q: Barclay & West St. (center island) in proximity to USCG command post
  - R: TAGA Bus Location
  - S: Rector & South End
- U: denotes not detected  
MDL: denotes method detection limit

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*	
10/10/01	01991	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/10/01	01992	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/10/01	01993	FMC Terminal	480	Air	7.01	<0.006	0	0	<6.15	<0.0049
10/10/01	01994	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

008/04/168

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 nm filter (TEM)

**Period in which samples were collected and retrieved**

Liberty Park	1310 (10/10/01) - 2110 (10/10/01)
CITGO Terminal	1355 (10/10/01) - 2155 (10/10/01)
FMC Terminal	1425 (10/10/01) - 2225 (10/10/01)
Shell Terminal	1440 (10/10/01) - 2240 (10/10/01)

ERT: 10/12/01 09:50 AM



Daily DataRam Particulate Monitoring Summary Sheet  
 Fresh Kills Landfill  
 October 11, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Ave Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	MingConc ug/m3	AvgConc ug/m3	MaxConc ug/m3
1	-74.199795	40.565139	2012	1	55	13:45:00	10	00:00:15	100	0.0	0.8	33.3	1527.2
2	-74.198262	40.566883	2295	1	60	15:00:00	10	00:00:15	100	0.0	3.6	34.9	1735.4
3	-74.198665	40.570054	2152	1	59	14:45:00	10	00:00:15	100	0.0	1.6	35.2	1576.8
4	-74.201380	40.569790	2294	1	58	14:30:00	10	00:15:00	100	0.0	0.0	35.3	3001.4
5	-74.205873	40.568892	2363	1	59	14:45:00	10	00:00:15	100	0.0	0.9	32.4	1092.9
6	-74.207406	40.563818	2011	1	59	14:45:00	10	00:15:00	100	0.0	0.0	18.7	1319.9
7	-74.205414	40.560434	2226	1	59	14:45:00	10	00:00:15	100	0.0	0.0	24.2	669.8
8	-74.203019	40.561915	2294	1	48	12:00:00	10	00:00:15	100	0.0	1.0	16.6	681.3

October 13, 2001 (11:01am)

Final Preliminary Data

New York City/ World Trade Center Sampling Activities  
Exchange Place PATH Dewatering

**Preliminary Results Summary:**

**EPA Personnel:** Robert Morrell  
Warren McHose

**Sampling Date:** October 03, 2001

**Location:** Grab samples from direct discharge to the Hudson River.

**Sample Matrix:** Aqueous

**Analytes (Laboratory):** VOCs (Region 2)  
PCBs (Region 2)  
PAHs (Region 2)  
Metals (Region 2)  
BOD5 (Region 2)  
TSS (Region 2)  
TOC (Region 2)  
Total Petroleum Hydrocarbons (Region 2)  
Dioxins/Furans (contract lab - Paradigm Analytical)  
Asbestos (contract lab)

**Dewatering Activity:** The Port Authority initiated pumping from the PATH tunnels at Exchange Place under an existing permit (NJ0076988) on September 11, 2001. The Port Authority estimates that discharge averaged 2600 GPM. The F tunnel was plugged after the WTC disaster, and no dewatering is currently occurring from that tunnel. Dewatering continues from the E tunnel. Pumps are activated by a manual "float switch", and operate between 8 and 12 hours per day, at an estimated discharge of 1000 - 2000 GPM. NJDEP had been notified of the enhanced discharge, but performed no sampling. The Port Authority sampled for VOCs and SVOCs on 09/29/01. Their results show detections of 14 VOCs and 44 SVOCs, most at concentrations less than 100 ug/L. EPA learned of the enhanced discharge on October 01, 2001, and performed reconnaissance on October 02. EPA sampled the discharge from DSN 002 on October 03. NJPDES Permit parameters are tabulated below.

DSN	Monthly Average Flow, GPD (Appl)	Long Term Average Flow, GPD (DMR)	Description of Treatment
001	7200	480	None
002	32000	480	None
003	NA	NA	None

Parameter	Non-numeric Effluent Limit	Monitoring Requirements	
		Frequency	Type
Flow (GPD)	BMP	Semi-Annually	Calculated
pH TSS, mg/L TOC, mg/L Petroleum Hydrocarbons, mg/L	BMP	Semi-Annually	Grab

**Preliminary Results:**

**Metals:** Laboratory results for metals and a comparison with results from runoff, ambient, and Newtown Creek STP samples are shown in Table 1. Toxic metals were not detected, except for barium which was detected at an elevated concentration versus the ambient Hudson River background sample collected on 09/20/01 by the George Washington Bridge. The barium concentration of 150 ug/L is less than the 1000 ug/L federal ambient water criteria for protection of human health from carcinogens, the only federal water quality criteria for this metal. Calcium, iron, and manganese were detected at elevated concentrations relative to GWB background, and sodium and potassium were detected at lower values. No other metals were detected.

**PCB Congeners :** None of the 71 PCB congeners analyzed were detected (DL 0.0054 ug/L).

**NVOAs:** Thirteen NVOA compounds were detected. Ten of these NVOAs are PAHs. There are neither federal marine acute or chronic criteria for any of the detected NVOAs. Benzoic acid (500 ug/L) and bis-2(chloroisopropyl) ether (69 ug/L), and 2,4-dimethyl phenol were detected at the highest concentrations. These compounds are not PAHs, which were detected a very low concentrations.

**VOCs:** Seven (7) VOCs were detected, all at less than 100 ug/L. For the detected VOCs, federal marine Water Quality Criteria are only applicable for toluene, with acute and chronic marine criteria of 6300 and 5000 ug/L, respectively. Toluene was detected at 13 ug/L, far below the criteria concentrations. Table 2 provides laboratory results for the detected VOCs.

- Total Petroleum Hydrocarbons:** (TPH): TPH was not detected (DL 5 mg/L).
- Total Organic Carbon:** (TOC): TOC was detected at 73 mg/L. There is no criteria for this parameter.
- Non-Filterable Residue (TSS):** TSS was reported at 26 mg/L, which is less than the 33 mg/L detected in effluent from the Newtown Creek STP.
- BOD5 (mg/L):** The BOD5 was reported as 69 mg/L. This is less than the 09/15-16/01 Newtown Creek STP influent of 210 mg/L, and less than two times greater than the Newtown Creek STP effluent of 38 mg/L.
- Asbestos:** Asbestos was reported as <2.61 MFL. The drinking water MCL is 7 MFL.
- Dioxins/Furans:** OCDD (0.0307 J ng/L) and 1234678 TCDF (0.0051 J ng/L) were detected. The total TEQ for the sample is 0.0014 ng/L calculated with non-detects at ½ the detection limit.



Compound	Concentration (ug/L)
Chloromethane	10 QE
Acetone	80 QE
Methylene Chloride	12
2-Butanone	21 QE
Toluene	13
2-Hexanone	10
Methyl Tert-Butyl ether	68

QE - Accuracy check sample below lower acceptance limit

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Sunday, October 14, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 17 fixed monitors (Link to the map) in and around ground zero and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 9:00 p.m. 10/13)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 33 samples taken in and around ground zero on October 11 and 12. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 777, with 27 samples above the standard.

Four air samples taken in New Jersey on October 11 and 12 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 102, with zero above the standard.

**Bulk Samples:**

**Asbestos** - Eight steel/building samples were collected from the debris pile on October 11. One sample (bulk steel) contained 2.68% asbestos (chrysotile).

**Staten Island Landfill:**

**Air (Asbestos)** - 68 samples were taken from October 10 through October 13; all of the results were below the AHERA standard used for allowing re-entry into schools.

**Ambient Air Sampling:**

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 12 in the smoke plume on the debris pile at ground zero. There is a general decrease in overall VOC levels, including benzene as compared to October 11. Benzene exceeded the OSHA time-weighted average permissible level at one location in the pile at ground level.

**Dioxin** - Ten samples were collected on October 2 and analyzed for dioxin/furans. Four of the samples showed results above the guideline level at which EPA would take some type of action to reduce people's exposure. This guideline level assumes a 30-year exposure scenario. One of the samples taken near the southwest corner of Building #5 of the World Trade Center was

nominally above guideline level adjusted to a 1-year exposure duration. These levels do not pose a short-term health affect but should be monitored if they persist for a longer period of time. All other locations had results that were generally lower than previous dioxin data on September 27.

**PCBs** - The results of three samples collected on October 4 showed no detectable levels of PCBs.

**Carbon Monoxide** - A direct reading of carbon monoxide was detected at 19 parts per million (ppm) at one location (Greenwich and Liberty). This is above the National Ambient Air Quality Standard (NAAQS) 8-hour average of 9 ppm, but is below the NAAQS 1-hour average of 35 ppm and the OSHA permissible level of 50 ppm.



U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Sunday, October 14, 2001 (12:00 noon)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 11, 1200 to 2400 hrs)
  - All 17 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 12, 0001 - 1200 hrs)
  - All 17 samples (data not available from two stations) analyzed were below the TEM AHERA standard.
- NJ (Oct 11/12)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 10/11, 1900 - 0700 hrs) - Asbestos
  - All 17 samples were below the TEM AHERA standard.
- Fresh Kills (Oct 11, 0700 - 1900 hrs) - Asbestos
  - All 17 samples were below the TEM AHERA standard.
- Fresh Kills (Oct 12, 0600 - 1900 hrs) - Asbestos
  - All 17 samples were below the TEM AHERA standard.
- Fresh Kills (Oct 12/13, 1900 - 0600) - Asbestos
  - All 17 samples were below the TEM AHERA standard. (\* one sample had very low - 11 liters- sample volume)

Ambient Air Sampling Locations

- NYC / ER (Oct. 2) - Dioxin
  - No occupational standards available.
  - 4 of the 10 samples collected were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - 1 of the 10 samples (Location 3 - SW side of WTC 5) was nominally above the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.
  - Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for long-term (chronic exposure).
  - Levels generally higher than previously reported.

- NYC / ER (Oct 4) - PCBs
  - Trace amounts detected in 3 of 10 samples below levels of concern.
  - 7 samples did not detect any PCBs.
  - All sample results were below EPA Removal Action guidelines.
- NYC / ER (Oct 12) - Volatile organics (TAGA)
  - General decrease in overall volatile organic levels (including benzene) noted in plume samples collected in debris area as compared to data previously reported.
  - Benzene exceeded OSHA TWA PEL at one location on the debris pile in the plume at ground level.
- NYC / ER (Oct 12) - Particulate Monitoring (Dataram)
  - Levels noted at three locations (Stations L, M and N) were well below the OSHA TWA (respirable) for particulates.

#### Bulk/Dust Samples

- Fresh Kills (Oct 11) - Asbestos
  - Asbestos was not detected in 7 of 8 samples collected from various steel and debris piles.
  - 1 sample from bulk steel identified with 2.68% chrysolite.
- NYC / ER (Sep 26) - Dioxin
  - 1 sample obtained from the lobby of 110 Greenwich was below the EPA residential cleanup goal of 1 ppb.

#### Direct Reading Instruments

- NYC / ER (Oct 12)
  - One location (Greenwich and Liberty) reported carbon monoxide level of 13 ppm. Concentration is above NAAQS (8 hr avg) of 9 ppm but below NAQQS (1 hr avg) of 35 ppm and also below OSHA PEL of 50 ppm.

NYC Emergency Response  
 All Samples - dioxin and furan  
 Sampling Date 10/02/01

Sample No.	Sampling Location	00987		00988		00989		WG5233.1		00990		00991		00992	
		D-Greenwich & Albany St.	P-Albany St. & South End	S-Rector Place & South End	4600	4600	4670	Method Blank	E-Albany St. & South End	4480	Field Blank	Field Blank	Lot Blank		
Volume (Liters)		4800	4800	4870	0	0	0	4480	0	0	0	0			
Analyte	Result ng/ml	EMPC ng/ml	MCL ng/ml	Result ng/ml	EMPC ng/ml	MCL ng/ml	Result ng	EMPC ng/ml	MCL ng	Result ng	EMPC ng	MCL ng	Result ng	EMPC ng	MCL ng
2378-TCDD	U	0.0042	U	0.0042	U	0.0043	U	0.023	U	0.020	U	0.20	U	0.20	0.020
12378-PeCDD	U	0.021	U	0.021	U	0.022	U	0.10	U	0.10	U	0.10	U	0.10	0.10
12378-HxCDD	U	0.021	U	0.021	U	0.022	U	0.10	U	0.10	U	0.10	U	0.10	0.10
12378-HxCDF	U	0.021	U	0.021	U	0.022	U	0.10	U	0.10	U	0.10	U	0.10	0.10
1234678-HpCDD	U	0.071	U	0.021	U	0.022	U	0.10	U	0.10	U	0.10	U	0.10	0.10
OCDD	U	0.0099	0.042	U	0.042	U	0.043	U	0.20	U	0.045	U	0.20	0.347	0.20
2378-TCDF	U	0.0111	0.0343	U	0.0342	U	0.0343	U	0.030	U	0.035	U	0.030	U	0.030
12378-PeCDF	U	0.0113	0.021	U	0.021	U	0.022	U	0.10	U	0.022	U	0.10	U	0.10
2378-HxCDF	0.0020 J	0.021	U	0.021	U	0.022	U	0.0050	0.10	U	0.022	U	0.10	U	0.10
12378-HxCDF	U	0.0016	0.021	U	0.021	U	0.022	U	0.10	U	0.022	U	0.10	U	0.10
12378-HxCDF	U	0.0032	0.021	U	0.021	U	0.022	U	0.10	U	0.022	U	0.10	U	0.10
12378-HxCDF	U	0.0014	0.021	U	0.021	U	0.022	U	0.10	U	0.022	U	0.10	U	0.10
123789-HxCDF	U	0.021	U	0.021	U	0.022	U	0.10	U	0.10	U	0.10	U	0.10	0.10
1234678-HpCDF	0.0027 J	0.021	U	0.021	U	0.022	U	0.10	U	0.10	U	0.10	U	0.10	0.10
1234789-HpCDF	U	0.021	U	0.021	U	0.022	U	0.10	U	0.10	U	0.10	U	0.10	0.10
OCDF	U	0.0042	U	0.042	U	0.043	U	0.20	U	0.045	U	0.20	U	0.20	0.20
Total TCDDs	0.120			0.0156			U	0.0327		U	U		U	U	
Total PeCDDs	0.0359			0.0048			U	0.0321		U	U		U	U	
Total HxCDDs	0.0241			U			U	U		U	U		U	U	
Total HpCDDs	0.0070			U			U	U		U	U		U	0.0308	
Total TCDFs	0.0668			U			U	0.0025		U	U		U	U	
Total PeCDFs	0.0173			U			U	U		U	U		U	U	
Total HxCDFs	0.0045			U			U	U		U	U		U	U	
Total HpCDFs	0.0027			U			U	0.0388		U	U		U	U	
Total Adipic Acid				U			U	U		U	U		U	U	
TEQ (ND=0)	0.0011			0.0000			0.0009	0.0000		0.0000			0.0000		0.0005
TEQ (ND=1/2)	0.0022			0.0015			0.0079	0.0017		0.0094			0.0077		0.0077

COCriteria  
 EMPC: Estimated Maximum P  
 TEQ: Toxicity Equivalent  
 The TEQ (ND=1/2) is calculate

NYC Emergency Response  
Air Samples - dioxin and furan results  
Sampling Date 10/02/01

Sample No.	Sampling Location	Method Blank	00981		00982		00983		00984		00985		00986		
			TAGA	EMPC	TAGA	EMPC	A-Bardaly & West Broadway	EMPC	B-Church & Day St.	EMPC	Loc 3 SW Side of WTC 5	EMPC	C-Liberty St. & Broadway	EMPC	
Volume (liters)			6604	6604	6604	4696	4730	5497	4300	5497	4300	4300	4300		
Analysis	Result	EMPC	MDL	Result	EMPC	MDL	Result	EMPC	MDL	Result	EMPC	MDL	Result	EMPC	MDL
	ng	ng/m3	ng	ng/m3	ng/m3	ng/m3	ng/m3	ng/m3	ng/m3	ng/m3	ng/m3	ng/m3	ng/m3	ng/m3	ng/m3
2376-TCDD	U	0.020	U	0.029	U	0.029	U	0.043	0.042	0.0150	0.039	0.028	U	0.047	
2376-PCDD	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
123678-HxCDD	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
123678-HxCDD	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
123678-HxCDD	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
123678-HxCDD	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
OCDD	U	0.020	U	0.029	U	0.029	U	0.043	0.042	0.0150	0.039	0.028	U	0.047	
2376-TCDF	U	0.020	U	0.029	U	0.029	U	0.043	0.042	0.0150	0.039	0.028	U	0.047	
12378-PCDF	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
2378-PCDF	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
2378-PCDF	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
123678-HxCDF	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
23678-HxCDF	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
123678-HxCDF	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
123678-HxCDF	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
123678-HxCDF	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
123678-HxCDF	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
OCDF	U	0.020	U	0.029	U	0.029	U	0.043	0.042	0.0150	0.039	0.028	U	0.047	
Total TCDDs	U	0.020	U	0.029	U	0.029	U	0.043	0.042	0.0150	0.039	0.028	U	0.047	
Total PCDDs	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
Total TCDFs	U	0.020	U	0.029	U	0.029	U	0.043	0.042	0.0150	0.039	0.028	U	0.047	
Total PCDFs	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
Total HxCDDs	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
Total HxCDFs	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
Total TCDFs	U	0.020	U	0.029	U	0.029	U	0.043	0.042	0.0150	0.039	0.028	U	0.047	
Total PCDFs	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
Total HxCDFs	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
Total HxCDFs	U	0.015	U	0.015	U	0.015	U	0.021	0.021	0.023	0.018	0.018	U	0.023	
Total Adjusted Conc	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
TEQ (ND=1/2)	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	
CCFs 60+6															

EMPC: Estimator Maximum Possible Concentration

TEC: Toxicity Equivalent

The TEQ (ND=1/2) is calculated using 1/2 of the estimated detection limit for U (non-detect) values.

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	S (#)	0.5µ - 5µ	5µ	S/mm <sup>2</sup>
10/11-12/2001	01996	Liberty Park	~80	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/11-12/2001	01997	CITGO Terminal	~80	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/11-12/2001	01998	FMC Terminal	1350	Air	<7.0	<0.002	0	0	<16.00	<0.0046
10/11-12/2001	01999	Shell Terminal	698	Air	<7.0	<0.003	0	0	<11.43	<0.0049

cc004139

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location

Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

Period in which samples were collected and retrieved

Sampling Times  
1053 (10/11/01) - 1855 (10/11/01)  
1135 (10/11/01) - 1935 (10/11/01)  
1200 (10/11/01) - 1038 (10/12/01)  
1220 (10/11/01) - 0258 (10/12/01)  
ERT: 10/13/01 09:50 AM

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/11/01 (1200) to 10/11/01 (2400)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/min <sup>2</sup>	f/cc	Structures (#)*	S/fcc*
10/11/01	02501	A	1440	Air	26.76	0.007	0	<0.0041
10/11/01	02502	B	1440	Air	17.74	0.003	0	<0.0041
10/11/01	02503	C-1	1440	Air	<7.0	<0.002	0	<0.0041
10/11/01	02505	D	1440	Air	10.19	0.003	0	<0.0041
10/11/01	NS	E	NS	Air	NS	NS	NS	NS
10/11/01	02600	F	1440	Air	10.19	0.003	0	<0.0041
10/11/01	02504	H	1440	Air	<7.0	<0.002	0	<0.0041
10/11/01	02505	I	1440	Air	14.03	0.004	0	<0.0041
10/11/01	02502	J	1440	Air	14.03	0.004	0	<0.0041
10/11/01	02601	K	1440	Air	10.19	0.003	0	<0.0041
10/11/01	02606	L	1440	Air	10.19	0.003	0	<0.0041
10/11/01	02605	M	1440	Air	<7.0	<0.002	0	<0.0041
10/11/01	02604	N	1440	Air	7.64	0.002	0	<0.0041
10/11/01	02500	P	1440	Air	<7.0	<0.002	0	<0.0041
10/11/01	02601	Q	1440	Air	15.29	0.004	0	<0.0041
10/11/01	02602	R	1380	Air	<7.0	<0.002	0	<0.0041
10/11/01	02505	S	1440	Air	7.64	0.002	0	<0.0041

00419401

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: Trinity (a.k.a. Church) & Liberty St.
- C-1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwell St.
- E: West end of Church St. at Liberty Ave
- F: Northern median strip of Vesey & West St.
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: NE corner of West Broadway & Vesey St. (near next to building)
- N: West St. - 50 yards south of Hudson St. at bus stop
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Recker & South End

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Iss. 2, 8/15/94  
 AHERA: Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/min<sup>2</sup>, volume 200 L, for 25 mm filter (TEM)  
 EPT: 10/13/01 09:50 AM  
 PL-10-1-03a.xls

NYC Response  
 Asbestos Bulk Sample Analysis Results  
 Sampling Date: 10/11/01

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
10/11/01	03823	Bulk Steel NE	solid	ND	
10/11/01	03824	Bulk Steel NE	solid	ND	
10/11/01	03825	Bulk Steel SE	solid	2.68% Chrysotile	
10/11/01	06398	Bulk Steel SE	solid	ND	
10/11/01	06399	Bulk Steel NE	solid	ND	
10/11/01	06400	Build 7 NE	solid	ND	
10/11/01	03212	Build 7 NE	solid	ND	
10/11/01	03213	WTC Sift East	solid	ND	

total 04/28

PLM Polarized Light Microscope by Method NY State ELAP 198.1  
 ND: None Detected

NYC Response  
 Solid Sample - dioxin and furan results  
 Sampling Date 09/26/01  
 Results Based on Dry Weight

Sample ID	MRLK 6218		06951 AG	
	Laboratory Method Blank		1106 Greenwich	
Sampling Location	Result	EMPC	Result	EMPC
Percent Solids	ppb/g	ppb/g	ppb/g	ppb/g
	MDL		MDL	
	ppb/g		ppb/g	
Analys				
2376-TCDD	U	1.0	7.76	2.6
12376-PCDD	U	5.0	11.54	12.9
12376-PCDF	U	5.0	16.6	12.9
123678-HCDD	U	5.0	15.6	12.9
123769-HCDD	U	0.364	2.0	12.9
1234678-HCDD	U	1.16	10	26
OCDD				
2376-TCDF	U	1.0	U	41.2
12376-PCDF	U	0.172	5.0	36.0
12376-PCDF	U	0.152	5.0	25.9
12378-HCDF	U	0.128	5.0	25.7
123678-HCDF	U	0.156	5.0	23.7
234678-HCDF	U	0.156	5.0	41.2
123769-HCDF	U	5.0	U	10.8
1234678-HCDF	U	5.0	93.7	12.9
1234789-HCDF	U	5.0	U	12.5
OCDF				
Total TCDDs	U		1100	
Total PCDDs	U		681	
Total HCDDs	U		282	
Total HPCDDs	U		468	
Total TCDFs	U		1590	
Total PCDFs	U		524	
Total HPCDFs	U		169	
Total HCDFs	U		169	
Total Adjusted Conc.	0.0320		21.9	
TEQ (ND=0)	0.224		60.9	

coeff 0.4269

EMPC: Estimated Maximum Possible Concentration EFT: 10/10/1 9:50 AM  
 TEC: Toxicity Equivalent  
 The TEC (ND=12) is calculated using 1/2 of the estimated detection limit for U (non detect) x ket



NYC Response  
 Air Samples - Modified Method 680 PCB results  
 Sampling Date 10/04/01  
 COC 04081

Sample No.	05007	05012	WGS6228-1P		05008		05009		05010		05011	
			D	Lot Blank	Method Blank	P	S	E	Field Blank			
Sampling Location	5511	0	0	0	5511	5240	5489	0	0	0	0	0
Sample Volume (L)	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Analyte	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng	ng	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng	ng
209-DxCB	NA	NA	U	10.0	U	10.0	U	1.91	U	1.82	U	10.0
Sum of MoCBs	NA	NA	U	10.0	U	10.0	U	1.91	U	1.82	U	10.0
Sum of DiCBs	NA	NA	U	10.0	U	10.0	U	1.91	U	1.82	U	10.0
Sum of TeCBs	NA	NA	U	10.0	U	10.0	U	1.91	U	1.82	U	10.0
Sum of PeCBs	NA	NA	U	10.0	U	10.0	U	1.91	U	1.82	U	10.0
Sum of HxCBs	NA	NA	U	10.0	U	10.0	U	1.91	U	1.82	U	10.0
Sum of HpCBs	NA	NA	U	10.0	U	10.0	U	1.91	U	1.82	U	10.0
Sum of OcCBs	NA	NA	U	10.0	U	10.0	U	1.91	U	1.82	U	10.0
Sum of NoCBs	NA	NA	U	10.0	U	10.0	U	1.91	U	1.82	U	10.0
Total	NA	NA	0	0	0	0	0	0	0	0	0	0

Sampling Locations:

- A: NE corner of West Broadway & Barclay
  - B: SE corner of Church & Dey St.
  - C: Trinity (a.k.a. Church) & Liberty
  - C1: SW corner of Broadway & Liberty St.
  - D: East end of Albany St. at Greenwich St.
  - E: Western end of Liberty St. at South End Ave
  - F: Northern median strip of Vesey & West St
  - G: Church and Duane St.
  - H: South side of Chase Manhattan Plaza at Pine St.
  - I: SE corner of Wall St. & Broadway
  - J: NE corner of Warren & West St.
  - K: West St. & Albany in median strip
  - L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
  - M: Western end of Harrison St. at West St. (on tree next to bulkhead)
  - N: South side of Pier 25 (next to volleyball court)
  - P: NE corner of South End Ave. & Albany
  - Q: Barclay & West St. (center island) in proximity to USCG command post
  - R: TAGA Bus Location
- U: denotes not detected  
 MDL: denotes method detection limit  
 NA: denotes not analyzed due to a malfunction during extraction

S: Rector & South End

10-04-01PCBar.xls

ERT: 10/14/01 09:50 AM

Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/10/01 19:00 to 10/11/01 07:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/m <sup>3</sup>	f/cc	Structures (#) 0.5-5µ	S/mm <sup>2</sup> >5µ		
10/11/01	03074	P Loc # 1	718	Air	<7.00	<0.004	0	2**	17.78	0.0095
10/11/01	03075	P Loc # 2	600	Air	<7.00	<0.004	0	0	<8.00	<0.0051
10/11/01	03076	P Loc # 3	720	Air	7.64	0.004	0	0	<80.00	<0.0428
10/11/01	03077	P Loc # 4	720	Air	<7.00	<0.004	0	0	<8.89	<0.0048
10/11/01	03078	P Loc # 5	720	Air	<7.00	<0.004	0	0	<10.00	<0.0053
10/11/01	03079	P Loc # 6	720	Air	<7.00	<0.004	0	0	<8.89	<0.0048
10/11/01	03080	P Loc # 7	716	Air	<7.00	<0.004	0	0	<10.00	<0.0054
10/11/01	03081	P Loc # 8	720	Air	<7.00	<0.004	0	0	<8.89	<0.0048
10/11/01	03082	S Loc # 9A	265	Air	<7.00	<0.010	0	0	<8.89	<0.0129
10/11/01	03083	S Loc # 9B	631	Air	<7.00	<0.004	0	0	<8.89	<0.0054
10/11/01	03084	S Loc # 9C	507	Air	7.64	0.006	0	0	<8.89	<0.0067
10/11/01	03085	S Loc # 10 A	648.3	Air	<7.00	<0.004	0	0	<8.89	<0.0053
10/11/01	03086	S Loc # 10 B	659.2	Air	<7.00	<0.004	0	0	<8.89	<0.0054
10/11/01	03087	W Loc # 11	659.2	Air	11.46	0.007	0	3**	24	0.0140
10/11/01	03088	B Loc # 12	657	Air	<7.00	<0.004	0	8**	64	0.0376
10/11/01	03089	B Loc # 13	692.2	Air	<7.00	<0.004	0	1**	8	0.0044
10/11/01	03090	B Loc # 14	696.3	Air	<7.00	<0.004	0	0	<8.00	<0.0045

see 04622

\*\* Chrysotile; no other types of asbestos were detected.  
 NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/14/01 9:50 AM

Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/11/01 07:00 to 10/11/01 19:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*
10/11/01	03101	F Loc # 1	720	Air	<7.00	<0.004	0	26.67
10/11/01	03102	F Loc # 2	720	Air	7.64	0.004	0	<8.69
10/11/01	03103	F Loc # 3	720	Air	<7.00	<0.004	0	<8.69
10/11/01	03104	F Loc # 4	720	Air	<7.00	<0.004	0	8.69
10/11/01	03105	F Loc # 5	720	Air	<7.00	<0.004	0	8.69
10/11/01	03106	F Loc # 6	720	Air	<7.00	<0.004	0	<8.69
10/11/01	03107	F Loc # 7	720	Air	<7.00	<0.004	0	<8.69
10/11/01	03108	F Loc # 8	720	Air	<7.00	<0.004	0	<8.69
10/11/01	03109	F Loc # 9A	540	Air	22.93	0.012	0	26.67
10/11/01	03110	S Loc # 9B	720	Air	<7.00	<0.004	0	35.56
10/11/01	03111	S Loc # 9C	720	Air	<7.00	<0.004	0	17.78
10/11/01	03112	S Loc # 10A	720	Air	8.92	0.005	0	<8.69
10/11/01	03113	S Loc # 10B	720	Air	14.01	0.007	0	8.69
10/11/01	03114	W Loc # 11	720	Air	11.46	0.006	0	<8.69
10/11/01	03115	W Loc # 12	720	Air	28.03	0.015	0	26.67
10/11/01	03116	B Loc # 13	746	Air	7.56	<0.004	0	<8.69
10/11/01	03117	B Loc # 14	591.2	Air	<7.00	<0.005	0	<7.27

\* Crystalline; no other types of asbestos were detected.

NS: Not sampled

AF/NF: Asbestos fibers/Non asbestos fibers

Sample volume is below recommended limit of the method.

Structure (S) roughly equivalent to fiber (f)

NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94

Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

EFT: 10/14/01 9:50 AM

Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/12/01 06:00 to 10/12/01 19:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Structures (#)	S-fcc*
10/12/01	03141	P Loc # 1	706.9	Air	<7.00	<0.004	0	<8.89
10/12/01	03142	P Loc # 2	706.9	Air	<7.00	<0.004	0	<8.89
10/12/01	03143	P Loc # 3	707.3	Air	<7.00	<0.004	0	<8.89
10/12/01	03144	P Loc # 4	715.5	Air	<7.00	<0.004	0	<8.89
10/12/01	03145	P Loc # 5	715.5	Air	<7.00	<0.004	0	<8.89
10/12/01	03146	P Loc # 6	717.3	Air	<7.00	<0.004	0	<8.89
10/12/01	03147	P Loc # 7	723	Air	<7.00	<0.004	0	<8.89
10/12/01	03148	P Loc # 8	714.1	Air	<7.00	<0.004	0	<8.89
10/12/01	03149	S Loc # 9A	714.1	Air	<7.00	<0.004	0	<8.89
10/12/01	03150	S Loc # 9B	715	Air	<7.00	<0.004	1**	8.89
10/12/01	03151	S Loc # 9C	513	Air	<7.00	<0.005	0	<8.89
10/12/01	03152	S Loc # 10 A	715	Air	<7.00	<0.004	0	<8.89
10/12/01	03153	S Loc # 10 B	622	Air	<7.00	<0.004	0	<8.89
10/12/01	03154	W Loc # 11	714.8	Air	<7.00	<0.004	0	<8.89
10/12/01	03155	W Loc # 12	720	Air	11.46	0.006	0	<8.89
10/12/01	03156	B Loc # 13	745	Air	<7.00	<0.004	0	<8.89
10/12/01	03157	B Loc # 14	734	Air	<7.00	<0.004	0	<8.89

ccsd 6/6/06

NS: Not sampled  
 AF/AMF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structures (S) (roughly equivalent to fiber (f))  
 NA: not analyzed due to overloading of particulates  
 \*\* Chrysotile, no other types of asbestos were detected.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/14/01 9:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/12/01 1900 to 10/13/01 0600

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/min <sup>2</sup>	f/cc	Structures (#)	S-f/cc*
10/13/01	03132	P Loc #1	702.1	Air	<7.0	<0.004	0	<8.61
10/13/01	03133	P Loc #2	701.6	Air	<7.0	<0.004	0	<8.61
10/13/01	03134	P Loc #3	701.5	Air	<7.0	<0.004	0	<8.61
10/13/01	03135	P Loc #4	694.6	Air	<7.0	<0.004	0	<8.61
10/13/01	03136	P Loc #5	691.6	Air	6.92	0.005	0	<8.61
10/13/01	03137	P Loc #6	695.2	Air	10.93	0.006	0	<8.61
10/13/01	03138	P Loc #7	697.8	Air	<7.0	<0.004	0	<8.61
10/13/01	03139	P Loc #8	698.2	Air	<7.0	<0.004	0	<8.61
10/13/01	03140	S Loc #9A	11	Air	<7.0	<0.245	0	<7.75
10/13/01	03161	S Loc #9B	720	Air	<7.0	<0.004	0	<8.61
10/13/01	03162	S Loc #9C	720	Air	<7.0	<0.004	0	<8.61
10/13/01	03163	S Loc #10A	720	Air	<7.0	<0.004	0	<8.61
10/13/01	03164	S Loc #10B	720	Air	<7.0	<0.004	0	<8.61
10/13/01	03165	M Loc #11	690	Air	7.01	0.004	0	<7.75
10/13/01	03166	M Loc #12	760	Air	21.66	0.012	0	<8.61
10/13/01	03167	B Loc #13	694.6	Air	<7.0	<0.004	0	<8.61
10/13/01	03168	B Loc #14	694.3	Air	<7.0	<0.004	0	<8.61

cor rec27

\*\* Chrysotile, no other types of asbestos were detected.

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) roughly equivalent to fiber (F)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 1, Issue 2, 8/4/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA), 0.01 fiber/cc (PCM), 70 S/mmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/14/01 9:50 AM

NYC Results:  
 Ambient Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/12/01 (06:00) to 10/12/01 (12:00)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Structures (P) 0.5µ-5µ	>5µ
10/12/01	05402	A	1440	Air	39.26	0.365	0	<15.50
10/12/01	05405	B	1440	Air	39.48	0.011	0	<15.50
10/12/01	05406	C	1440	Air	<7.0	<0.002	0	<15.50
10/12/01	05409	D	1440	Air	<7.0	<0.002	0	<15.50
10/12/01	05412	E	1440	Air	<7.0	<0.002	0	<15.50
10/12/01	05407	F	1440	Air	11.46	0.003	0	<15.50
10/12/01	05410	G	1440	Air	10.19	0.003	0	<15.50
10/12/01	05416	H	1440	Air	12.74	0.003	0	<15.50
10/12/01	05415	I Dup	1440	Air	10.19	0.003	0	<15.50
10/12/01	05410	J Dup	1440	Air	8.92	0.002	0	<15.50
10/12/01	05419	K	1440	Air	10.19	0.003	0	<15.50
10/12/01	05418	L	1440	Air	<7.0	<0.002	0	<15.50
10/12/01	05414	M	1440	Air	<7.0	<0.002	0	<15.50
10/12/01	05411	N	1440	Air	11.46	0.003	0	<15.50
10/12/01	05402	O	1440	Air	11.46	0.003	0	<15.50
10/12/01	05401	P	1440	Air	<7.0	<0.002	0	<15.50
10/12/01	05403	Q	1440	Air	<7.0	<0.002	0	<15.50

cdc 0492

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: Trinity (a.k.a. Church) & Liberty
- Cl: SW corner of Broadway & Liberty St.
- D: East side of Broadway St. at South End Ave
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: Western & West St.
- K: West St. & Albany
- L: On walkway toward North Park (see area north side of Stuyvesant Hgh), access to TACA Bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: West St. - 50 yards south of Harrison St. at bulkhead
- O: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: (Center island) in proximity to USCG command post
- R: TACA Bus Location
- S: Restor & South End
- T: Pier 6 Helport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

- NS: Not sampled
- \*Structure (S) readily equivalent to fiber (f)
- NR: Not requested
- NA: not analyzed due to overloading of particulates

ERT: 10/15/01 09:50 AM

NIOSH 7400: Filter Analysis of Air Samples via NIOSH 7400, Revision 3, Iss. 02-2, 8/15/94  
 Method: Filter Analysis via Transmission Electron Microscopy (TEM) EPA 1/ICFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.1 fiber/cc (PCMI), 70 f/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

PL-10-12-01.xls

DRAFT GC/MS Results for 10/12/01 DRAFT

File Name	NYC311	NYC312	NYC313	NYC314	NYC315	NYC316
Sample Location	Instrument Blank	Tedlar Blank	Ambient N. Park Pier #25	Pace U. Spruce - Park	W. Broadway + Murray	Center of N. Tower
Sample Number			17519	17516	17517	10012
Sample Height			Breathing Level	Breathing Level	Breathing Level	Ground Level
Volume		250 mL	250 mL	100 mL	100 mL	40 mL
Propylene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	12000 ppb
Dichlorodifluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Dichlorotetrafluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	5500 ppb
Vinyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Bromomethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	180 ppb
Chloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	500 ppb
Trichlorofluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	54 ppb
Isopropyl Alcohol	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	260 ppb
Acetone	RL=20 ppb	RL=20 ppb	RL=20 ppb	27 ppbv	27 ppbv	13000 ppb
Trichlorotrifluoroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
3-Chloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Methylene Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
MTBE	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
trans-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Hexane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	690 ppb
1,1-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Vinyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
2-Butanone	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	3100 ppb
cis-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Ethyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chloroform	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	46 ppb
Tetrahydrofuran	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	1600 ppb
1,1,1-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Cyclohexane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Carbon Tetrachloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Benzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	21000 ppb
Heptane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	410 ppb
Trichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	68 ppb
1,2-Dichloropropane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,4-Dioxane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	530 ppb
Methyl Isobutyl Ketone	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	220 ppb
cis-1,2-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Toluene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	9600 ppb
trans-1,2-Dichloropropene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,1,2-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
n-Hexane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	240 ppb
Trichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Dibromochloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dibromochloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Chlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	190 ppb
Ethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	11000 ppb
m,p-Xylenes	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	500 ppb
o-Xylene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	420 ppb
Styrene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	4900 ppb
Acetone	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED  
 WITH DISCRETION



DRAFT GC/MS Results for 10/12/01 DRAFT						
File name	NYC311	NYC312	NYC313	NYC314	NYC315	NYC316
Sample Location	Instrument Blank	Todlar Blank	Ambient N. Park Pst #25 17519	Pace U. Spruce + Park 17516	W. Broadway + Murray 17517	Center of N. Tower 10012
Sample Number			Breathing level 250 ml.	Breathing Level 100 ml.	Breathing Level 100 ml.	Ground Level 40 ml.
Sample Height						
Volume		250 ml.				
1,1,2,2-Tetrachloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
4-Ethyltoluene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	300 ppb
1,3,5-Trimesitylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	270 ppb
1,2,4-Trimesitylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	200 ppb
1,3-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,4-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Benzyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
1,2-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	35 ppb
1,2,4-Trichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb
Hexachloro-1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb

RL=Reporting Limit (20 ppb)

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION



GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters						Multi-Gas PHD-5										TVA-1000				
				COCl <sub>2</sub> ppbv	H <sub>2</sub> S ppbv	HCN ppbv	HCN ppbv	HCN ppbv	HCN ppbv	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	A <sub>1</sub> ppb	NG ppm	FID ppm	PID ppm							
M1	10/12	11:40	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND	21.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J	10/12	11:45	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.3	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10046	10/12	12:05	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND	21.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
A	10/12	14:57	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	10/12	14:55	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Z	10/12	14:47	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.3	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1	10/11	15:00	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	10/11	15:05	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	10/11	15:10	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	10/11	15:15	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	10/11	15:20	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.2	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	10/11	15:25	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.4	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	10/11	15:27	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.4	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
M	10/11	15:29	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.4	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	10/11	15:35	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.4	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	10/11	15:41	" "	ND	ND	ND	ND	ND	ND	ND	ND	0.4	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

A: GREENWICH + THROLOU  
 B: CHURCH + BAY  
 C: CHURCH + LIBERTY  
 C1: BRADDOCK + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: STREND + LIBERTY  
 F: WEST + VEGEY  
 H: CHURCH + THROLOU  
 I: BRADDOCK + LIBERTY  
 J: WEST + WARREN  
 K: WEST + LIBERTY  
 L: SHOP B.S. (GROE)  
 M: HARRISON (MIE) + N. PIER 25  
 P: SOUTHEND + LIBERTY  
 Q: CO. CHURCH ROAD  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: BRADDOCK + LIBERTY

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Type Meters					Multi-Gas PHD-5							TVA-1000			
				CO, ppm	H <sub>2</sub> S, ppm	SO <sub>2</sub> , ppm	LEL, %	O <sub>2</sub> , %	CO, ppm	NO, ppm	FID, ppm	PID, ppm							
Q	0/16	1544	SW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	1/16	1547	SW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
R	1/16	1567	SW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
M	1/16	1555	SW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L	1/16	1502	SW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

A: GREENWICH + LIBERTY  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C-1: BRADDOCK + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOMERSET + LIBERTY  
 F: WEST + VESEY  
 G: CHURCH PLAZA  
 H: BRADDOCK + WALTON ST.  
 I: BRADDOCK + WALTON ST.  
 J: WEST + WALTON  
 K: WEST + ALBANY  
 L: SUDY ST. (VISE)  
 M: BRADDOCK (VISE) + N. PARK 25  
 N: WEST + ALBANY  
 O: CHURCH + DEY  
 P: SOMERSET + ALBANY  
 Q: CHURCH + DEY  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: BRADDOCK + LIBERTY  
 U: ALBANY STOPS FROM DEY

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Monday, October 15, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 17 fixed monitors (Link to the map) in and around ground zero and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 6:00 p.m. 10/15)**

**Bulk Samples:**

**Asbestos** - Two dust samples from inside a building within the World Trade Center site were collected on October 10, one sample contained 1.10% asbestos (chrysotile).

**Ambient Air Sampling:**

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 13 and October 14 in the smoke plume within the debris pile at ground zero. Benzene exceeded the OSHA time-weighted average permissible level at two locations, on both days. Benzene was not detected in the breathing zone (approximately 5 to 6 feet above-ground) at three locations several blocks from ground zero.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted from October 12 to October 13 at Pace University, the Borough of Manhattan Community College and the U.S. Coast Guard building, located in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standards (65 ug/m<sup>3</sup>) for all stations.

**Staten Island Landfill**

**Particulate Monitoring** - Samples collected on October 11 using portable monitors showed no significant readings.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Monday, October 15, 2001 (12 noon)

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 12) - Particulate Monitoring (Dataram)
  - Nothing of significance to report based on daily average concentration.
- Fresh Kills (Oct 13) - Particulate Monitoring (Dataram)
  - Nothing of significance to report based on daily average concentration.

Ambient Air Sampling Locations

- NYC / ER (Oct 12) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was 18.08 ug/m<sup>3</sup>.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was 19.06 ug/m<sup>3</sup>.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was 16.65 ug/m<sup>3</sup>.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 13) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was 23.28 ug/m<sup>3</sup>.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was 21.57 ug/m<sup>3</sup>.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was 20.45 ug/m<sup>3</sup>.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 13) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL at two locations on the debris pile in the plume at ground level.
  - Benzene was not detected at three locations (Pier 25, Spruce/Park Row, and Murray/W. Broadway) away from the WTC area in the breathing zone.
  - Benzene was not detected at Austin Tobin Plaza in the breathing zone.
- NYC / ER (Oct 14) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL at two locations on the debris pile in the plume at ground level.
  - Benzene was not detected at three locations (Pier 25, Spruce/Park Row, and Murray/W. Broadway) away from the WTC area in the breathing zone.
  - Benzene was not detected at Austin Tobin Plaza in the breathing zone.

Bulk/Dust Samples

- NYC / ER (Oct 10) - Asbestos
  - Asbestos was detected in 1 of 2 indoor samples collected at 100 Church Street at a level of 1.10% chrysotile.

Direct Reading Instruments

- NYC / ER (Oct 13)
  - Nothing of significance reported.
- NYC / ER (Oct 14)
  - Nothing of significance reported.

Ambient Monitoring

- NYC / ER (Oct 10) - Exchange Place PATH Dewatering
  - Median lethal concentration after 48 hours of testing was 83.5% tunnel water.
  - Survival in the undiluted and untreated tunnel water was 32.5%.
  - Survival was 97.5% or higher in all dilutions of the effluent.
  - Response can be characterized as low level toxicity.

Daily DataRam Particulate Monitoring Summary Sheet  
 Fresh Kills Landfill  
 October 12, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2294	1	56	14:00:00	10	00:00:15	100	0.0	0.0	32.6	898.4
2	-74.198262	40.566883	-	1	-	-----	10	00:00:15	100	0.0	---	-----	-----
3	-74.198685	40.570054	2363	1	56	14:00:00	10	00:00:15	100	0.0	0.6	33.8	1613.7
4	-74.201380	40.569790	2480	1	56	14:00:00	10	00:15:00	100	0.0	5.4	29.0	1163.5
5	-74.205873	40.568892	2011	1	57	14:15:00	10	00:00:15	100	0.0	0.0	21.1	3860.0
6	-74.207406	40.563818	2295	1	56	14:00:00	10	00:15:00	100	0.0	5.9	18.1	299.8
7	-74.205414	40.560434	2226	1	56	14:00:00	10	00:00:15	100	0.0	0.0	14.4	6352.2
8	-74.203019	40.561915	2012	1	56	14:00:00	10	00:00:15	100	0.0	0.2	22.1	2289.4



Daily Data/Ram Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 October 13, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2152	1	27	06:45:00	10	00:00:15	100	0.0	6.8	13.7	76.4
2	-74.198262	40.566883	2226	1	40	10:00:00	10	00:00:15	100	0.0	8.8	37.2	2605.0
3	-74.198685	40.570054	2480	1	38	09:30:00	10	00:00:15	100	0.0	0.3	26.0	314.1
4	-74.201380	40.569790	2363	1	37	09:15:00	10	00:15:00	100	0.0	0.0	29.5	364.6
5	-74.205873	40.568892	2012	1	38	09:30:00	10	00:00:15	100	0.0	9.9	35.6	1204.8
6	-74.207406	40.563818	2294	1	38	09:30:00	10	00:15:00	100	0.0	0.0	52.9	1555.0
7	-74.205414	40.560434	2295	1	38	09:30:00	10	00:00:15	100	0.0	0.0	19.5	190.6
8	-74.203019	40.561915	2011	1	38	09:30:00	10	00:00:15	100	0.0	0.1	13.0	242.7

DRAFT GC/MS Results for 10/13/01 DRAFT

Sample Name	NYC320	NYC321	NYC322	NYC323	NYC324
Sample Location	Instrument Blank	Telear Bag Blank Ambient	Pier 25 (North)	Spence St. & Park Row	Murray St. & W. Broadway
Sample Number			10011	10013	10014
Sample Matrix			Breathng	Breathng	Breathng
Volume		100 mL	100 mL	100 mL	100 mL
Propane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Isobutane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Normal butane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Isopentane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Neopentane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Hexane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Heptane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Octane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Nonane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Decane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Undecane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Dodecane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Tridecane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Tetradecane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Pentadecane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Hexadecane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Heptadecane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Octadecane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Nonadecane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Eicosane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Heneicosane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Docosane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Triacontane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Tetracontane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Pentacosane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Hexacosane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Heptacosane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Octacosane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
Nonacosane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
triacontane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,2-dichloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1-dichloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,1-trichloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,2-trichloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,2,3-trichloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,2,2-tetrachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,1,2-tetrachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,2,2,3-pentachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,1,2,2-pentachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,1,1,2-pentachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,1,2,2,2-hexachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,2,2,3,3-hexachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,1,2,2,2,3-heptachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,1,1,2,2,2-heptachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,1,1,2,2,2,3-octachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,1,1,2,2,2,3,3-octachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,1,1,2,2,2,3,3,3-nonachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv
1,1,1,1,2,2,2,3,3,3,3-decachloroethane	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv	RL#20 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED  
 WITH DISCRETION

DRAFT GC/MS Results for 10/15/01 DRAFT

File name	NYC325	NYC326	NYC327
Sample Location	Middle N. Tower	South Tower	Location #3
Sample Number	10015	10018	10016
Sample Height	ground	ground	Breathing Ht.
Volume	120 mL	120 mL	100 mL
Propylene	17,000 ppbv	3,300 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Dichlorotrifluoromethane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chloroethane	16,000 ppbv	1,600 ppbv	RL=20 ppbv
Vinyl Chloride	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,3-Butadiene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Bromomethane	240 ppbv	310 ppbv	RL=20 ppbv
Chloroethane	680 ppbv	RL=50 ppbv	RL=20 ppbv
Trichloroethene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Acetone	400 ppbv	RL=50 ppbv	RL=20 ppbv
Acetone	23,000 ppbv	1,300 ppbv	39 ppbv
Dichlorodifluoromethane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
3-Chloropropene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Methylene Chloride	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
MTEE	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Hexane	650 ppbv	1120 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Vinyl Acetate	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
2-Butanone	6,700 ppbv	1130 ppbv	RL=20 ppbv
cis-1,2-Dichloroethane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Ethyl Acetate	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chloroform	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Tetrahydrofuran	2,600 ppbv	160 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Cyclohexane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloroethane	110 ppbv	RL=50 ppbv	RL=20 ppbv
Benzene	18,000 ppbv	18,600 ppbv	RL=20 ppbv
Heptane	690 ppbv	176 ppbv	RL=20 ppbv
Trichloroethene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,4-Dioxane	610 ppbv	RL=50 ppbv	35 ppbv
Methyl Isobutyl Ketone	250 ppbv	RL=50 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Toluene	11,000 ppbv	2,200 ppbv	RL=20 ppbv
trans-1,3-Dichlorobenzene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Dimethylsiloxane	370 ppbv	RL=50 ppbv	RL=20 ppbv
Tetrachloroethene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Dibromochloromethane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chlorobenzene	100 ppbv	110 ppbv	RL=20 ppbv
Ethylbenzene	13,000 ppbv	1,200 ppbv	RL=20 ppbv
m,p-Xylenes	630 ppbv	186 ppbv	RL=20 ppbv
o-Xylene	630 ppbv	170 ppbv	RL=20 ppbv
Styrene	6,700 ppbv	380 ppbv	RL=20 ppbv
Bromobenzene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
4-Ethyltoluene	460 ppbv	RL=50 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	440 ppbv	RL=50 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	320 ppbv	RL=50 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Benzyl Chloride	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

DRAFT GC/MS Results for 10/14/01 DRAFT

File name	NYC336	NYC337	NYC338
Sample Location	Austin Tobin Plaza	North Tower	South Tower
Sample Number	10020	10022	10023
Sample Height	Breathing	Ground	Ground
Volume	0.1 L	0.02 L	0.02 L
Propylene	RL=20 ppbv	1,500 ppbv	7,200 ppbv
Dichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	750 ppbv	4,300 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	89 ppbv
Chloroethane	RL=20 ppbv	52 ppbv	220 ppbv
Trichloroethylene	RL=20 ppbv	RL=20 ppbv	17 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	1,500 ppbv	7,300 ppbv
Tetrachloroethylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	26 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv	110 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	74 ppbv	420 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2,6-Dimethylpiperidine	RL=20 ppbv	360 ppbv	1,800 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	140 ppbv	1,100 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	390 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	280 ppbv
Benzene	RL=20 ppbv	1,800 ppbv	12,000 ppbv
Heptane	RL=20 ppbv	51 ppbv	290 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	42 ppbv	230 ppbv
Methyl isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dioxane	RL=20 ppbv	900 ppbv	5,300 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	130 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	41 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	130 ppbv
Ethylbenzene	RL=20 ppbv	860 ppbv	5,000 ppbv
m,p-Xylenes	RL=20 ppbv	47 ppbv	280 ppbv
O-xylene	RL=20 ppbv	44 ppbv	280 ppbv
Styrene	RL=20 ppbv	800 ppbv	1,900 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	33 ppbv	200 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	33 ppbv	130 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	25 ppbv	130 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	25 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	44 ppbv
1,4-Trichlorobenzene	RL=20 ppbv	26 ppbv	25 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	21 ppbv	RL=20 ppbv

DRAFT GCMS Results for 10/14/01 DRAFT

File name	NYC331	NYC332	NYC333	NYC334	NYC335
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient N. Park Pier	W. Broadway & Murray 10017	Park Row & Spruce 10019
Sample Number			breathing	breathing	breathing
Sample Weight			0.25 L	0.1 L	0.1 L
Volume					
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichloro fluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichloroethyl acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Trichloroethylmethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Trichloroethylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
3-Chloroacetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,1,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,1,2,2-Pentachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methyl Ethyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,1,2,2-Pentachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Diethyl Ether	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methyl isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,1,2,2-Pentachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,1,2,2-Pentachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Zinc Oxide	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dibromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
m-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
p-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Dimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv

NYC Response  
 Asbestos Bulk Sample Analysis Results  
 Sampling Date: 10/10/01

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
10/10/01	03821	100 Church Street	solid	1.10% Chrysotile	
10/10/01	03822	100 Church Street	solid	ND	

60401 04/23/05

PLM: Polarized Light Microscope by Method NY State ELAP 198.1  
 ND: None Detected

ERT: 10/13/01 9:50 AM

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Type Meters				Multi-Gas PPD-5								TYA-1000			
				CO, ppbv	HF, ppbv	HF, ppbv	HF, ppbv	CO, ppm	H <sub>2</sub> S, ppm	HCN, ppm	HCN, ppm	HCN, ppm	HCN, ppm	HCN, ppm	HCN, ppm	HCN, ppm	HCN, ppm	HCN, ppm	HCN, ppm
A	10:00	9:30	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B		9:41	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C		9:51	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E		9:54	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H		10:00	S 3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D		10:12	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K		10:17	S 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S		10:21	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P		10:26	S 3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E		10:30	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F		10:35	S 3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q		10:42	S 3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J		10:49	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N		10:55	SW 4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
M		11:02	S 3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L		11:05	S 3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- B: GREENWICH + LIBERTY  
 C: GREENWICH + LIBERTY  
 E: GREENWICH + LIBERTY  
 F: WEST + WHEEL  
 H: CHASE PLACE  
 J: GREENWICH + LIBERTY  
 K: WEST + LIBERTY  
 L: STAT. W5 (CRCE)  
 M: GREENWICH + LIBERTY  
 N: GREENWICH + LIBERTY  
 P: GREENWICH + LIBERTY  
 Q: GREENWICH + LIBERTY  
 S: GREENWICH + LIBERTY  
 T: GREENWICH + LIBERTY  
 U: GREENWICH + LIBERTY  
 V: GREENWICH + LIBERTY  
 W: GREENWICH + LIBERTY  
 X: GREENWICH + LIBERTY  
 Y: GREENWICH + LIBERTY  
 Z: GREENWICH + LIBERTY

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GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PHD-5							TVA-1000		
				COCl <sub>2</sub> ppbv	H <sub>2</sub> S ppbv	HCN ppbv	HCl ppbv	HCN ppbv	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	CO ppm	FID ppm	FID ppm		
A	10-13-01	1:30	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B		1:35	S 7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1		1:39	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I		1:42	S 3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H		1:46	S 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D		1:55	W 3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K		1:58	NW 4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S		2:03	S 5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P		2:08	W 5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E		2:12	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F		2:29	S 5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q		2:31	S 5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J		2:34	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N		2:39	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
M1		2:41	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L		2:45	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

A: GREENWICH + LIBERTY      E: SOUTHEND + LIBERTY      J: WEST + LIBERTY      P: SOUTHEND + LIBERTY  
 B: CHURCH + DEY              F: WEST + VESSEY      K: WEST + LIBERTY      Q: CG COMMAND POST  
 C: CHURCH + LIBERTY        H: CHURCH FANCL      L: SOUTH W5 (GRACE)      R: LIBERTY + WEST  
 C1: BRIMBURY + LIBERTY     I: BRIMBURY + LIBERTY      M: LIBERTY + LIBERTY      S: GREENWICH + LIBERTY  
 D: GREENWICH + LIBERTY     J: BRIMBURY + LIBERTY      N: BRIMBURY + LIBERTY      T: BRIMBURY FROM DEY



GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters			Multi-Gas PHD-S			Command		Station		EVA-100	
				COCL <sub>2</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	HCl ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	H <sub>2</sub> ppm	NO ppm	OVA ppm	FID ppm
L	10/10/01	9:05	calm	ND	ND	ND	ND	ND	0	20.8	17	ND	ND	ND	ND
M1	10/10/01	9:12	calm	ND	ND	ND	ND	ND	0	20.8	0.3	ND	ND	ND	ND
N	10/10/01	9:20	calm	ND	ND	ND	ND	ND	0	20.8	0.7	ND	ND	ND	ND
U	10/10/01	9:50	calm	ND	ND	ND	ND	ND	0	20.8	3.2	ND	ND	ND	ND
A	10/10/01	9:40	calm	ND	ND	ND	ND	ND	0	20.8	3.9	ND	ND	ND	ND
B	10/10/01	10:00	calm	ND	ND	ND	ND	ND	0	20.8	2.4	ND	ND	ND	ND
Loc 2	10/10/01	10:05	calm	ND	ND	ND	ND	ND	0	20.8	2.7	ND	ND	ND	ND
C1	10/10/01	10:12	calm	ND	ND	ND	ND	ND	0	20.8	2.2	ND	ND	ND	ND
I	10/10/01	10:16	calm	ND	ND	ND	ND	ND	0	20.4	0.7	ND	ND	ND	ND
H	10/10/01	10:22	calm	ND	ND	ND	ND	ND	0	20.4	1.3	ND	ND	ND	ND
D	10/10/01	10:32	calm	ND	ND	ND	ND	ND	0	20.4	4.5	ND	ND	ND	ND
K	10/10/01	10:40	calm	ND	ND	ND	ND	ND	0	20.9	0.1	ND	ND	ND	ND
S	10/10/01	10:55	calm	ND	ND	ND	ND	ND	0	20.4	2.6	ND	ND	ND	ND
P	10/10/01	10:54	calm	ND	ND	ND	ND	ND	0	20.9	3.0	ND	ND	ND	ND
Loc 1	10/10/01	11:04	calm	ND	ND	ND	ND	ND	0	20.8	3.5	ND	ND	ND	ND
E	10/10/01	11:07	calm	ND	ND	ND	ND	ND	0	20.4	2.3	ND	ND	ND	ND

H: GREENWICH + LIBERTY  
 B: CHURCH + BEY  
 C1: CHURCH + LIBERTY  
 C2: BROADWAY + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOMMERS + LIBERTY  
 F: WEST + VESKY  
 H: GUNSE PARKA  
 I: BROADWAY + LIBERTY  
 J: BROADWAY + LIBERTY  
 K: WEST + LIBERTY  
 L: 50th St. (FREE)  
 M: HINDUSTAN (FREE) + N PER 25  
 P: SOMMERS + LIBERTY  
 Q: CG COMMAND POST  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: TRAZA BARRIOS PRISM DET



GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Wind Calm	Tape Meters				Multi-Gas PHD-5				Cap Gas		TVA-1000	
					COCl <sub>2</sub> ppbv	ELSO <sub>2</sub> ppbv	HF ppbv	HF ppbv	HCl ppbv	H <sub>2</sub> ppbv	SO <sub>2</sub> ppbv	CO ppm	NO ppm	NO <sub>2</sub> ppm	CO <sub>2</sub> ppm	FID ppm
E	1/14/01	1405	calm		NA	NA	NA	NA	NA	0	20.9	2.8	NA	NA	NA	NA
F	1/14/01	1415	calm		NA	NA	NA	NA	NA	0	20.9	1.3	NA	NA	NA	NA

A: GREENWICH + BARCLAY  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C-1: BRADDOCK + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOUTHWEST + LIBERTY  
 F: WEST + WEESEY  
 G: CHURCH PLAZA  
 H: BRADDOCK + WASH. ST.  
 I: BRADDOCK + LIBERTY  
 J: WEST + WASHINGTON  
 K: WEST + BRADDOCK  
 L: STUY. W.S. CROSS  
 M: WASHINGTON (DRE) + N TRER 2.5  
 N: TRER 2.5  
 O: SOUTHWEST + WASHINGTON  
 P: CG (SOUTHWEST) BOY  
 Q: LIBERTY + WEST  
 R: GREENWICH + LIBERTY  
 S: TRER 1000S FROM DEY

October 15, 2001 (9:06am)Preliminary DataNew York City/ World Trade Center Sampling Activities  
Exchange Place PATH Dewatering 2 (10/10/01 Sample)**Preliminary Results Summary:**

**Toxicity:** Toxicity was measured in water samples, and samples of solids clarified from the sample and added to seawater. The response can be characterized as low-level toxicity. Following 48 hours of testing, the median lethal concentration (LC50) predicted was 83.5 percent tunnel water. Survival in the undiluted and untreated tunnel water was 32.5 percent. Survival was 97.5 percent or higher in all of the dilutions of the effluent (50, 25, 12.5, and 6.25 percent tunnel water). Toxicity was reduced in the tunnel water that was centrifuged. Survival in this sample was 82.5 percent. However, toxicity was not reintroduced with the solids from the centrifuged sample placed in clean seawater. Survival in this treatment was 97.5 percent. The dilution capacity of the receiving stream and any chemical measurements should be taken into account when evaluating management actions.

*(Previously Reported 10/13/01)* Available results are similar to the sample collected on 10/03/01. No PCBs were detected. Several VOCs were detected including MTBE, but all concentrations of detected VOCs were less than 100 ug/L. Fourteen NVOAs were detected, primarily phenol and substituted phenols and benzoic acid. Detected PAHs were all at trace concentrations (<10ug/L). Phenol is the only non-PAH NVOA with marine FWQC. The detected concentration is less than the acute marine criteria; chronic criteria does not exist for phenol. Zinc was detected at more than double the marine acute and chronic FWQC. Sulfate and chloride were elevated, but TSS was significantly less than that detected in the 10/03/01 sample. Oil and Grease and TPH were detected at low concentrations.

**EPA Personnel:** Robert Morrell  
Richard Coleates

**Sampling Date:** October 10, 2001

**Location:** Grab samples from direct discharge to the Hudson River.

**Sample Matrix:** Aqueous

**Analytes (Laboratory):** VOCs (Region 2)  
PCB Congeners (Region 2)  
NVOAs (Region 2)  
Metals + mercury (Region 2)  
BOD5 (Region 2)  
COD (Region 2)  
Aquatic Toxicity (marine Mysids and Minnows) (Region 2)  
TSS (Region 2)  
Total Petroleum Hydrocarbons (Region 2)

Oil and Grease (Region 2)  
Sulfate (Region 2)  
Chloride (Region 2)  
Salinity (Region 2)  
Dissolved Oxygen (Region 2)  
Residual Chlorine (Region 2)  
Alkalinity (Region 2)  
Ammonia (Region 2)  
Dioxins/Furans (contract lab - Paradigm Analytical)  
Asbestos (contract lab)

**Dewatering Activity:** The Port Authority of New York and New Jersey (PANYNJ) initiated pumping from the PATH tunnels at Exchange Place under an existing permit (NJ0076988) on September 11, 2001. PANYNJ estimates that discharge averages 2600 GPM. The F tunnel has been plugged since the WTC disaster, and no dewatering is occurring from that tunnel. Dewatering continues from the E tunnel. Pumps are activated by a manual "float switch", and operate between 8 and 12 hours per day. The tunnel is estimated to fill at between 800 - 1200 gpm. NJDEP had been notified of the enhanced discharge, but neither performed sampling or required additional sampling by PANYNJ. EPA learned of the enhanced discharge on October 01, 2001, performed reconnaissance on October 02, and sampled the discharge on October 03. There were no significant contaminant concentrations detected in that sample.

Plugging the PATH tunnel F near Exchange Place will necessitate pumping the tunnel from Manhattan. The plug is expected to be in place by 10/10/01. PANYNJ has suggested that they would prefer to discharge directly to the Hudson River. There does not appear to be an existing NPDES permit for the proposed discharge.

EPA was informed on 10/09/01 that the characteristics of the discharge at Exchange Place had changed, and was now "black and smelly". To address this, and to characterize the discharge more fully to assess the expected quality of the proposed discharge from the Manhattan side, EPA re-sampled the discharge at Exchange Place on 10/10/01.

#### **Preliminary Results:**

**General Characteristics:** The samples were brown in color with a strong acrid odor. Some, but not all of the color, was removed through centrifugation. Total ammonia was elevated with a concentration of approximately 8.7 mg/L. Ammonia is not typically encountered at this concentration in marine surface samples. Salinity in the sample was 12 parts per thousand (ppt, g/L) which is less than the average of 35 g/L salinity of seawater. There was no residual chlorine present. Dissolved oxygen, determined in the laboratory, was 2.5 mg/L, lower than saturation indicating an oxygen demand from the sample. The alkalinity of the sample was approximately 140 mg/L. This concentration is slightly higher than would be predicted for a sample with a balanced salinity of 12 ppt.

**Metals:** Several metals were detected that had not been detected in the Hudson River samples or the 10/03/01 PATH Exchange Place sample. Results for these metals

is tabulated below. Results for zinc exceed both the marine acute and chronic Federal Water Quality Criteria for this metal. Chromium and nickel were detected at concentrations slightly greater than the detection limit. Concentrations of other metals detected in the sample are similar to those detected in the 10/03/01 PATH tunnel discharge sample. Table 1 at the end of this report provides metals data for all non-drinking water WTC disaster samples collected by EPA.

Metal	Concentration (ug/l)	Marine Acute FWQC (ug/l)	Marine Chronic FWQC (ug/l)
Chromium	8.4	1100*	50*
Nickel	6.8	75	8.3
Zinc	210	95	86

\* FWQC for Chromium VI, most stringent chromium criteria.

**PCB Congeners:** The sample was analyzed for 71 PCB congeners. No PCBs were detected in the sample (DL 0.0054 ug/L).

**NVOAs:** Seven (7) non-PAH NVOAs were detected in the sample. Seven PAHs, most substituted naphthalenes, were also detected, but all at trace concentrations (< 10ug/L). Results are tabulated below. Benzoic acid was detected at the highest concentration (580 ug/L), followed by phenol and several substituted phenols. Phenol is the only detected NVOA having established marine acute FWQC. Marine chronic criteria has not been established for phenol. The concentration detected in the PATH tunnel effluent is more than 10 times less than the marine acute FWQC. Proposed acute and chronic FWQC for 2,4,5-trichlorophenol were also not exceeded in the sample.

Compound	Concentration (ug/l)	Marine Acute FWQC (ug/l)	Marine Chronic FWQC (ug/l)
Benzoic Acid	580	NA	NA
Phenol	450	5,800	NA
4-Methyl Phenol	110	NA	NA
2 - Methyl Phenol	67	NA	NA
Benzyl Alcohol	53	NA	NA
2, 4- Dimethyl Phenol	53	NA	NA
2,4,5-Trichlorophenol	5.2	240 p	11 p

NA: No marine FWQC

## p. Proposed Criteria

**VOCs:** The sample was analyzed for VOCs including MTBE and trichlorofluoromethane (freon-11). Acetone (90 ug/L), methylene chloride (17 ug/L), 2-butanone (21 ug/L), toluene (18 ug/L), meta and para xylenes (10 ug/L), MTBE (65 ug/L), and total xylenes (10 ug/L) were detected. No VOCs were detected in the trip blank. Results are similar to those in the 10/03/01 sample, except for the detection of MTBE which is generally associated with oxygenated fuels.

**Toxicity:** Toxicity testing was performed by the USEPA Region II laboratory on the Tunnel Water Discharge to the Hudson River using a small marine crustacean, *Mysidopsis bahia* (Mysid) and a juvenile/larval fish species, *Menidia beryllina* (Inland Silversides Minnow). The tests were 48- Hour exposures and the test endpoint was mortality.

Mysids were more sensitive to the tunnel water than the fish. Following 48 hours of testing, the median lethal concentration (LC50) predicted was 83.5 percent tunnel water. Basically, if 83.5 percent tunnel water was mixed with 16.5 percent clean seawater, then 50 percent of the organisms would not survive. Survival was 97.5 percent or higher in all of the dilutions of the effluent (50, 25, 12.5, and 6.25 percent tunnel water).

Toxicity was reduced in the tunnel water that was centrifuged. Survival in this sample was 82.5 percent. Survival in the undiluted and untreated tunnel water was 32.5 percent. However, toxicity was not reintroduced with the solids from the centrifuged sample placed in clean seawater. Survival in this treatment was 97.5 percent.

All of the mortality occurred during the initial 24 hours and none during the final 24 hours of the tests.

While there was toxicity measured, the response can be characterized as low-level toxicity. The dilution capacity of the receiving stream and any chemical measurements should be taken into account when determining appropriate management actions

Survival was relatively high in the *Menidia beryllina* tests. Survival in the 100 percent tunnel water was 85 percent and increased according in all of the test dilutions.

All QC for the test including control survival and reference toxicant testing were acceptable. A report will be prepared and be available sometime this coming week (week of October15).

**Other Parameters:**

Parameter	Concentration 10/10/01	Concentration 10/03/01	Other Comparative Data
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Total Petroleum Hydrocarbons (mg/L)	5.4	ND (DL 5 mg/L)	Low
Oil and Grease (mg/L)	8.9	Not Analyzed	Low
Non-Filterable Residue (TSS) (mg/L)	12	26	18 mg/L in Hudson River 10/14/01 samples
COD (mg/L)	880	Not Analyzed	250 Weak 500 Medium 1000 Strong <sup>1</sup>
Sulfate	950	Not Analyzed	2,710 mg/L in Seawater <sup>2</sup>
Chloride (mg/L)	5700	Not Analyzed	19,350 mg/L in Seawater <sup>2</sup>
Alkalinity (mg/L)	140	Not Analyzed	50 Weak 100 Medium 200 Strong <sup>1</sup>
Total Ammonia (mg/L)	8.7	Not Analyzed	12 Weak 25 Medium 50 Strong <sup>1</sup>
Salinity (g/L (ppt))	12	Not Analyzed	34.92 ppt in Seawater <sup>1</sup>
DO (Lab) (mg/L)	2.5	Not Analyzed	Low
BOD <sub>5</sub> (mg/L)	Test ongoing	69	Newtown Creek Influent 210 mg/L, Newtown Creek Effluent 38 mg/L
pH	7.23	7.75	Neutral

1. Metcalf and Eddy, 1991, *Wastewater Engineering: Treatment, Disposal, and Reuse*, Table 3-16 Composition of untreated domestic wastewater.

2. Florida Oceanographic Society, 2001, [www.fosusa.org/parameters.htm](http://www.fosusa.org/parameters.htm).

Exchange Place PATH Tunnel Discharge 09/10/01 Sampling Parameters			
Parameter	Container	Preservation	Laboratory



Metals incl Mercury	2 L glass	pH < 2 w/ HNO <sub>3</sub> / 4°C	EPA Region 2
NVOAs	3 L amber glass	4°C	
PCB Congeners (71)	3 L amber glass		
VOCs + Freon + MTBE	6 x 40 ml sample 3 x 40 ml trip blank	pH < 2 w/ HCL/ 4°C	
Petroleum Hydrocarbons/ Oil and Grease	3 L clear wide mouth glass	pH < 2 w/ H <sub>2</sub> SO <sub>4</sub> / 4°C	
Sulfate/Chloride	500 ml Cubitaner	4°C	
BOD <sub>5</sub>	1 Gallon Cubitaner	4°C	
COD	250 ml Cubitaner	pH < 2 w/ H <sub>2</sub> SO <sub>4</sub> / 4°C	
Toxicity/Salinity/DO/Residual Chlorine/Ammonia, Alkalinity	3.5 Gallon total (Cubitaners)	4°C	
TSS	250 ml Cubitaner		
Dioxins/Furans	2 L amber glass		
Asbestos	2 L polyethylene		REAC Contract

Metal	Hudson River Background (GW Bridges)		Hudson River North WTC		Hudson River West WTC		Hudson River South WTC		East River (South St)		Runoff (Rector St) 09/20/01		Midtown Pumping Station		Newtown Creek STP Effluent		Exchange Place Tunnel 10/03/01		Exchange Place Tunnel 10/10/01		PATH Tunnel Background 10/03/01		PATH Tunnel Background 10/10/01		
	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Silver	410	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	
Aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic	23	18	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	
Barium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Beryllium	260,000	290,000	280,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	290,000	
Calcium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Cobalt	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Copper	390	230	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	
Iron	260,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	
Potassium	860,000	820,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	
Magnesium	56	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
Manganese	7,200,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	8,300,000	
Sodium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Vanadium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Zinc	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

\* Not detected in HR background. 1/2 HR Background detection limit (DLs: Cr 6.0 ug/L, Ni 5 ug/L, Zn 40 ug/L) used for calculation.

**Table 2: Volatile Organic Compounds Detected in Exchange Place PATH Tunnel effluent**

<b>Compound</b>	<b>Concentration (ug/L)</b>	<b>Concentration (ug/L)</b>
Chloromethane	10 QE	ND
Acetone	80 QE	90 QR
Methylene Chloride	12	17
2-Butanone	21 QE	21
Toluene	13	18
m & p - Xylenes	ND	10
2-Hexanone	10	ND
Methyl Tert-Butly ether	68	65
Total Xylenes	ND	10

QE - Accuracy check sample below lower acceptance limit  
 QR - Spike Recoveries below lower acceptance limit

NJPDES Permit NJ0076988 parameters.

DSN	Monthly Average Flow, GPD (Appl)	Long Term Average Flow, GPD (DMR)	Description of Treatment
001	7200	480	None
002	32000	480	None
003	NA	NA	None

Parameter	Non-numeric Effluent Limit	Monitoring Requirements Frequency	Type
Flow (GPD)	BMP	Semi-Annually	Calculated
pH	BMP	Semi-Annually	Grab
TSS, mg/L			
TOC, mg/L			
Petroleum Hydrocarbons, mg/L			

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Tuesday, October 16, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 19 fixed monitors (Link to the map) in and around ground zero and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 5:00 p.m. 10/16)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 99 samples taken in and around ground zero from October 12 through October 15. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 876, with 27 samples above the standard.

Twelve air samples taken in New Jersey from October 12 through October 14 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 114, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - 17 samples that were collected on October 9, which have not been previously reported, showed results below the AHERA standard used for allowing re-entry into schools. An additional 50 samples were collected from 6:00 a.m. on October 13 through 8:00 p.m. on October 14; all of these results were also below the AHERA standard.

**Particulate Monitoring** - Samples collected on October 14 and 15 using portable monitors showed no significant readings.

**Bulk Samples:**

**PBCs** - The PCB results of one bulk sample collected from the lobby of 110 Greenwich on September 26 showed no detectable levels of PCBs.

**Dioxin** - One bulk sample collected from the lobby of 110 Greenwich showed levels of dioxin below the residential cleanup goal of 1 part per billion.

**Ambient Air Sampling:**

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 15 in the smoke plume within the debris pile at ground zero. Benzene exceeded the OSHA time-weighted average permissible level at two locations. Significant reductions of overall VOC concentrations, including benzene, were observed around the South Tower (the debris pile) in comparison to previous data.

**PCBs** - (**CORRECTION to 10/14 DAILY SUMMARY**) - Trace amounts of PCBs were detected in three of the ten samples collected on October 4; however, these values are all below levels of concern. Seven samples did not detect any PCBs. All samples results were below the level at which EPA would take an action to reduce exposures.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Tuesday, October 16, 2001 (12:00 noon)**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 12, 0001 to 1200 hrs)
  - Resubmittal of results from Sunday, October 14 Sampling Situation Report with additional data for two stations (Locations I and Q) previously not reported.
  - Additional 2 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 12, 1200 to 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 13, 0001 to 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 13, 1200 to 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 14, 1200 to 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 15, 0001 to 2400 hrs)
  - All 17 samples analyzed were below the TEM AHERA standard.
  - No results available for 3 additional samples due to pump failure from rain.
- NJ (Oct 12)
  - All 4 samples analyzed were below the TEM AHERA standard.
- NJ (Oct 13)
  - All 4 samples analyzed were below the TEM AHERA standard.
- NJ (Oct 14)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 9, 0630 - 2000 hrs) - Asbestos
  - All 17 samples were below the TEM AHERA standard.

- Fresh Kills (Oct 13, 0600 - 1900 hrs) - Asbestos
  - All 17 samples were below the TEM AHERA standard.
- Fresh Kills (Oct 13, 1800 - Oct 14, 0700 hrs) - Asbestos
  - All 16 samples were below the TEM AHERA standard.
  - No results available for 1 additional sample since a volume was not recorded.
- Fresh Kills (Oct 14, 0630 - 2000 hrs) - Asbestos
  - All 17 samples were below the TEM AHERA standard.
- Fresh Kills (Oct 14) - Particulate Monitoring (Dataram)
  - General overall decrease in readings from previously reported data based on daily concentration.
- Fresh Kills (Oct 15) - Particulate Monitoring (Dataram)
  - General overall decrease in readings from previously reported data based on daily average concentration.

#### Ambient Air Sampling Locations

- NYC / ER (Oct 15) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL at two locations on the debris pile in the plume at ground level.
  - South Tower (debris pile) location shows significant reduction of overall concentrations of volatile organic compounds previously detected, including benzene.

#### Bulk/Dust Samples

- NYC / ER (Sep 26)
  - 1 sample obtained from the lobby of 110 Greenwich did not detect any PCBs.



NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/09/01 0630 to 10/09/01 2000

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>3</sup>	f/cc	Structures (#)	S/mm <sup>3</sup>		
10/09/01	02996	P Loc # 1	540	Air	<0.005	<0.005	4**	0	32	0.0228
10/09/01	02997	P Loc # 2	720	Air	<0.004	<0.004	0	0	<8.89	<0.0048
10/09/01	02998	P Loc # 3	720	Air	<0.004	<0.004	2**	0	17.78	0.0095
10/09/01	02999	P Loc # 4	720	Air	<0.004	<0.004	1**	0	6.89	0.0048
10/09/01	03000	P Loc # 5	720	Air	<0.004	<0.004	0	0	<8.89	<0.0048
10/09/01	03001	P Loc # 6	720	Air	<0.004	<0.004	1**	0	6.89	0.0048
10/09/01	03002	P Loc # 7	720	Air	<0.004	<0.004	0	0	<8.89	<0.0048
10/09/01	03003	P Loc # 8	720	Air	<0.004	<0.004	0	0	<8.89	<0.0048
10/09/01	03004	S Loc # 9A	700	Air	<0.004	<0.004	1**	0	6.89	0.0048
10/09/01	03005	S Loc # 9B	720	Air	<0.004	<0.004	1**	0	6.89	0.0048
10/09/01	02995	S Loc # 9C	317.4	Air	<0.008	<0.008	0	0	<8.89	<0.0108
10/09/01	03006	S Loc # 10 A	856	Air	7.84	0.003	0	0	<8.89	<0.0048
10/09/01	03007	S Loc # 10 B	453.5	Air	<0.006	<0.006	1**	0	6.89	0.0075
10/09/01	03008	B Loc # 13	715	Air	<0.004	<0.004	0	0	<8.89	<0.0048
10/09/01	03009	B Loc # 14	715	Air	<0.004	<0.004	0	0	<8.89	<0.0048
10/09/01	03010	W Loc # 11	857	Air	7.84	0.003	0	1**	6.89	0.0048
10/09/01	03031	W Loc # 12	720	Air	14.01	0.007	2**	0	14.55	0.0078

ccaf06616

\*\* Claystone

NS: Not sampled  
Sample volume is below recommended limit of the method:  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 80CFR Part 703 (AHERA)  
Standard criteria: EPA 80CFR Part 703 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/15/01 9:50 AM

Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/13/01 0600 to 1900

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*
10/13/01	03171	P Loc # 1	720	Air	<7.00	<0.004	0	<0.0048
10/13/01	03172	P Loc # 2	720	Air	<7.00	<0.004	0	<0.0048
10/13/01	03173	P Loc # 3	720	Air	<7.00	<0.004	0	<0.0048
10/13/01	03174	P Loc # 4	720	Air	<7.00	<0.004	0	<0.0048
10/13/01	03175	P Loc # 5	720	Air	<7.00	<0.004	0	<0.0048
10/13/01	03176	P Loc # 6	720	Air	<7.00	<0.004	0	<0.0048
10/13/01	03177	P Loc # 7	720	Air	<7.00	<0.004	0	<0.0048
10/13/01	03178	P Loc # 8	720	Air	<7.00	<0.004	0	<0.0048
10/13/01	03179	S Loc # 9A	701.7	Air	<7.00	<0.004	0	0.0044
10/13/01	03180	S Loc # 9B	694.6	Air	<7.00	<0.004	0	<0.0048
10/13/01	03181	S Loc # 9C	709.1	Air	<7.00	<0.004	0	<0.0048
10/13/01	03182	S Loc # 10A	699	Air	<7.00	<0.004	0	<0.0048
10/13/01	03183	S Loc # 10B	692	Air	<7.00	<0.004	0	<0.0048
10/13/01	03184	W Loc # 11	704	Air	<7.00	<0.004	0	0.0044
10/13/01	03185	W Loc # 12	720	Air	<7.00	<0.004	0	0.0048
10/13/01	03186	B Loc # 13	720	Air	<7.00	<0.004	0	<0.0048
10/13/01	03187	B Loc # 14	720	Air	<7.00	<0.004	0	<0.0048

008# 04629

\*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/04  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 Slimm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/15/01 9:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/13/01 1800 to 10/14/01 0700

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/imm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*
10/13-14/2001	03191	P Loc # 1	720	Air	<7.0	<0.004	0	<8.89
10/13-14/2001	03192	P Loc # 2	720	Air	<7.0	<0.004	0	<0.0048
10/13-14/2001	03193	P Loc # 3	600	Air	<7.0	<0.004	0	<8.89
10/13-14/2001	03194	P Loc # 4	720	Air	<7.0	<0.004	0	<0.0051
10/13-14/2001	03195	P Loc # 5	720	Air	<7.0	<0.004	1**	<8.89
10/13-14/2001	03196	P Loc # 6	719.4	Air	<7.0	<0.004	0	<0.0048
10/13-14/2001	03197	P Loc # 7	717	Air	<7.0	<0.004	0	<8.89
10/13-14/2001	03198	P Loc # 8	715.2	Air	<7.0	<0.004	0	<8.89
10/13-14/2001	03199	S Loc # 9A	-	Air	-	-	-	<0.0048
10/13-14/2001	03200	S Loc # 9B	720	Air	<7.0	<0.004	0	<8.89
10/13-14/2001	03201	S Loc # 9C	720	Air	<7.0	<0.004	0	<8.89
10/13-14/2001	03202	S Loc # 10 A	720	Air	<7.0	<0.004	0	<8.89
10/13-14/2001	03203	S Loc # 10 B	720	Air	<7.0	<0.004	0	<0.0048
10/13-14/2001	03204	W Loc # 11	720	Air	<7.0	<0.004	0	<8.89
10/13-14/2001	03205	W Loc # 12	698	Air	12.74	0.007	0	<8.89
10/13-14/2001	03206	B Loc # 13	720	Air	<7.0	<0.004	0	<8.89
10/13-14/2001	03207	B Loc # 14	720	Air	7.64	0.004	0	<8.89

cc=ft/imm<sup>2</sup> \*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
 AT/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 N/A: not analyzed due to overloading of particulates  
 -: No results as No sample volume was recorded

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/19/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/imm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/15/01 9:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/13/01 09:01 to 12:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Structures (#)*	S/mm <sup>2</sup>
10/13/01	05485	A	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05486	B	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05487	C	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05488	E	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05489	F	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05490	H	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05491	J	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05492	K	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05493	L	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05494	M	1440	Air	10.19	0.303	1**	15.75
10/13/01	05495	N	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05496	O	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05497	P	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05498	Q	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05499	T	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05500	U	1440	Air	<7.0	<0.002	0	<15.75
10/13/01	05501	V	1440	Air	<7.0	<0.002	0	<15.75

00000000449

NS: Not sampled  
\*Structure (S) roughly equivalent to fiber (f)  
NR: Not requested  
NA: not analyzed due to overloading of particulates

\*\*Chrysotile. No other types of asbestos fibers were found

Sampling Locations:  
A: SE corner of West Broadway & Barclay  
B: SE corner of West Broadway & Bleecker  
C: Trinity (aka Church) & Liberty  
D: SW corner of Broadway & Liberty St.  
E: East end of Albany St. at Greenwich St.  
F: Western end of Liberty St. at South End Ave  
G: Northern median strip of Vesey & West St  
H: Church and Duane St.  
I: South side of Chase Manhattan Plaza at Pine St.  
J: SE corner of West St. & Broadway  
K: NE corner of West St. & Broadway  
L: NE corner of Albany median strip  
M: NE corner of West St. & Broadway  
N: On walking way to North Platte area (north side of Surveasport High), access to TAGA bus area  
O: Western end of Harrison St. at West St. (on tree next to bulkhead)  
P: West St. - 50 yards south of Harrison St. at bulkhead  
Q: South side of Pier 25 (next to volleyball court)  
R: NE corner of South End Ave. & Albany  
S: Barclay & West St. (center island) in proximity to USCG command post  
T: TAGA Bus Location

ERT: 10/15/01 09:50 AM

NIOSH 7400: Filter Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 800-P-97-033 (AHERA)  
Standard criteria: EPA 40 CFR Part 763 (AHERA); 0.01 fiber/cc (PCM); 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)  
FL-10-13-01.ME

NYC Response  
 Aerosol Air Sampling Results at Field Locations  
 Sampling Date and Time: 10/13/01 (12:00) to 10/13/01 (24:00)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/m <sup>3</sup>	f/cc	Structures 10 <sup>3</sup>	Structures 10 <sup>2</sup>	S-f/cc*	
10/13/01	05427	A	1440	Air	21.66	0.008	0	0	<18.00	<0.0043
10/13/01	05428	B	1440	Air	1.92	0.003	0	0	<18.00	<0.0043
10/13/01	05429	C	1440	Air	1.92	0.003	0	0	<18.00	<0.0043
10/13/01	05430	D	1440	Air	28.75	0.007	0	0	<18.00	<0.0043
10/13/01	05431	E	1440	Air	19.99	0.004	0	0	<18.00	<0.0043
10/13/01	05432	F	1440	Air	24.2	0.006	0	0	<18.00	<0.0043
10/13/01	05433	G	1440	Air	17.83	0.005	0	0	<18.00	<0.0043
10/13/01	05434	H	1440	Air	<7.0	<0.002	0	0	<18.00	<0.0043
10/13/01	05435	I	1440	Air	<7.0	<0.002	0	0	<18.00	<0.0043
10/13/01	05436	J	1440	Air	<7.0	<0.002	0	0	<18.00	<0.0043
10/13/01	05437	K	1440	Air	<7.0	<0.002	0	0	<18.00	<0.0043
10/13/01	05438	L	1440	Air	<7.0	<0.002	0	0	<18.00	<0.0043
10/13/01	05439	M	1440	Air	<7.0	<0.002	0	0	<18.00	<0.0043
10/13/01	05440	N	1240	Air	<7.0	<0.002	0	0	<18.00	<0.0043
10/13/01	05441	N Dup	1440	Air	<7.0	<0.002	0	0	<18.00	<0.0043
10/13/01	05442	P	1440	Air	11.46	0.003	0	0	<18.00	<0.0043
10/13/01	05443	Q	1440	Air	29.75	0.007	0	0	<18.00	<0.0043
10/13/01	05444	R	1440	Air	19.19	0.003	0	0	<18.00	<0.0043
10/13/01	05445	S	1440	Air	15.29	0.003	0	0	<18.00	<0.0043
10/13/01	05446	T	1440	Air	15.29	0.003	0	0	<18.00	<0.0043
10/13/01	05447	U	1440	Air	15.29	0.003	0	0	<18.00	<0.0043
10/13/01	05448	V	1440	Air	11.46	0.003	0	0	<18.00	<0.0043

CC 04125 & 04129

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: Eastern end of West Broadway
- C: Trinity (aka Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of West & West St
- G: Church and Duane St.
- H: South side of West Broadway at Plaza St.
- I: SE corner of West St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: West St. - 50 yards south of Harrison St. at bulkhead
- N Dup: Duplicate of N
- P: NE corner of South End Ave & Albany
- Q: Barclay & West St. (center island) in proximity to USCO command post
- R: TAGA Bus location

- NS: Not sampled
- S: Rector & South End
- T: Pier 6 Bus Sign
- U: Pier 6 Bus Sign
- V: Pier 6 Bus Sign

ERT: 10/13/01 06:50 AM

NIOSH 7400: Filter Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 01/03/04  
 Aerosol Filter Analysis by Traceable Technology, Inc. NIOSH Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.5f fibers/cc (PCM), 70 Structures /cc (TEM), volume 1200 L, for 25 mm filter (FEA)

NYC Emergency Response  
 Air Sampling Results at Field Locations  
 Sampling Date and Time: 10/12/01 (1200) to 10/12/01 (2400)

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fcc*
					form <sup>2</sup>	f/cc	Structures (#* 0.5µ-5µ)	Slmm <sup>2</sup>	
10/12/01	05455	A	1440	Air	19.11	0.005	0	<15.75	<0.0042
10/12/01	05456	B	1440	Air	7.64	0.002	2**	0	0.0042
10/12/01	05457	C1	1440	Air	11.46	0.003	1**	0	0.0042
10/12/01	05458	D	1440	Air	11.46	0.003	1**	0	0.0042
10/12/01	05459	E	1440	Air	9.59	0.003	0	0	<0.0042
10/12/01	05460	F	1440	Air	<7.0	<0.002	0	0	<0.0042
10/12/01	05461	G	1440	Air	10.19	0.003	3**	0	0.0042
10/12/01	05462	H	1440	Air	10.19	0.003	3**	0	0.0042
10/12/01	05463	I	1440	Air	15.58	0.004	0	0	<0.0042
10/12/01	05464	J	1440	Air	<7.0	<0.002	0	0	<0.0042
10/12/01	05465	K	1440	Air	10.93	0.003	0	0	<0.0042
10/12/01	05466	L	1440	Air	8.92	0.002	0	0	<0.0042
10/12/01	05467	M1	1440	Air	10.19	0.003	1**	0	0.0042
10/12/01	05468	N	1440	Air	8.92	0.002	0	0	<0.0042
10/12/01	05469	P	1440	Air	7.64	0.002	0	0	<0.0042
10/12/01	05470	Q	1440	Air	7.64	0.002	0	0	<0.0042
10/12/01	05471	R	1440	Air	8.92	0.003	0	0	<0.0042
10/12/01	05472	S	1440	Air	8.92	0.003	0	0	<0.0042
10/12/01	05473	S DUP	1440	Air	8.92	0.003	0	0	<0.0042
10/12/01	05474	T	838	Air	10.019	0.003	1**	0	<0.0042
10/12/01	05475	U	1440	Air	8.28	0.002	0	0	<0.0042
10/12/01	05476	V	1440	Air	11.46	0.003	0	0	<0.0042

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**Sampling Locations:**  
 A: Intersection of Broadway & Barclay  
 B: SE corner of Church & Duane St  
 C: Trinity (a.k.a. Church & Liberty)  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vespy & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: NE corner of Warren & West St.  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TACA bus area  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball court)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TACA Bus Location

**Matrix:**  
 A: Not sampled  
 B: Structure (S) roughly equivalent to fiber (f)  
 C: Not requested  
 HA: not analyzed due to overloading of particulates

**Structures (#\* >5µ):**  
 \*\*Chrysotile; No other types of asbestos fibers were found

**TEM (AHERA):**  
 S-fcc\*:  
 NS: Not sampled  
 S: Structure (S) roughly equivalent to fiber (f)  
 T: Fiber (T) not analyzed  
 NA: Not requested  
 HA: not analyzed due to overloading of particulates

ERT: 10/15/01 09:50 AM

NIOSH /400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issu: 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM); 70 Slmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ	S/mm <sup>2</sup>	S-f/cc*
10/12/01	02001	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/12/01	02002	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/12/01	02003	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/12/01	02004	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

cc:04191

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location  
Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

Period in which samples were collected and retrieved  
Sampling Times  
1240 (10/12/01) - 2040 (10/12/01)  
1340 (10/12/01) - 2140 (10/12/01)  
1405 (10/12/01) - 2205 (10/12/01)  
1450 (10/12/01) - 2250 (10/12/01)

ERT: 10/15/01 09:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ	S/mm <sup>2</sup>	S-f/cc*
10/13/01	02006	Liberty Park	1103	Air	<7.0	<0.002	0	0	<12.92	<0.0045
10/13/01	02007	CITGO Terminal	460	Air	<7.0	<0.006	0	0	<7.75	<0.0062
10/13/01	02008	FMC Terminal	460	Air	<7.0	<0.006	0	0	<7.75	<0.0062
10/13/01	02009	Shell Terminal	460	Air	<7.0	<0.006	0	0	<7.75	<0.0062

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PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location  
Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

Sampling Times  
1300 (10/13/01) - 0723 (10/14/01)  
1345 (10/13/01) - 2145 (10/13/01)  
1415 (10/13/01) - 2215 (10/13/01)  
1430 (10/13/01) - 2230 (10/13/01)  
ERT: 10/15/01 09:50 AM



Table 1.1 Results of the Analysis for PCB in Solid  
 WTC ER, WA # 0-236  
 Results Based on Dry Weight

Sample ID Location	Method Blank Lab	06951 A/B 110 Greenwich (Indoor Bulk from Blkg Assessment Group)	96.7	
			Result µg/kg	MDL µg/kg
Percent Solids	100			
Analyte	Result µg/kg	MDL µg/kg	Result µg/kg	MDL µg/kg
Aroclor-1016	U	600	U	740
Aroclor-1221	U	600	U	740
Aroclor-1232	U	600	U	740
Aroclor-1242	U	600	U	740
Aroclor-1248	U	600	U	740
Aroclor-1254	U	600	U	740
Aroclor-1260	U	600	U	740

COC 04209

NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/15/01 09:01 to 12:03

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (f) <sup>1</sup> 0.5µ-3µ	S-fiber <sup>2</sup>	
10/15/01	17601	A	210	Air	Pump failed due to rain	0	0	<12.92	<0.0044
10/15/01	17602	B	1150	Air	19.11	0.006	0	<15.50	<0.0041
10/15/01	17603	C-1	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17604	D	1440	Air	11.46	0.003	0	<15.50	<0.0041
10/15/01	17605	E	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17606	F	1440	Air	6.0	<0.002	0	<15.50	<0.0041
10/15/01	17607	G	1440	Air	6.0	<0.002	0	<15.50	<0.0041
10/15/01	17608	H	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17609	I	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17610	J	1440	Air	16.19	0.004	0	<15.50	<0.0041
10/15/01	17611	K	1000	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17612	L	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17613	M	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17614	N	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17615	O	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17616	P	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17617	Q	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17618	R	160	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17619	S	160	Air	Pump failed due to rain	0	0	<15.50	<0.0041
10/15/01	17620	T	1200	Air	<7.0	<0.002	0	<15.50	<0.0041
10/15/01	17621	U	266	Air	Pump failed due to rain	0	0	<15.50	<0.0041
10/15/01	17622	V	1440	Air	<7.0	<0.002	0	<15.50	<0.0041

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of West Broadway & Canal  
 C: Trinity (aka Church & Liberty)  
 C1: SW corner of Broadway & Liberty St  
 D: East end of Albany St. at Greenwich St  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vespy & West St  
 G: Church and Duane St  
 H: South side of Chase Manhattan Plaza at Pine St  
 I: SE corner of West Broadway  
 J: NE corner of Warren & West St  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball court)  
 O: NE corner of South End Ave. & Albany  
 P: Building at West St. (center island) in proximity to USCG command post  
 Q: (No Bus Location)  
 R: (No Bus Location)

S: Rectar & South End  
 T: Pier 6 East 2  
 U: Pier 6 East 2  
 V: Pier 6 Bus Sign

NIS: Not sampled  
 NS: structure (S) roughly equivalent to fiber (f)  
 NR: Not analyzed due to overloading of particulates  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 783 (AHERA)  
 Standard criteria: EPA 40CFR Part 783 (AHERA); 0.01 fiber/cc (PCM); 70 f/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/15/01 09:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/14/01 1200 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/cm <sup>2</sup>	f/cc	Structures (ft <sup>3</sup> × ft) <sup>1</sup>	S/mm <sup>2</sup>
10/14/01	17576	A	1440	Air	14.01	0.004	0	<15.50
10/14/01	17579	B	1440	Air	34.39	0.008	0	<15.50
10/14/01	17580	C1	1440	Air	16.56	0.004	0	<15.50
10/14/01	17583	D	1440	Air	86.92	0.023	0	<15.50
10/14/01	17590	E	1440	Air	45.33	0.012	0	<15.50
10/14/01	17591	F	1440	Air	11.48	0.003	0	<15.50
10/14/01	17593	H	1440	Air	11.48	0.003	0	<15.50
10/14/01	17582	I	1440	Air	11.48	0.003	0	<15.50
10/14/01	17577	J	1440	Air	11.48	0.003	0	<15.50
10/14/01	17584	K	1440	Air	61.15	0.016	0	<15.50
10/14/01	17574	L	1440	Air	15.29	0.004	0	<15.50
10/14/01	17575	M1	1440	Air	8.02	0.002	0	<15.50
10/14/01	17576	M1 DJP	1440	Air	8.02	0.002	0	<15.50
10/14/01	17578	N	1440	Air	8.02	0.002	0	<15.50
10/14/01	17579	O	1440	Air	16.56	0.004	0	<15.50
10/14/01	17588	S	1440	Air	11.48	0.003	0	<15.50
10/14/01	17585	T	1320	Air	8.92	0.003	0	<15.50
10/14/01	17586	U	1016	Air	18.56	0.006	0	<15.50
10/14/01	17587	V	1440	Air	<7.0	<0.002	0	<15.50

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Sampling Locations:  
 A: NE corner of West Broadway & Barclay St.  
 B: SE corner of Church & Day St.  
 C: Trinity (a.k.a. Church & Liberty St.)  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and County St.  
 H: Southern corner of Vesey & Broadway  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Sluyvesant High), access to TAGA bus area  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball court)  
 O: SE corner of South End Ave. & Albany St.  
 S: Bus stop (center island) in proximity to USCG command post  
 R: TAGA Bus Location

NS: Not sampled  
 NR: Not analyzed (S) roughly equivalent to fiber (f)  
 N/A: Not analyzed due to overloading of particulates

ERT: 10/16/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/11/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S (#)	S/mm <sup>2</sup>	S-f/cc*
10/14/01	02011	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/14/01	02012	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/14/01	02013	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/14/01	02014	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

CC-004183

PCM: Phase Contrast Microscopy by NIOSH 7400  
TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

**Sampling Location**  
Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

**Period in which samples were collected and retrieved**  
**Sampling Times**  
1330 (10/14/01) - 2130 (10/14/01)  
1415 (10/14/01) - 2215 (10/14/01)  
1440 (10/14/01) - 2240 (10/14/01)  
1500 (10/14/01) - 2300 (10/14/01)  
ERT: 10/16/01 09:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/14/01 0630 to 2000

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#) 0.5-5µ	S-f/cc*
10/14/01	03241	P Loc # 1	720	Air	<7.0	<0.004	0	<0.0048
10/14/01	03242	P Loc # 2	655.6	Air	<7.0	<0.004	0	<0.0047
10/14/01	03243	P Loc # 3	720	Air	<7.0	<0.004	0	<0.0048
10/14/01	03244	P Loc # 4	720	Air	<7.0	<0.004	0	<0.0048
10/14/01	03245	P Loc # 5	720	Air	<7.0	<0.004	0	<0.0048
10/14/01	03246	P Loc # 6	720	Air	<7.0	<0.004	0	<0.0048
10/14/01	03247	P Loc # 7	720	Air	<7.0	<0.004	0	<0.0048
10/14/01	03248	P Loc # 8	720	Air	<7.0	<0.004	0	<0.0048
10/14/01	03249	S Loc # 9A	720	Air	<7.0	<0.004	0	<0.0048
10/14/01	03250	S Loc # 9B	701.7	Air	<7.0	<0.004	0	<0.0048
10/14/01	03231	S Loc # 8C	711	Air	<7.0	<0.004	0	<0.0048
10/14/01	03232	S Loc # 10 A	703	Air	<7.0	<0.004	0	<0.0048
10/14/01	03233	S Loc # 10 B	694	Air	<7.0	<0.004	0	<0.0048
10/14/01	03234	W Loc # 11	710	Air	<7.0	<0.004	0	<0.0048
10/14/01	03235	W Loc # 12	720	Air	<7.0	<0.004	2**	0.0095
10/14/01	03236	B Loc # 13	720	Air	26.75	0.144	0	<0.0048
10/14/01	03237	B Loc # 14	720	Air	7.64	0.004	0	<0.0048

\*\* Chrysotiles, no other types of asbestos were detected.

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\* Structure (S) roughly equivalent to fiber (f)  
NA: Not analyzed due to overloading of particulates  
NC: Denies not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/16/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 400/PR Part 763 (AHERA)  
Standard criteria: EPA 400/PR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

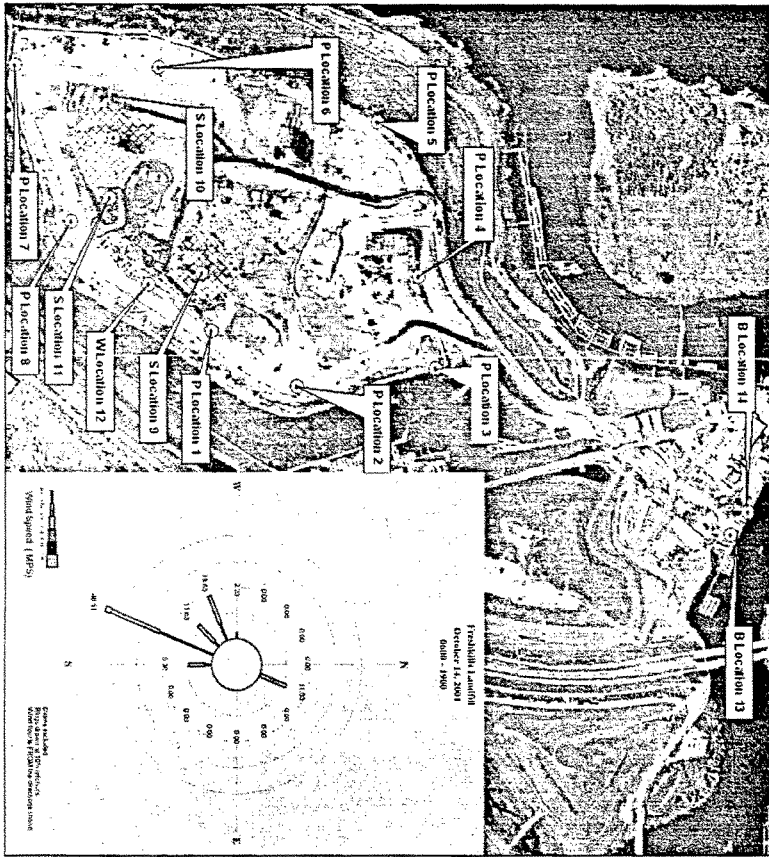
ERT: 10/16/01 9:50 AM

Daily Data/Rain Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 October 15, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2295	1	37	09:15:00	10	00:15:00	100	0.0	3.0	24.8	178.0
2	-74.198262	40.566883	2011	1	36	09:00:00	10	00:15:00	100	0.0	0.0	4.6	297.9
3	-74.198685	40.570054	2480	1	36	09:00:00	10	00:15:00	100	0.0	0.0	12.6	904.5
4	-74.201380	40.569790	2152	1	36	09:00:00	10	00:15:00	100	0.0	0.0	2.4	97.2
5	-74.205873	40.568892	2012	1	36	09:00:00	10	00:15:00	100	0.0	0.0	4.5	88.8
6	-74.207406	40.563818	2294	1	36	09:00:00	10	00:15:00	100	0.0	0.0	7.1	1789.9
7	-74.205414	40.560434	2363	1	37	09:15:00	10	00:15:00	100	0.0	0.0	12.3	3657.1
8	-74.203019	40.561915	2226	1	38	09:30:00	10	00:15:00	100	0.0	0.0	5.6	319.1

Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
October 14, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2152	1	39	09:45:00	10	00:15:00	100	0.0	5.5	19.0	175.9
2	-74.198262	40.566883	2226	1	39	09:45:00	10	00:15:00	100	0.0	0.0	17.8	614.2
3	-74.198685	40.570054	2295	1	39	09:45:00	10	00:15:00	100	0.0	2.2	13.3	280.9
4	-74.201380	40.569790	2363	1	38	09:30:00	10	00:15:00	100	0.0	0.0	18.8	183.5
5	-74.205873	40.568892	2480	1	38	09:30:00	10	00:15:00	100	0.0	4.8	30.9	2013.8
6	-74.207406	40.563818	2294	1	38	09:30:00	10	00:15:00	100	0.0	9.9	32.7	1028.7
7	-74.205414	40.560434	2011	1	41	09:34:00	10	00:14:00	100	0.0	0.0	4.7	74.4
8	-74.203019	40.561915	2012	1	38	09:30:00	10	00:15:00	100	0.0	1.2	10.9	112.6



**Freshkills Landfill**

Air Sampling and Monitoring Locations

**Wind Flow for Oct 14, 2001 0600 - 1900**



Calm Excluded Rings @ 10% Intervals

Wind flow from the direction shown

Speed in Meter per Second

- ⊙ Asbestos Sampling Location
- ⊗ Active work area





Please copy  
for Division Directors

THE NEW YORK TIMES, TUESDAY, OCTOBER 23, 2001

# 7 Anthrax Offers Lessons in How to Handle Bad News

By ERICA GOODE

In recent decades, social scientists have learned much about how government authorities can best inform and reassure an anxious public faced with a new and unfamiliar threat. In the initial handling of the anthrax crisis, government leaders did almost everything wrong, according to psychologists and other researchers.

The experts offered four guidelines for minimizing panic and helping people adapt to changed circumstances:

1. Adopt a policy of full disclosure about what is and is not known and deliver information in a nonpatronizing manner.

2. Avoid speculation and never mix facts with reassurance.

3. Give a detailed accounting of what is being done to enter the threat.

4. Recommend specific steps that people may take to protect themselves.

In the days after the first anthrax case was discovered in Florida, government offi-



Mayor Rudolph W. Giuliani, praised for a rational response to terror.

cialists often violated all of these precepts, the experts said.

Health and law enforcement authorities made confident statements that later proved wrong, and the flow of information to the public. Agencies issued conflicting statements. Officials speculated about what had happened or what might happen. And they simultaneously warned Americans about vague dangers while urging them to go about their lives.

"I must say the Bush administration has done a good job of handling a public health crisis," said Donald Bruckner, a terrorism expert in the Washington office of the Monterey Institute for International Studies. "There is a real need for a communication strategy."

The news media, acting both as the vehicle of official communications and as their interpreter, did not help matters either, according to Bruckner. Many news outlets labeled as "cases" people who had been

Continued on Page 6

continued

THE NEW YORK TIMES, TUESDAY, OCTOBER 23, 2001

## Anthrax Scare Offers Lessons In Ways to Handle Bad News

Continued From First Science Page

exposed to anthrax, inflating the scope of the crisis. And reporting about hundreds of anthrax scares across the country did not always make clear that most were a result of hoaxes or misplaced fears.

These early failures, the experts said, in some cases undermined the credibility of officials and might have increased the public's fear.

In recent days, the federal government has taken some corrective measures, trying to offer a more unified communications front and specifically addressing the anxiety induced by the anthrax attacks. On Thursday, Tom Ridge, the Bush administration's new domestic security chief, flanked by representatives of health and law enforcement agencies, faced journalists' questions.

Dr. David Satcher, the surgeon general, began to offer specific advice on what people could do to minimize their risk. And the Centers for Disease Control and Prevention for the first time gave physicians the detailed information they needed to identify and treat people infected.

Michael A. Wermuth, a policy analyst at the RAND Corporation and executive director of the Gilmore Commission, which advises Congress on the nation's ability to respond to terrorism, said that in a December 2000 report, the commission had recommended that government officials draft a coherent plan for communicating with the public after a terrorist attack.

"Nothing obvious was done," Mr. Wermuth said. "The government just hasn't recognized before recent events how important it is to lay the groundwork ahead of time."

The government's response immediately after anthrax appeared gave little hint of any planning.

Among the most egregious lapses, many experts noted, were erroneous statements by Tommy G. Thompson, the nation's secretary of health and human services, and various lawmakers. Mr. Thompson said the first anthrax victim, Robert Stevens, might have contracted inhalation anthrax in the woods on a visit to North Carolina, an assertion quickly dismissed as improbable by many health experts.

Senator Tom Daschle, the majority leader, incorrectly described members of his staff as "infected."

And J. Dennis Hastert, the speaker of the House, told reporters that the ventilation system in the Capitol complex had been contaminated with anthrax spores, though specialists in biological warfare and building design called that "extremely unlikely."

In contrast, several experts cited New York City's mayor, Rudolph W. Giuliani, who held daily press conferences about the city's anthrax exposures, as providing a model for how a crisis might be most effectively handled. They said the mayor had consistently done the right thing: appeal to people's most rational selves.

"People have these two sides," said Dr. George Loewenstein, a professor of economics and psychology at Carnegie Mellon. One, he said, "is the rational side which says only one person has died so far."

The irrational side views anthrax as a terrifying and unpredictable microbe likely to kill large numbers of people without warning.

Officials can help people hold onto a rational assessment of the threat by constantly putting numbers in context. For example, in giving the number of people exposed to the bacteria, they may underline how many hundreds of millions of Americans have not been exposed.

Admitting what is not known is far better than succumbing to the temptation to make firm but unfounded declarations in an attempt to reassure, Dr. Loewenstein and other experts said.

"People can absorb a lot more uncertainty than officials give them credit for being able to absorb," said Dr. Sheila Jasanoff, a professor of science and public policy at Harvard, and a pattern of false reassurances undermines public trust.

"Shooting from the hip with a definite answer is not a clever way to go," she said. "It's more credible to

say, 'We can't yet make predictions about this or statements about that.'"

Officials in countries where terrorism is a fact of life have already learned that lesson.

In Israel, for example, officials are careful to separate information about what has occurred from statements aimed at reassuring the populace, according to Dr. Arneh Shalev, a psychiatrist at Hadassah University Hospital in Jerusalem.

"Information always has to be seen as accurate and reliable and not contaminated by efforts to encourage people," Dr. Shalev said.

He added that even in Israel, after each escalation in the level of terrorist threat, it had taken several months for people's fears to abate.

After terrorists began attacking buses, for example, "no one took a public bus," Dr. Shalev said, "and then progressively people started taking buses again."

Yet in the long run, he added, Israelis have proved extraordinarily resilient.

"We all need a degree of denial to survive," Dr. Shalev said. "You would think Jerusalem would be deserted but it's not. You can terrorize a people for some time but you cannot terrorize a whole nation for a long time."

Dr. Jasanoff said that American officials might also benefit from the experience of the British government in dealing with mad cow disease, a crisis that shared certain parallels with the current anthrax threat.

Dr. Jasanoff, who made a case study of the British experience, said government officials early offered categorical reassurances about the disease that turned out to be without basis.

In one case, a cabinet minister

continued

**Experts to leaders:  
minimize panic and  
avoid speculation.**

publicly fed a hamburger to his child, in an effort to demonstrate that there was no danger. The incident later became a favorite of cartoonists, who used it as a metaphor for the force-feeding of information to the public.

Ultimately, Dr. Jasanoff said, it was a nongovernment British group, the Consumers' Association, that provided people with specific precautions they could take depending on their tolerance for risk. Those who wanted to avoid risk altogether, for example, might stop eating beef. People who wished to be cautious but were less fearful might stay away from ground beef, the form most likely to contain infectious particles.

"They understood the psychology of where the consumers were coming from a lot better than the public health officials," Dr. Jasanoff said.

The next weeks will offer the authorities in the United States the chance to recover their bearings.

"We are in a new situation," said Dr. Baruch Fischhoff, a professor of social and decision sciences at Carnegie Mellon. "People are trying to figure out what's going on, and they need to be able to build up a coherent mental model of how big the risks are, so that they can decide what to do."

The events of the last weeks, said Dr. Arthur Kleinman, a professor of anthropology and psychiatry at Harvard, have posed "a fundamental emotional, intellectual and moral challenge" to a country unused to vulnerability.

No one yet knows, Dr. Kleinman said, exactly how the anthrax attacks fit with any larger terrorist scheme. Nor is it clear if they are prelude or final act.

"It would be foolhardy to hide this uncertainty from people," he said. "It's very early to be able to come to any conclusions."

F6



Dr. David Satcher, the surgeon general, spoke last week about anthrax. Tom Ridge, the director of homeland security, was with him.

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Wednesday & Thursday, October 17 - 18, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 19 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 4:00 p.m. 10/18)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 57 samples taken in and around ground zero, from October 14 through October 16. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 933, with 27 samples above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - 15 samples were collected on October 15; fourteen of these showed results below the AHERA standard use for allowing re-entry into schools. One sample taken near the barge loading area exceeded this standard.

**Particulate Monitoring** - Samples collected on October 16 and 17 using portable monitors showed no significant readings.

**Bulk Samples:**

**Dioxin** - Four archived samples originally collected on September 11 were analyzed for dioxin/furans. All samples showed levels of dioxin below the residential clean-up goal of 1 part per billion.

**Ambient Air Sampling:**

**Dioxin** - Ten samples were collected in the restricted work area near ground zero on October 4 and analyzed for dioxin/furans. Four of the samples showed results above the level at which EPA would take some type of action to reduce people's exposure. This action level, however, is

based on a 30-year exposure scenario.

Two of the samples taken at the southwest corner of Building #5 of the World Trade Center and at West Broadway and Barclay were slightly above the EPA's action level when adjusted to a 1-year exposure duration. These levels do not pose a short-term health affect but should be monitored if they persist for a longer period of time.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted from October 14 to October 16 at Pace University, the Borough of Manhattan Community College and the U.S. Coast Guard building, located in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standards (65 ug/m<sup>3</sup>) for all stations.

**PM<sub>10</sub>** - Monitoring for fine particulate matter (particles less than 10 micrometers in diameter) was conducted from October 2 to October 8 at Pace University, the Borough of Manhattan Community College and the U.S. Coast Guard building, located in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standards (150 ug/m<sup>3</sup>) for all stations.

Monitoring for PM<sub>10</sub> was conducted from October 3 through October 8 at P.S. 274 in Brooklyn and from October 4 to October 7 at the Canal Street Post Office. All 24-hour average values were below the National Ambient Air Quality Standards (150 ug/m<sup>3</sup>) for all stations.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 16 in the plume in the debris pile. Benzene exceeded the OSHA time-weighted average permissible level (1 part per million) at two locations in the pile at ground level. (Note: In a previous Daily Summary EPA identified benzene's permissible level as 0.5 ppm.) This concentration of .05 ppm represents an OSHA action level used to trigger certain monitoring requirements.

**Particulate Monitoring** - EPA collected samples using portable monitors at the following locations where EPA has fixed air montiors: on October 16 at Locations M1 (West Street south of Harrison) and N (south side of Pier 25), and on October 17 at Locations L (North side of Stuyvesant HS near North Park), N (south side of Pier 25) and R (TAGA bus location). No significant readings were found.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Wednesday and Thursday, October 17/18, 2001 (12:00 noon)**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 14, 0001 to 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 15, 1200 to 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
  - Errata note: results presented in October 16<sup>th</sup> report for this day should actually span from 0001 to 1200 hrs.
- NYC / ER (Oct 16, 0001 to 1200 hrs)
  - All 17 samples analyzed were below the TEM AHERA standard.
  - 2 samples (Locations K and P) were not analyzed due to overloading of particulates and 1 sample (Location M1) was not submitted for analysis.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 15, 0600 - 1930 hrs) - Asbestos
  - 1 of 15 samples exceeded the TEM AHERA standard.
  - Exceedance occurred at Location #13 (Barge Loading).
  - 1 sample (Location #14) was not analyzed due to overloading of particulates and 1 location (Location #11) was not sampled.
- Fresh Kills (Oct 16) - Particulate Monitoring (Dataram)
  - Nothing of significance to report based on daily average concentrations.
- Fresh Kills (Oct 17) - Particulate Monitoring (Dataram)
  - Nothing of significance to report based on daily average concentrations.
  - Maximum readings have increased significantly from previous day.

Ambient Air Sampling Locations

- NYC / ER (Oct 4) - Dioxin
  - 4 of the 10 samples collected were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - 2 of the 10 samples (Locations A and 3) were nominally above the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.
  - Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for long-term (chronic exposure).
  - Location A level increased over five times the level noted on October 2, however it is at a level comparable to that noted on September 27<sup>th</sup>.

- NYC / ER (Oct 2) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **69.9 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **46.8 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **37.2 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
  
- NYC / ER (Oct 3) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **77.6 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **77.9 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **63.7 ug/m<sup>3</sup>**.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **55.4 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
  
- NYC / ER (Oct 4) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **84.0 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **73.3 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **61.9 ug/m<sup>3</sup>**.
  - Canal Street Post Office (Site 4) - 24-hour average concentrations for this period was **76.2 ug/m<sup>3</sup>**.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **58.6 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
  
- NYC / ER (Oct 5) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **64.1 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **81.3 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **62.4 ug/m<sup>3</sup>**.
  - Canal Street Post Office (Site 4) - 24-hour average concentrations for this period was **90.6 ug/m<sup>3</sup>**.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentrations for this period was **51.4 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).



- NYC / ER (Oct 6) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *30.3 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *37.2 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *20.2 ug/m<sup>3</sup>*.
  - Canal Street Post Office (Site 4) - 24-hour average concentrations for this period was *26.6 ug/m<sup>3</sup>*.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentrations for this period was *16.3 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Oct 7) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *43.1 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *15.2 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *12.4 ug/m<sup>3</sup>*.
  - Canal Street Post Office (Site 4) - 24-hour average concentrations for this period was *12.8 ug/m<sup>3</sup>*.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentrations for this period was *9.6 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Oct 8) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *29.9 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *24.5 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *19.1 ug/m<sup>3</sup>*.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentrations for this period was *10.0 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Oct 14) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *10.96 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *11.71 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *12.18 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

- NYC / ER (Oct 15) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **18.77 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **10.32 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **7.91 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 16) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **10.43 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **9.72 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **12.39 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 16) - Particulate Monitoring (Dataram)
  - Levels noted at two locations (Stations M1 and N) were well below the OSHA TWA (respirable).
  - No results available for Station L due to a pump fault.
  - Station M1 values ranged from 21.2 to 93.0 ug/m<sup>3</sup> with an average of 62.1 ug/m<sup>3</sup>.
  - Station N values ranged from 28.7 to 57.7 ug/m<sup>3</sup> with an average of 49.0 ug/m<sup>3</sup>.
- NYC / ER (Oct 17) - Particulate Monitoring (Dataram)
  - Levels noted at two locations (Stations L, N, R) were well below the OSHA TWA (respirable).
  - Station L values ranged from 0 to 261.1 ug/m<sup>3</sup> with an average of 14.9 ug/m<sup>3</sup>.
  - Station N values ranged from 0 to 36.2 ug/m<sup>3</sup> with an average of 14.0 ug/m<sup>3</sup>.
  - Station R values ranged from 0 to 198.9 ug/m<sup>3</sup> with an average of 15.4 ug/m<sup>3</sup>.
- NYC / ER (Oct 16) - Volatile organics (TAGA)
  - These samples, and all those previously collected for VOC analysis via GC/MS in the TAGA, represent grabs collected over a period of a few minutes. The analytical results should be viewed in that context.
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations on the debris pile in the plume at ground level. **NOTE: benzene PEL was previously identified as 0.5 ppm. This concentration actually represents an OSHA action level used to trigger certain monitoring requirements.**
  - South Tower VOC levels rebounded above those noted in previous sampling event.

#### Bulk/Dust Samples

- NYC / ER (Sep 11) - Dioxin
  - Recent analysis of dust samples originally collected from streets on Sep 11th.
  - All 4 samples were below the EPA residential cleanup goal of 1 ppb.

Direct Reading Instruments

- NYC / ER (Oct 16)
  - Nothing of significance reported.

NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/14/01 08:01 to 12:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (µf) 0.3µ-5µ	>5µ	S/mm <sup>2</sup>	S-fiber*
10/14/01	02708	A	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/14/01	02707	B	1440	Air	9.55	0.003	0	0	<16.00	<0.0043
10/14/01	02708	C.1	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/14/01	02711	D	1440	Air	68.79	0.018	0	0	<16.00	<0.0043
10/14/01	02715	E	576	Air	8.92	0.006	0	0	<7.27	<0.0043
10/14/01	02716	F	1440	Air	10.19	0.003	0	0	<16.00	<0.0043
10/14/01	02709	H	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/14/01	02710	I	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/14/01	02705	J	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/14/01	02704	J Dup	1440	Air	7.01	<0.002	0	0	<16.00	<0.0043
10/14/01	02712	K	1440	Air	12.74	0.003	0	0	<16.00	<0.0043
10/14/01	02713	L	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/14/01	02703	M	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/14/01	02714	N	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/14/01	02714	P	1440	Air	14.01	0.004	0	0	<16.00	<0.0043
10/14/01	02717	Q	1440	Air	16.56	0.004	0	0	<16.00	<0.0043
10/14/01	02713	S	1440	Air	20.38	0.005	0	0	<16.00	<0.0043
10/14/01	02719	T	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
10/14/01	02718	U	1440	Air	7.64	0.002	0	0	<16.00	<0.0043
10/14/01	02720	V	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043

cc:014139331

\*\*Chrysotile: No other types of asbestos fibers were found

Sampling Locations:

- A: E corner of West Broadway & Barclay
- B: SE corner of Church & Duane St
- C: Trinity (aka Church) & Liberty
- C1: SW corner of Broadway & Liberty St
- D: East end of Albany St. at Greenwich St
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North side of TACA areas (north side of Stuyvesant High), access to TACA bus area
- M: West side of South End Ave at West St. (base next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TACA Bus Location
- S: Rector & South End
- T: Pier 6 Helipad
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

- NS: Not sampled
- \*Structure(S) roughly equivalent to fiber (f)
- NIR: Not requested
- NA: not analyzed due to overloading of particulates

ERT: 10/17/01 09:50:AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-14-01.xls

NYC Emergency Response  
Air Samples - dioxin and furan results  
Sampling Date: 10/04/01

Sample No.	Sampling Location	05007 D-Greenwich & Albany St.	05012 Lot Blank	Method Blank	05009 S-Factor Place & South En			05010 E-Liberty St. & South End			05011 Field Blank		
					Result	EMPC	MDL	Result	EMPC	MDL	Result	EMPC	MDL
Analyte	Volume (L)	5511	0	0	5240	5489	0	0	0	0	0	0	
		ng/m <sup>3</sup>	ng	ng	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng	ng/m <sup>3</sup>	ng	
2378-TCDD	U	0.0038	U	0.020	U	0.0036	U	0.0036	U	0.0036	U	0.020	
12378-PeCDD	U	0.018	U	0.10	0.026 J	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDD	U	0.018	U	0.10	U	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDD	U	0.018	U	0.10	U	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDD	U	0.018	U	0.10	U	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDD	U	0.018	U	0.10	0.0061 J	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDD	U	0.018	U	0.10	0.00214 J	0.018	U	0.018	U	0.018	U	0.10	
12378-TCDF	U	0.0038	U	0.020	U	0.0036	U	0.0036	U	0.0036	U	0.020	
12378-PeCDF	U	0.018	U	0.10	0.00184	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDF	U	0.018	U	0.10	0.00312	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDF	U	0.018	U	0.10	U	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDF	U	0.018	U	0.10	0.0021 J	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDF	U	0.018	U	0.10	U	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDF	U	0.018	U	0.10	0.0032	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDF	U	0.018	U	0.10	0.0022	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDF	U	0.018	U	0.10	U	0.018	U	0.018	U	0.018	U	0.10	
12378-HxCDF	U	0.018	U	0.10	0.0054	0.018	U	0.018	U	0.018	U	0.10	
OCDF	U	0.0469	U	0.20	U	0.0054	U	0.0054	U	0.0054	U	0.20	
Total TCDDs	U	0.0156	U	0.020	U	0.0095	U	0.0095	U	0.0095	U	0.020	
Total PeCDDs	U	0.0110	U	0.026	U	0.0113	U	0.0113	U	0.0113	U	0.020	
Total HxCDDs	U	0.0449	U	0.028	U	0.0020	U	0.0020	U	0.0020	U	0.10	
Total TCDFs	U	0.0038	U	0.026	U	0.0036	U	0.0036	U	0.0036	U	0.020	
Total PeCDFs	U	0.0110	U	0.026	U	0.0113	U	0.0113	U	0.0113	U	0.020	
Total HxCDFs	U	0.0449	U	0.028	U	0.0020	U	0.0020	U	0.0020	U	0.10	
Total HxCDFs	U	0.0337	U	0.021	U	0.0019	U	0.0019	U	0.0019	U	0.10	
Total Adjusted Conc	U	0.0022	U	0.0016	U	0.0000	U	0.0000	U	0.0000	U	0.0000	
TEQ (ND=0)	U	0.0063	U	0.0045	U	0.0004	U	0.0004	U	0.0004	U	0.0019	
TEQ (ND=1/2)	U	0.0063	U	0.0045	U	0.0004	U	0.0004	U	0.0004	U	0.0019	

COCP# 04081

EMPC: Estimated Maximum Possible Concentration  
TEQ: Toxicity Equivalent

The TEQ (ND=1/2) is calculated using 1/2 of the estimated detection limit for U (non detect) values. ERT: 10/15/01 3:00 PM

10-04-01503air.xls

NYC Emergency Response Air Sampling Summary Sampling Date: 10/14/01									
Sample No.	Method	Blank	65011	65012	65013	65014	65015	65016	65017
Sampling Location			TAGA	TAGA	A. Barclay & West Broadway	B. Church & Dry St.	Loc 3-SW Side of WTC 5	C1-Liberty St. & Broadway	
Volume (liters)	ng	ng	ng	ng	ng	ng	ng	ng	ng
2376-TCDD	U	0.020	U	0.027	U	0.027	U	0.027	U
12376-hxCDD	U	0.10	U	0.014	U	0.014	U	0.014	U
12376-hxCDF	U	0.10	U	0.014	U	0.014	U	0.014	U
12376-hpCDD	U	0.10	U	0.014	U	0.014	U	0.014	U
1234678-hpCDD	U	0.10	U	0.014	U	0.014	U	0.014	U
OCDD	0.149 J								
2376-TCDF	U	0.020	U	0.027	U	0.027	U	0.027	U
12376-hxCDF	U	0.10	U	0.014	U	0.014	U	0.014	U
12376-hpCDF	U	0.10	U	0.014	U	0.014	U	0.014	U
1234678-hpCDF	U	0.10	U	0.014	U	0.014	U	0.014	U
12376-hxCDF	U	0.10	U	0.014	U	0.014	U	0.014	U
1234678-hpCDF	U	0.10	U	0.014	U	0.014	U	0.014	U
OCDF	U	0.20	U	0.027	U	0.027	U	0.027	U
Total TCDDs	U	0.020	U	0.027	U	0.027	U	0.027	U
Total hxCDDs	U	0.10	U	0.014	U	0.014	U	0.014	U
Total HpCDDs	U	0.10	U	0.014	U	0.014	U	0.014	U
Total TCDFs	U	0.020	U	0.027	U	0.027	U	0.027	U
Total hxCDFs	U	0.10	U	0.014	U	0.014	U	0.014	U
Total HpCDFs	U	0.10	U	0.014	U	0.014	U	0.014	U
Total PCDFs	U	0.020	U	0.027	U	0.027	U	0.027	U
Total PCDDs	U	0.10	U	0.014	U	0.014	U	0.014	U
TEQ (MDL=12)	0.0023		0.0020		0.0020		0.0020		0.0020
TEQ (MDL=12)	0.0095		0.0011		0.0011		0.0011		0.0011
CCCP 04081									
EMPC, Estimated Maximum Possible Concentration									
TEQ, Toxicity Equivalent									

The TEQ (MDL=12) is calculated using 1/2 of the estimated detection limit for U (non detect) values. ERT: 10/15/01 3:00 PM

Results of the Analysis for Dioxin and Furan in Dust  
 Sampling Date 08/11/81  
 Results Based on Dry Weight

Sample ID	111981 Greenwich 31A				111980 Rearfield Hudson 31.4				111979 Murry and West				111978 Broadway and Warren			
	Result ppb/g	EMPC ppb/g	MDL ppb/g	Result ppb/g	EMPC ppb/g	MDL ppb/g	Result ppb/g	EMPC ppb/g	MDL ppb/g	Result ppb/g	EMPC ppb/g	MDL ppb/g	Result ppb/g	EMPC ppb/g	MDL ppb/g	
Blank	U			U			U			U			U			
12376-TCDF	U	0.148	5.0	0.36	1.37	0.98	U	U	3.56	0.99	27.7	1.1	U	U	U	
12376-PeCDF	U	0.148	5.0	34.7	7.36	4.9	U	U	U	U	U	U	U	U	U	
12376-HxCDD	U	0.148	5.0	21.7	54.3	4.9	U	U	U	U	U	U	U	U	U	
12376-HxCDF	U	0.148	5.0	29.8	12.9	4.9	U	U	U	U	U	U	U	U	U	
12376-PeCDD	U	0.148	5.0	31.9	10.5	4.9	U	U	U	U	U	U	U	U	U	
12376-PeCDF	U	0.148	5.0	16.6	8.8	5.0	U	U	U	U	U	U	U	U	U	
12376-OCDD	U	1.175	10	169	104	5.0	U	U	U	U	U	U	U	U	U	
23478-TCDF	U	0.189	5.0	53.0	14.7	0.98	U	U	U	U	U	U	U	U	U	
12378-PeCDF	U	0.189	5.0	U	169	4.9	U	U	U	U	U	U	U	U	U	
12378-TCDF	U	0.189	5.0	35.1	41.3	4.9	U	U	U	U	U	U	U	U	U	
12378-HxCDF	U	0.189	5.0	U	303	4.9	U	U	U	U	U	U	U	U	U	
12378-HxCDD	U	0.189	5.0	U	267	4.9	U	U	U	U	U	U	U	U	U	
234878-HxCDF	U	0.128	5.0	420	45.5	4.9	U	U	U	U	U	U	U	U	U	
234878-HxCDF	U	0.115	5.0	U	115	4.9	U	U	U	U	U	U	U	U	U	
123798-HxCDF	U	0.228	5.0	1920	132	4.9	U	U	U	U	U	U	U	U	U	
1234788-HxCDF	U	0.664	10	1500	218	8.8	U	U	U	U	U	U	U	U	U	
Total TCDFs	U			642	279	1.14	U	U	U	U	U	U	U	U	U	
Total PeCDFs	U			519	197	0.98	U	U	U	U	U	U	U	U	U	
Total HxCDFs	U			579	303	4.9	U	U	U	U	U	U	U	U	U	
Total HxCDDs	U			599	303	4.9	U	U	U	U	U	U	U	U	U	
Total TCDFs	U			7470	884	997	U	U	U	U	U	U	U	U	U	
Total PeCDFs	U			4970	499	395	U	U	U	U	U	U	U	U	U	
Total HxCDFs	U			5130	303	315	U	U	U	U	U	U	U	U	U	
Total HxCDDs	U			2570	265	221	U	U	U	U	U	U	U	U	U	
Total Adjusted Conc.	0.189			281	54.3	32.2	U	U	U	U	U	U	U	U	U	
TEQ (MD-5)	0.824			283	54.3	32.2	U	U	U	U	U	U	U	U	U	

code# 05216  
 EMPC - Estimated Maximum Possible Concentration  
 TEQ - Toxic Equivalent  
 The TEQ (MD-5) is calculated using 1/2 of the estimated detection limit for U (non detect) values.

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/15/01 0800 to 1930

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (A-HERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*		
10/15/01	03251	P Loc # 1	720	Air	7.0	<0.004	1**	0	8.89	0.0048
10/15/01	03252	P Loc # 2	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/15/01	03253	P Loc # 3	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/15/01	03254	P Loc # 4	620	Air	<7.0	<0.004	0	0	<8.89	<0.0050
10/15/01	03255	P Loc # 5	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/15/01	03256	P Loc # 6	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/15/01	03257	P Loc # 7	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/15/01	03258	P Loc # 8	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/15/01	03259	S Loc # 9A	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/15/01	03260	S Loc # 9B	504	Air	<7.0	<0.005	1**	1**	16	0.0122
10/15/01	03261	S Loc # 9C	720	Air	10.83	0.008	0	1**	8.89	0.0048
10/15/01	03262	S Loc # 10 A	720	Air	7.64	0.004	0	0	<8.89	<0.0048
10/15/01	03263	S Loc # 10 B	720	Air	8.28	0.004	0	1**	8.89	0.0048
NS	NS	W Loc # 11	NS	NS	NS	NS	NS	NS	NS	NS
10/15/01	03265	W Loc # 12	720	Air	12.74	0.027	0	5**	8.89	0.0048
10/15/01	03266	B Loc # 13	720	Air	47.13	0.025	4	5**	80	0.0428
10/15/01	03267	B Loc # 14	720	Air	15.29	0.005	NA	NA	NA	NA

03264-03263

\*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
 AFI/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/17/01 9:50 AM



NYC Emergency Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/15/01 12:00 to 2:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM [AHERA]	
					f/m <sup>3</sup>	f/cc	Structures (#)	S-f/cc*
10/15/01	05501	A	1440	Air	21.66	0.006	0	<15.50
10/15/01	05502	B	1440	Air	23.83	0.005	0	<15.50
10/15/01	05503	C-1	1440	Air	53.5	0.014	1**	<15.50
10/15/01	05506	D	1440	Air	30.57	0.003	0	<15.50
10/15/01	05510	E	1440	Air	21.56	0.006	0	<15.50
10/15/01	05511	F	1440	Air	15.29	0.004	0	<15.50
10/15/01	05504	H	1440	Air	<7.0	<0.002	0	<15.50
10/15/01	05505	I	1440	Air	<7.0	<0.002	0	<15.50
10/15/01	05516	J	1440	Air	0.94	0.002	0	<15.50
10/15/01	05517	K	1440	Air	8.92	0.002	0	<15.50
10/15/01	05519	M-1	1440	Air	<7.0	<0.002	0	<15.50
10/15/01	05518	N Dup	922	Air	<7.0	<0.002	1**	15.5
10/15/01	05509	P	1440	Air	8.92	0.002	0	<15.50
10/15/01	05512	Q	1440	Air	<7.0	<0.002	0	<15.50
10/15/01	05508	S	1440	Air	10.19	0.003	0	<15.50
10/15/01	05513	T	1440	Air	8.92	0.002	1**	31.01
10/15/01	05514	U	1440	Air	8.92	0.002	1**	15.5
10/15/01	05519	V	1440	Air	8.92	0.002	0	<15.50

0.5µ-5µ >5µ

Chrysotile: No other types of asbestos fibers were found

- Sampling Locations:  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (e.k.s. Church) & Liberty St.  
 C-1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South Street  
 F: Northern end of West 4th St. at West St.  
 G: Church and Duane St. of Vesey & West St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of West St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Sluyvosant High), access to TAGA bus area  
 M: Western end of Henson St. at West St. (on tree next to bulkhead)  
 M-1: Western end of Henson St. at bulkhead  
 N: Southern end of West St. at bulkhead  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location

NS: Not sampled  
 \*Structure (S) roughly equivalent to fiber (f)  
 NR: Not requested  
 NA: not analyzed due to overloading of particulates

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 703 (AHERA)  
 Standard criteria: EPA 40CFR Part 703 (AHERA): 0.01 fibers/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-15-01a.xls

ERT: 10/17/01 09:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/16/01 09:01 to 12:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Structures (#)* 0.5µ-5µ	S/m <sup>3</sup> >5µ
10/16/01	05731	A	1440	Air	11.46	0.003	0	<15.50
10/16/01	05732	B	1440	Air	<1.0	0.002	0	<15.50
10/16/01	05733	C-1	1440	Air	10.19	0.003	0	<15.50
10/16/01	05736	D	1440	Air	24.2	0.006	0	<15.50
10/16/01	05743	E	1440	Air	30.22	0.010	0	<15.50
10/16/01	05744	F	1440	Air	22.93	0.006	0	<15.50
10/16/01	05734	H	1440	Air	11.46	0.003	0	<15.50
10/16/01	05735	I	1440	Air	15.29	0.004	0	<15.50
10/16/01	05746	J	1440	Air	15.29	0.004	0	<15.50
10/16/01	05747	J Dup	1440	Air	8.97	0.002	0	<15.50
10/16/01	05748	K	1440	Air	12.74	0.003	NA	<15.50
10/16/01	05750	L	1440	Air	64.97	0.003	1**	0
10/16/01	05749	M-1	1440	Air	Sample not submitted	0.003	0	15.5
10/16/01	05748	N	1440	Air	<1.0	<0.002	0	<15.50
10/16/01	05742	P	1440	Air	64.97	0.017	NA	<0.0041
10/16/01	05745	Q	1440	Air	15.29	0.004	0	<15.50
10/16/01	05738	S	1440	Air	33.12	0.009	0	<15.50
10/16/01	05741	T	1440	Air	10.19	0.003	0	<15.50
10/16/01	05740	U	1440	Air	11.46	0.003	0	<15.50
10/16/01	05738	V	1440	Air	14.01	0.004	0	<0.0041

cc:44464645

\*\*Chrysotile: No other types of asbestos fibers were found

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St
- C: Trinity (a.k.a. Church) & Liberty
- C-1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern midspan strip of Vesey & West St
- G: Corner of Church & West St
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M-1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-16-01.xls

ERT: 10/17/01 01:50 AM

Daily DataRam Particulate Monitoring Summary Sheet  
 Staron Island Landfill  
 October 17, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2363	1	48	12:00:00	10	00:15:00	100	0.0	8.4	71.1	2271.1
2	-74.198262	40.566883	2012	1	56	14:00:00	10	00:15:00	100	0.0	0.6	33.8	1613.7
3	-74.198685	40.570054	2480	1	54	13:30:00	10	00:15:00	100	0.0	0.0	30.0	4520.5
4	-74.201380	40.569790	2294	1	48	12:00:00	10	00:15:00	100	0.0	0.0	12.6	431.7
5	-74.205873	40.568892	2226	1	48	12:00:00	10	00:15:00	100	0.0	0.0	13.7	207.4
6	-74.207406	40.563818	2011	1	48	12:00:00	10	00:15:00	100	0.0	0.0	6.5	335.7
7	-74.205414	40.560434	2295	1	52	13:00:00	10	00:15:00	100	0.0	0.0	18.6	13910.1
8	-74.203019	40.561915	2152	1	52	13:00:00	10	00:15:00	100	0.0	0.0	23.7	3893.4

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 October 16, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2012	1	41	10:15:00	10	00:15:00	100	0.0	0.0	18.0	48.7
2	-74.198262	40.566883	2363	1	41	10:15:00	10	00:15:00	100	0.0	0.0	16.7	1067.0
3	-74.198685	40.570054	2226	1	41	10:15:00	10	00:15:00	100	0.0	6.3	22.5	226.4
4	-74.201380	40.569790	2294	1	41	10:15:00	10	00:15:00	100	0.0	0.3	28.8	291.9
5	-74.203873	40.568892	2011	1	41	10:15:00	10	00:15:00	100	0.0	0.0	18.3	264.5
6	-74.207406	40.563818	2295	1	41	10:15:00	10	00:15:00	100	0.0	0.0	25.8	390.2
7	-74.205414	40.560434	2480	1	42	10:30:00	10	00:15:00	100	0.0	0.0	26.0	294.6
8	-74.203019	40.561915	2152	1	41	10:15:00	10	00:15:00	100	0.0	6.8	22.2	127.0



GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PID-5										-TVA-1000-					
				COCl <sub>2</sub> ppbv	HSO <sub>4</sub> ppbv	HNO <sub>2</sub> ppbv	HCl ppbv	HI <sub>2</sub> ppm	Cl <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	FID ppm	PID ppm	DVA ppm								
A	10-16-01	1:50	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
B		1:54	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C1		1:57	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
H		2:10	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
F		2:03	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
V		2:25	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
U		2:30	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T		2:35	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D		2:45	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
K		2:49	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S		2:59	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P		2:57	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
E		3:00	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
F		3:10	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Q		3:13	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T		3:16	CALM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A: GREENWICH + BRADLEY  
 B: CHURCH + LIBERTY  
 C1: CHURCH + LIBERTY  
 C1: BRADLEY + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOUTHEND + LIBERTY  
 F: WEST + VESLEY  
 H: CHURCH FLAZA  
 I: BRADLEY + ORIAL ST.  
 J: WEST + WARREN  
 K: WEST + ALBANY  
 L: 5TH W. (GREEN)  
 M: HARRISON (FREE) + N DEER ZS  
 N: 1111  
 O: 1111  
 P: SOUTHEND + ALBANY  
 Q: CG (COMMAND) POST  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: TUPPER TROOPS FROM DEY  
 U: 21.3  
 V: 3.2  
 W: 3.1  
 X: 30.9  
 Y: 1.8

## DRAFT GC/MS Results for 10/16/01 DRAFT

File name	NYC351	NYC352	NYC353	NYC354	NYC356	NYC355
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient	Middle	Austin Tobin Plaza	South Tower
Sample Number			Pier 25 (North)	North Tower	10030	10029
Sample Height			10027	10062	Ground Level	Ground Level
Volume		100 mL	100 mL	20 mL	100 mL	25 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	7,900 ppbv	RL=20 ppbv	7,700 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	240 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	7,700 ppbv	RL=20 ppbv	6,900 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	99 ppbv	RL=20 ppbv	130 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	380 ppbv	RL=20 ppbv	280 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	260 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	RL=20 ppbv	180 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11,000 ppbv	400 ppbv	11,000 ppbv
Trichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
n-Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
MTEBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	480 ppbv	RL=20 ppbv	360 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3,400 ppbv	73 ppbv	2,400 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,600 ppbv	28 ppbv	890 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	65 ppbv	RL=20 ppbv	RL=40 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	9,200 ppbv	RL=20 ppbv	9,700 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	330 ppbv	RL=20 ppbv	260 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	RL=20 ppbv	150 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	6,200 ppbv	RL=20 ppbv	2,700 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	160 ppbv	RL=20 ppbv	170 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	1,600 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	8,500 ppbv	RL=20 ppbv	1,800 ppbv
m&p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	360 ppbv	RL=20 ppbv	200 ppbv
O-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	290 ppbv	RL=20 ppbv	250 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3,800 ppbv	RL=20 ppbv	1,200 ppbv
Bromolom	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	260 ppbv	RL=20 ppbv	150 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	190 ppbv	RL=20 ppbv	98 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	170 ppbv	RL=20 ppbv	100 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	90 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=40 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION



U.S. EPA/Environmental Response Team Center  
Response Engineering Analytical Contract  
SUMMA® Sampling Work Sheet

Page \_\_\_ of \_\_\_



Lockheed Martin Corp., Edison, NJ  
EPA Contract No. 68-C99-223

Site: WTC-ER

WA#: R1A00236

Sampler: RM, SR, BU

U.S. EPA/ERTC WAM: \_\_\_\_\_

Date: 10-16-01

REAC Task Leader: \_\_\_\_\_

Sample #					
Location	PICR 25 Y-BALL (N)	WEST HARRISON (M)	STUYV (S)		
DATA KAM -Subarea #	986809	022375	799162		
Orifice Used	Y/N	Y/N	Y/N	Y/N	Y/N
Analysis/Method	_____				
Time/Counter (Start)	8:48 a.m.	8:43 a.m.	8:35 a.m.		
Time/Counter (Stop)	3:30 p.m.	3:32 p.m.			
Total Time in minutes	0:28.7	0:21.2			
Average Initial Pressure	049.0 $\frac{ug}{m^3}$	062.1 $\frac{ug}{m^3}$			
Maximum End Pressure	057.7 $\frac{ug}{m^3}$	093.0 $\frac{ug}{m^3}$			
Flow Rate (Start)	2.4/min	2.4/min	2.1/min		
Flow Rate (End)	↓	↓			
Flow Rate Average	2.4/min	2.4/min			
Sample Volume					
MET Station on Site? Y/N					



**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Friday, October 19, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 19 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 4:00 p.m. 10/19)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 19 samples taken in and around ground on October 16. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 952, with 27 samples above the standard.

Four air samples taken in New Jersey on October 15 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 118, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - 49 samples were collected from October 14 through October 16. One exceedance of the AHERA standard used for allowing re-entry into schools was observed at location #12 (the indoor wash station). This occurrence is being investigated further. The remaining samples showed results less than the AHERA standard.

**Particulate Monitoring** - Samples collected on October 18 using portable monitors showed no significant readings.

**Bulk Samples:**

**Metals** - One sample obtained from the lobby of 110 Greenwich did not detect any metals above levels of concern based on EPA's guidelines for taking action to reduce exposure.

**Asbestos** - Three samples were collected on October 2 from the sand/dirt pile that was previously located on the parking lot on West and Vesey Streets and analyzed for asbestos. EPA

is currently preparing this site for use as a large personal hygiene complex for World Trade Center workers. All results were either non-detects or less than 1% asbestos.

**Staten Island Landfill Asbestos** - Asbestos was not detected in the 12 samples collected on October 14 from various steel and debris piles at the Staten Island Landfill.

**Wipe Samples:**

**PCBs** - The results of seven samples collected inside of Public School 234 on September 29 showed no detectable levels of PCBs.

**Ambient Air Sampling:**

**Metals** - The results of 20 samples collected on October 8 and October 11 showed either no detectable levels of metals, or were below applicable EPA action levels, OSHA permissible exposure levels and the National Ambient Air Quality Standards for lead.

**PCBs** - Trace amounts of PCBs were detected in four of the 10 samples collected on October 8, but all were well below levels of concern. Six samples showed no detectable levels of any PCBs. All levels were below EPA action levels.

**Silicates** - Twenty samples collected on October 2 showed no detectable levels of silicates.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on October 17 at Pace University, the Borough of Manhattan Community College, and the U.S. Coast Guard building located in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standards (65 ug/m<sup>3</sup>) for all stations.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 18 in the plume in the debris pile. Benzene exceeded the OSHA time weighted average of 1 parts per million (ppm) at one location in the pile at ground level. Overall VOC levels in the debris pile improved significantly from previous results.

**Particulate Monitoring** - Samples collected using portable monitors on October 18 at Locations L (North side of Stuyvesant High School near North Park), N (south side of Pier 25), and R (TAGA bus location) showed no significant readings.

**Direct Readings** - On October 18 there was an overall increase in carbon monoxide readings taken throughout the monitoring area in lower Manhattan. Several readings noted in early afternoon at Locations B (SE corner of Church & Dey), 2 (Greenwich & Liberty), C1 (SW corner of Broadway & Liberty), H (south side of Chase Plaza at Pine Street), D (East end of Albany at Greenwich) and K (West & Albany) were above the National Ambient Air Quality Standard 8-hour average of 9 ppm, but were below the NAAQS 1-hour standard of 33 ppm and the OSHA permissible exposure level of 50 ppm.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Friday, October 19, 2001 (2:00 PM)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 16, 1200 to 2400 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location D) was not analyzed since the pump fell off the pole.
- NJ (Oct 15)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 14, 1900 - Oct 15, 0700 hrs) - Asbestos
  - All 17 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Oct 15, 1900 - Oct 16, 0700 hrs) - Asbestos
  - All 16 samples analyzed were below the TEM AHERA standard.
  - 1 sample was not analyzed due to overloading of particulates.
- Fresh Kills (Oct 16, 0630 - 2000 hrs) - Asbestos
  - 1 of 16 samples exceeded the TEM AHERA standard.
  - Exceedance (124.44 S/mm<sup>2</sup>) occurred at Location #12 (indoor "Wash" location).
  - 1 sample was lost.
- Fresh Kills (Oct 18) - Particulate Monitoring (Dataram)
  - Nothing of significance noted based on daily average concentrations.

Ambient Air Sampling Locations

- NYC / ER (Oct 8) - Metals
  - Ten samples collected.
  - All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.
  - **Note:** Further QA/QC review of chromium in air analytical data generated in the past for the WTC monitoring effort, including the results for Oct 8<sup>th</sup>, has revealed that chromium is not present in these samples. This includes the results for samples collected on Sep 16<sup>th</sup>, Sep 23<sup>rd</sup>, Sep 27<sup>th</sup>, Oct 2<sup>nd</sup>, and Oct 4<sup>th</sup>.

- NYC / ER (Oct 11) - Metals
  - Ten samples collected.
  - All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.
  - **Note:** Further QA/QC review of chromium in air analytical data generated in the past for the WTC monitoring effort, including the results for Oct 11<sup>th</sup>, has revealed that chromium is not present in these samples. This includes the results for samples collected on Sep 16<sup>th</sup>, Sep 23<sup>rd</sup>, Sep 27<sup>th</sup>, Oct 2<sup>nd</sup>, and Oct 4<sup>th</sup>.
- NYC / ER (Oct 8) - PCBs
  - Trace amounts detected in 4 of 10 samples well below levels of concern.
  - 6 samples did not detect any PCBs.
  - All levels are below the EPA Removal Action level guidelines.
- NYC / ER (Oct 2) - Silicates
  - All 10 samples did not detect any silicates.
- NYC / ER (Oct 4) - Silicates
  - All 10 samples did not detect any silicates.
- NYC / ER (Oct 17) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **15.50 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **6.52 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **5.18 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 18) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated between 8 to 9.5 hours.
  - Station L values ranged from 0 to 37.4 ug/m<sup>3</sup> with an average of 17.8 ug/m<sup>3</sup>.
  - Station N values ranged from 4.4 to 23.9 ug/m<sup>3</sup> with an average of 8.8 ug/m<sup>3</sup>.
  - Station R values ranged from 7.2 to 71.2 ug/m<sup>3</sup> with an average of 10.9 ug/m<sup>3</sup>.
- NYC / ER (Oct 18) - Volatile organics (TAGA)
  - These samples, and all those previously collected for VOC analysis via GC/MS in the TAGA, represent grabs collected over a period of a few minutes. The analytical results should be viewed in that context.
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location on the debris pile in the plume at ground level. **NOTE: benzene PEL was previously identified as 0.5 ppm. This concentration actually represents an OSHA action level used to trigger certain monitoring requirements.**
  - Overall VOC levels in the debris pile improved significantly from previous results.

Bulk/Dust Samples

- NYC / ER (Sep 26) - Metals
  - 1 sample obtained from the lobby at 110 Greenwich did not detect any metals above levels of concern based on EPA Removal Action level guidelines and the OSWER Soil Lead Directive.
- NYC / ER (Oct 2) - Asbestos
  - 3 samples were collected from a sand pile located on West and Vesey Sts (Central Personal Hygiene Complex).
  - Asbestos was either not detected or at less than 1% chrysotile in all 3 samples.
- Fresh Kills (Oct 14) - Asbestos
  - Asbestos was not detected in all 12 samples collected from various steel and debris piles.

Wipe Samples

- P.S. 234 (Sep 29) - PCBs
  - PCBs were not detected in any of the 7 samples collected indoors.
  - 1 sample was not analyzed.

Direct Reading Instruments

- NYC / ER (Oct 18)
  - Overall increase in CO readings noted.
  - Several readings noted in the early afternoon above the NAAQS (8 hr. average) of 9 ppm, but below the NAAQS (1 hr. average) of 35 ppm and the OSHA PEL of 50 ppm.

Ambient Water Monitoring

- NYC / ER (Oct 18) - Exchange Place PATH Dewatering
  - 5-day BOD reported as 160 mg/l.
  - Results more than double the level detected in the Oct 3 sample collected at the same location and about four times greater than the Newton Creek STP effluent of Sep 15/16.

Table 1 Results of the Analysis for Metals in Air  
WTC-New York ER site

Client ID Location	00804 TACA	00805 A-BARCLAY ST. & WEST BROADWAY 988	00806 B-CHURCH & DEY ST. 988	00807 LOC 3 - SW SIDE OF WTC 5 982	00808 C-LIBERTY ST. & BROADWAY 984	00809 D-GREENWICH & ALBANY ST. 974	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Date Collected	Air Volume (L)	Analysis Method	Parameter	
																Conc µg/m³	MDL µg/m³
Aluminum	U	1.2	3.9	1.3	1.4	1.3	4.3	1.3	5.8	1.3	2.7	1.3	10/8/01	1014	ICAP	Conc	MDL
Antimony	U	0.05	U	0.05	U	0.05	0.062	0.05	U	0.05	U	0.05	10/8/01	1014	AA-Fur	Conc	MDL
Arsenic	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	10/8/01	1014	AA-Fur	Conc	MDL
Barium	U	0.12	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	10/8/01	1014	ICAP	Conc	MDL
Beryllium	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	10/8/01	1014	ICAP	Conc	MDL
Cadmium	U	0.12	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	10/8/01	1014	ICAP	Conc	MDL
Calcium	U	2.5	54	2.5	12	2.5	35	2.5	73	2.5	42	2.6	10/8/01	1014	ICAP	Conc	MDL
Chromium	U	0.12	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	10/8/01	1014	ICAP	Conc	MDL
Cobalt	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	10/8/01	1014	ICAP	Conc	MDL
Copper	U	0.25	0.63	0.25	0.28	0.25	0.63	0.25	0.65	0.25	1.0	0.26	10/8/01	1014	ICAP	Conc	MDL
Iron	U	0.62	13	0.63	2.4	0.63	4.2	0.64	8.9	0.64	8.1	0.64	10/8/01	1014	ICAP	Conc	MDL
Lead	U	0.05	0.55	0.05	0.32	0.05	0.73	0.05	0.51	0.05	0.95	0.05	10/8/01	1014	AA-Fur	Conc	MDL
Magnesium	U	12	U	13	U	13	U	13	U	13	U	13	10/8/01	1014	ICAP	Conc	MDL
Manganese	U	0.12	0.22	0.13	U	0.13	U	0.13	0.22	0.13	U	0.13	10/8/01	1014	ICAP	Conc	MDL
Nickel	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	10/8/01	1014	ICAP	Conc	MDL
Potassium	U	49	U	51	U	51	U	51	U	51	U	51	10/8/01	1014	ICAP	Conc	MDL
Selenium	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	10/8/01	1014	AA-Fur	Conc	MDL
Silver	U	0.12	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	10/8/01	1014	ICAP	Conc	MDL
Sodium	U	12	U	13	U	13	U	13	U	13	U	13	10/8/01	1014	ICAP	Conc	MDL
Thallium	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	10/8/01	1014	AA-Fur	Conc	MDL
Vanadium	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	10/8/01	1014	ICAP	Conc	MDL
Zinc	U	0.25	1.0	0.25	0.52	0.25	1.1	0.25	1.9	0.25	2.1	0.26	10/8/01	1014	ICAP	Conc	MDL

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration ( $\geq$ MDL) subtracted from all sample results

Table 1 Results of the Analysis for Metals in Air  
WTC New York ER

Client ID	Location	05072		05073		05074			
		P-ALBANY ST. & SOUTHEND AVE. 986 10/11/01	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	S-RECTOR PLACE & SOUTHEND AVE. 986 10/11/01	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	E-LIBERTY ST. & SOUTHEND AVE. 982 10/11/01	Conc µg/m <sup>3</sup>
Parameter	Analysis Method	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Aluminum	ICAP	1.3	1.3	U	1.3	U	1.3	U	1.3
Antimony	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05
Arsenic	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05
Barium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13
Beryllium	ICAP	U	0.05	U	0.05	U	0.05	U	0.05
Cadmium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13
Calcium	ICAP	7.9	2.5	U	2.5	U	2.5	6.2	2.5
Chromium	ICAP	U	0.13	U	0.13	0.21	0.13	U	0.13
Cobalt	ICAP	U	0.25	U	0.25	U	0.25	U	0.25
Copper	ICAP	U	0.25	U	0.25	U	0.25	U	0.25
Iron	ICAP	2.3	0.63	1.4	0.63	1.9	0.64	U	0.05
Lead	AA-Fur	0.053	0.05	U	0.05	U	0.05	U	0.05
Magnesium	ICAP	U	13	U	13	U	13	U	13
Manganese	ICAP	U	0.13	U	0.13	U	0.13	U	0.13
Nickel	ICAP	U	0.25	U	0.25	U	0.25	U	0.25
Potassium	ICAP	U	51	U	51	U	51	U	51
Selenium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05
Silver	ICAP	U	0.13	U	0.13	U	0.13	U	0.13
Sodium	ICAP	U	13	U	13	U	13	U	13
Thallium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05
Vanadium	ICAP	U	0.25	U	0.25	U	0.25	U	0.25
Zinc	ICAP	0.28	0.25	U	0.25	0.30	0.25	U	0.25

MDL denotes Method Detection Limit

U denotes less than the MDL (not detected)

Average Media Blank concentration (≈MDL) subtracted from all sample results





NYC Emergency Response  
Air Samples - Modified Method 800 PCB results  
Sampling Date 10/09/01

Sample No.	WG624-1P	00791	00732	00733	00734	00735	00736	00737	00738	00739	00800
Sampling Location	Method Blank	R	A	B	Loc 3	C1	I	P	S	E	
Sample Volume (L)	7395	5635	5434	5390	5225	5537	5335	5335	5302	5302	
Analyte	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	
00800	00791	00732	00733	00734	00735	00736	00737	00738	00739	00800	
Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	
ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	
Sum of PCBs	1.35	1.35	1.77	1.84	1.86	1.91	1.87	1.87	1.87	1.87	
Sum of DiCBs	1.35	1.35	1.77	1.84	1.86	1.91	1.87	1.87	1.87	1.87	
Sum of TriCBs	1.35	1.35	1.77	1.84	1.86	1.91	1.87	1.87	1.87	1.87	
Sum of TetCBs	1.35	1.35	1.77	1.84	1.86	1.91	1.87	1.87	1.87	1.87	
Sum of PentaCBs	1.35	1.35	1.77	1.84	1.86	1.91	1.87	1.87	1.87	1.87	
Sum of HexCBs	1.35	1.35	1.77	1.84	1.86	1.91	1.87	1.87	1.87	1.87	
Sum of HeptaCBs	1.35	1.35	1.77	1.84	1.86	1.91	1.87	1.87	1.87	1.87	
Sum of OctCBs	1.35	1.35	1.77	1.84	1.86	1.91	1.87	1.87	1.87	1.87	
Sum of NonCBs	1.35	1.35	1.77	1.84	1.86	1.91	1.87	1.87	1.87	1.87	
Total	0	0	4.54	18.1	15.7	9.23	0	0	0	0	
COCP# 4084											

- Sampling Locations:**
- A: NE corner of West Broadway & Barclay
  - B: SE corner of Church & Dry St.
  - C: SW corner of Broadway & Liberty St.
  - C1: SW corner of Broadway & Liberty St.
  - D: East end of Albany St. at Greenwich St.
  - E: Western end of Liberty St. at South End Ave
  - F: Northern median strip of Vesey & West St
  - G: Chatham and Duane St.
  - H: SE corner of West Broadway & Broadway
  - I: SE corner of Wall St. & Broadway
  - J: NE corner of Warren & West St.
  - K: West St. & Albany in median strip
  - L: On walkway toward Koenig Park rec area (north side of Sluysen High), access to TACA bus area
  - M: Western end of Johnson St. at West St. (on tree next to building)
  - N: South end of Johnson St. at West St. (on tree next to building)
  - O: NE corner of South End Ave. & Albany
  - P: NE corner of South End Ave. & Albany
  - Q: Barclay & West St. (center island) in proximity to USCG command post
  - R: TACA Bus Location
  - S: Recter & South End
- Loc 3: SW side of WTC5
- U: denotes not detected  
MDL: denotes method detection limit
- ERT: 10/18/01 9:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*
10/15/01	02016	Liberty Park	480	Air	<7.0	<0.006	0	<6.15	<0.0049
10/15/01	02017	CITGO Terminal	480	Air	<7.0	<0.006	0	<6.15	<0.0049
10/15/01	02018	FMC Terminal	1061	Air	<7.0	<0.003	0	<13.33	<0.0048
10/15/01	02019	Shell Terminal	480	Air	<7.0	<0.006	0	<6.15	<0.0049

02/01/14

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location

Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

Period in which samples were collected and retrieved

Sampling Times  
1200 (10/15/01) to 1120 (10/16/01)  
1240 (10/15/01) to 1155 (10/16/01)  
1305 (10/15/01) to 1230 (10/16/01)  
1325 (10/15/01) to 1300 (10/16/01)  
ERT: 10/18/01 09:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/15/01 1900 to 10/16/01 0700

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (A IERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	
10/15-16/2001	03271	P Loc # 1	695.5	Air	<7.0	<0.004	1**	0	0.0049
10/15-16/2001	03272	P Loc # 2	696.2	Air	<7.0	<0.004	0	0	<0.0050
10/15-16/2001	03273	P Loc # 3	680	Air	<7.0	<0.004	1**	0	0.0045
10/15-16/2001	03274	P Loc # 4	680.3	Air	<7.0	<0.004	1**	0	0.0045
10/15-16/2001	03275	P Loc # 5	677.6	Air	<7.0	<0.004	0	0	<0.0045
10/15-16/2001	03276	P Loc # 6	667	Air	<7.0	<0.004	0	0	<0.0046
10/15-16/2001	03277	P Loc # 7	653.2	Air	<7.0	<0.004	0	0	<0.0046
10/15-16/2001	03278	P Loc # 8	655	Air	<7.0	<0.004	0	0	<0.0047
10/15-16/2001	03279	S Loc # 9A	702	Air	<7.0	<0.004	2**	1**	24
10/15-16/2001	03280	S Loc # 9B	711	Air	<7.0	<0.004	0	0	<0.0048
10/15-16/2001	03281	S Loc # 9C	697	Air	<7.0	<0.004	0	0	<0.0048
10/15-16/2001	03282	S Loc # 10 A	666	Air	<7.0	<0.004	0	0	<0.0048
10/15-16/2001	03283	S Loc # 10 B	673	Air	<7.0	<0.004	0	0	<0.0048
10/15-16/2001	03284	W Loc # 11	683	Air	<7.0	<0.004	0	0	<0.0049
10/15-16/2001	03285	W Loc # 12	720	Air	<7.0	<0.004	NA	NA	NA
10/15-16/2001	03286	B Loc # 13	626.6	Air	<7.0	<0.004	2**	16	0.0091
10/15-16/2001	03287	B Loc # 14	628.4	Air	<7.0	<0.004	0	0	<0.0049

cc:010651

\*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/18/01 9:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/16/01 0630 to 2000

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/ftm <sup>2</sup>	f/cc	Structures (#)	S/ftm <sup>2</sup>
10/16/01	03301	P Loc # 1	720	Air	<7.0	<0.004	0	<8.89
10/16/01	03302	P Loc # 2	720	Air	<7.0	<0.004	0	<8.89
10/16/01	03303	P Loc # 3	720	Air	<7.0	<0.004	1**	8.89
10/16/01	03304	P Loc # 4	720	Air	<7.0	<0.004	0	8.89
10/16/01	03305	P Loc # 5	720	Air	<7.0	<0.004	0	<10.00
10/16/01	03306	P Loc # 6	720	Air	7.01	<0.004	0	<8.89
10/16/01	03307	P Loc # 7	720	Air	<7.0	<0.004	0	<8.89
10/16/01	03308	P Loc # 8	720	Air	<7.0	<0.004	0	<8.89
10/16/01	03309	S Loc # 9A	720	Air	<7.0	<0.004	0	<8.89
10/16/01	03310	S Loc # 9B	720	Air	<7.0	<0.004	0	<8.89
10/16/01	03311	S Loc # 9C	720	Air	<7.0	<0.004	0	<8.89
10/16/01	03312	S Loc # 10 A	600	Air	LOST SAMPLE	<0.004	1**	7.37
10/16/01	03313	S Loc # 10 B	720	Air	<7.0	<0.004	0	<8.89
10/16/01	03314	W Loc # 11	720	Air	16.56	0.009	0	124.44
10/16/01	03315	W Loc # 12	720	Air	12.74	0.007	10**	4**
10/16/01	03316	B Loc # 13	720	Air	8.82	0.005	0	8.89
10/16/01	03317	B Loc # 14	720	Air	<7.0	<0.004	1	8.89

ccsf04656

\*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/ftm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/19/01 9:50 AM

NYC Response  
 Asbestos Bulk Sample Analysis Results  
 Sampling Date: 10/02/01

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results	Comments
10/2/01	17500	Top of Pile	Dust	% Asbestos ND	
10/2/01	17501	SE Corner	Dust	<1% Chrysotile	
10/2/01	17502	Composite SW, NE, NW	Dust	ND	

cc# 00687

PLM Polarized Light Microscope by Method NY State ELAP 198.1  
 ND: None Detected

ERT: 10/02/01 2:30 PM

NYC Response  
 Silica- Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/02/01 0900 to 1600

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
10/2/01	01007	A	1000	Air	<0.01	<0.01	<0.01
10/2/01	01008	B	1080	Air	<0.009	<0.009	<0.009
10/2/01	01010	C.1	1000	Air	<0.01	<0.01	<0.01
10/2/01	01011	D	1000	Air	<0.01	<0.01	<0.01
10/2/01	01014	E	840	Air	<0.01	<0.01	<0.01
10/2/01	01012	F	1040	Air	<0.01	<0.01	<0.01
10/2/01	01013	S	1000	Air	<0.01	<0.01	<0.01
10/2/01	01005	TAGA	1000	Air	<0.01	<0.01	<0.01
10/2/01	01006	TAGA	1000	Air	<0.01	<0.01	<0.01
10/2/01	01009	Loc: 3 SW WTC 5	1000	Air	<0.01	<0.01	<0.01

cccf 00149

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to volleyball court)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- O: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

NS: Not sampled

ERT 10/18/01 9:50 AM

NIOSH 7500: Silica crystalline by XRD

NYC Response  
 Asbestos Bulk Sample Analysis Results  
 Sampling Date: 10/14/01

Date Sampled	Sample No.	Sampling Location	Matrix	PLM Results % Asbestos	Comments
10/14/01	05838	L F West Car Pile	solid	ND	
10/14/01	05839	L F NE Bulk Steel	solid	ND	
10/14/01	05840	L F NE Bulk Steel	solid	ND	
10/14/01	05841	L F NE Bulk Steel	solid	ND	
10/14/01	05842	L F NE Bulk Steel	solid	ND	
10/14/01	05843	L F W Build 7 Sift	solid	ND	
10/14/01	05844	L F W Build 7 Sift	solid	ND	
10/14/01	05845	L F N Build 7 Sift	solid	ND	
10/14/01	05846	L F N Build 7 Sift	solid	ND	
10/14/01	08547	L F WTC NW Sift Pile	solid	ND	
10/14/01	08548	L F WTC NW Sift Pile	solid	ND	
10/14/01	08549	L F WTC NW Sift Pile	solid	ND	

000110/02/01

PLM Polarized Light Microscope by Method NY State ELAP 198.1  
 ND: None Detected

ERT: 10/18/01 9:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/18/01 1200 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AI-ERA)	
					f/m <sup>3</sup>	f/cc	Structures (#) <sup>1</sup>	S mm <sup>2</sup>
10/18/01	05761	A	1440	Air	45.95	0.012	0	<15.50
10/18/01	05762	B	1440	Air	32.12	0.009	0	<15.50
10/18/01	05763	C-1	1440	Air	15.25	0.004	0	<15.50
10/18/01	NS	D		Air	Pump fall off the pipe		0	<0.0041
10/18/01	05773	E	1440	Air	34.39	0.009	0	<15.50
10/18/01	05774	F	1440	Air	28.03	0.007	0	<15.50
10/18/01	05764	H	674	Air	15.29	0.009	0	<15.50
10/18/01	05765	I	1440	Air	20.38	0.005	0	<15.50
10/18/01	05776	J	1440	Air	11.46	0.003	0	<15.50
10/18/01	05766	K	1440	Air	39.49	0.011	0	<15.50
10/18/01	05778	L	1440	Air	16.56	0.004	0	<15.50
10/18/01	05778	M	1440	Air	16.41	0.003	0	<15.50
10/18/01	05777	N	1440	Air	8.82	0.002	0	<15.50
10/18/01	05772	P	1440	Air	31.85	0.009	0	<15.50
10/18/01	05775	Q	1440	Air	40.76	0.011	0	<15.50
10/18/01	05770	S	1440	Air	7.64	0.002	0	<15.50
10/18/01	05771	S DUP	1440	Air	14.01	0.004	0	<15.50
10/18/01	05767	T	1440	Air	15.29	0.004	0	<15.50
10/18/01	05768	U	1440	Air	11.46	0.003	0	<15.50
10/18/01	05769	V	1440	Air	<7.0	<0.002	0	<15.50

cond=08036383

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: NE corner of West Broadway & Church St.
- G: Church & Dey St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park, rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- MT: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: West St. (center island) in proximity to USCC command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Helipad
- U: Pier 6 Ext 2
- V: Pier 6 Bus Sign

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-16-01e.xls

ERT: 10/18/01 09:50 AM

NS: Not sampled  
\*Structure (S) roughly equivalent to fiber (f)  
NR: Not requested  
NA: Not analyzed due to overloading of particulates



NYC Emergency Response  
 Silica - Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/04/01 0900 to 1600

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
10/4/01	05027	A	1000	Air	<0.01	<0.01	<0.01
10/4/01	05028	B	1000	Air	<0.01	<0.01	<0.01
10/4/01	05030	C-1	1000	Air	<0.01	<0.01	<0.01
10/4/01	05031	D	1000	Air	<0.01	<0.01	<0.01
10/4/01	05034	E	1000	Air	<0.009	<0.009	<0.009
10/4/01	05032	P	1000	Air	<0.01	<0.01	<0.01
10/4/01	05033	S	1000	Air	<0.01	<0.01	<0.01
10/4/01	05025	TAGA	1000	Air	<0.01	<0.01	<0.01
10/4/01	05026	TAGA	1120	Air	<0.009	<0.009	<0.009
10/4/01	05029	Loc 3 SW WTC 5	1000	Air	<0.01	<0.01	<0.01

cc:FF 04083

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C-1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on free next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

NS: Not sampled

ERT 10/18/01 9:50 AM

NIOSH 7500: Silica crystalline by XRD

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/14/01 1900 to 10/15/01 0700

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>
10/15/01	03211	P Loc # 1	347	Air	<7.0	<0.008	0	<8.00
10/15/01	03212	P Loc # 2	663.2	Air	<7.0	<0.004	3**	<0.0069
10/15/01	03213	P Loc # 3	254.3	Air	<7.0	<0.011	0	0.0139
10/15/01	03214	P Loc # 4	672.8	Air	<7.0	<0.004	0	0.0121
10/15/01	03215	P Loc # 5	672.7	Air	<7.0	<0.004	0	<0.0046
10/15/01	03216	P Loc # 6	249.1	Air	<7.0	<0.011	0	0.0046
10/15/01	03217	P Loc # 7	668.5	Air	<7.0	<0.004	1**	0.0046
10/15/01	03218	P Loc # 8	300	Air	<7.0	<0.009	0	<0.0103
10/15/01	03219	S Loc # 9A	707	Air	<7.0	<0.004	0	<8.00
10/15/01	03220	S Loc # 9B	715	Air	<7.0	<0.004	0	<8.00
10/15/01	03221	S Loc # 9C	705	Air	<7.0	<0.004	2**	<0.0044
10/15/01	03222	S Loc # 10A	620	Air	<7.0	<0.004	1**	0.0044
10/15/01	03223	S Loc # 10B	720	Air	<7.0	<0.004	1**	0.0044
10/15/01	03224	W Loc # 11	699	Air	<7.0	<0.004	0	<8.89
10/15/01	03225	W Loc # 12	639	Air	<7.0	<0.004	0	0.0049
10/15/01	03226	B Loc # 13	608.6	Air	<7.0	<0.004	0	<8.00
10/15/01	03227	B Loc # 14	620.2	Air	<7.0	<0.004	0	0.0051

03227 04932 \*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \* Structure (S) roughly equivalent to fiber (f)  
 Nf: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/19/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/17/01 9:50 AM

Results of the Analysis for Metals in Dust  
 WA # 0-236 WTC ER  
 Results Based on Dry Weight

Client ID		Method Blank		06951	
Location		Lab		110 Greenwich	
% Solids		100		96.7	
Date Sampled				9/26/01	
Parameter	Analysis Method	Conc mg/kg	Quantitation Limit mg/kg	Conc mg/kg	Quantitation Limit mg/kg
Aluminum	ICAP	U	0.1	18900	9.58
Antimony	ICAP	U R	0.06	U R	5.75
Arsenic	ICAP	U J	0.01	U J	0.96
Barium	ICAP	U J	0.10	195 J	9.58
Beryllium	ICAP	U	0.01	1.76	0.96
Cadmium	ICAP	U J	0.01	3.80 J	0.96
Calcium	ICAP	U	0.10	186000	95.8
Chromium	ICAP	U	0.01	71.5	0.96
Cobalt	ICAP	U J	0.01	5.6 J	0.96
Copper	ICAP	U J	0.01	93.2 J	0.96
Iron	ICAP	U	0.10	7410	9.58
Lead	ICAP	U J	0.01	97.7 J	0.96
Magnesium	ICAP	U	0.10	19100	9.58
Manganese	ICAP	U	0.01	757	0.96
Mercury	Cold Vapor	U	0.0002	0.373	0.019
Nickel	ICAP	U J	0.01	15.5 J	0.96
Potassium	ICAP	U	0.10	5400	9.58
Selenium	ICAP	U J	0.01	U J	0.96
Silver	ICAP	U	0.01	4.91	0.96
Sodium	ICAP	U	0.10	3880	95.8
Thallium	ICAP	U J	0.01	U J	0.96
Vanadium	ICAP	U J	0.05	18.3 J	4.79
Zinc	ICAP	U	0.02	791	1.92

COC 04209

U: denotes less than the MDL (not detected)  
 R: Rejected Based on failed QC Criteria  
 J: Estimated Based on failed QC Criteria

FL-09-26-01metals.xls

ERT 10/17/01 9:50am

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 October 18, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2152	1	42	10:30:00	10	00:15:00	100	0.0	1.8	46.2	1220.1
2	-74.198262	40.566883	2226	1	42	10:30:00	10	00:15:00	100	0.0	2.9	13.7	263.4
3	-74.198685	40.570054	2295	1	46	11:30:00	10	00:15:00	100	0.0	0.0	28.1	3983.2
4	-74.201380	40.569790	2363	1	34	08:30:00	10	00:15:00	100	0.0	0.0	9.6	267.2
5	-74.205873	40.568892	2294	1	45	11:15:00	10	00:15:00	100	0.0	0.0	32.9	3396.5
6	-74.207406	40.563818	2011	1	45	11:15:00	10	00:15:00	100	0.0	0.0	15.3	4620.0
7	-74.205414	40.560434	2294	1	54	13:30:00	10	00:15:00	100	0.0	0.0	3.6	165.4
8	-74.203019	40.561915	2012	1	42	10:30:00	10	00:15:00	100	0.0	0.0	16.4	754.8



U.S. EPA/Environmental Response Team Center  
 Response Engineering Analytical Contract  
 Air Sampling Work Sheet  
 DATA RAM  
 Lockheed Martin Corp., Edison, NJ  
 EPA Contract No. 68-C99-223



Site: WTC-ER WA#: RIA0236  
 Sampler: M. Nogueira U.S. EPA/ERTC WAM: Singhvi  
 Date: 10-19-01 REAC Task Leader: Bradstreet

Sample #						
Location	TAGA	ST04U. N.S. ①	PIER 25084 (R)			
Pump #						
Media	PCM Cassette	PCM Cassette	PCM Cassette	PCM Cassette	PCM Cassette	PCM Cassette
Analysis/Method	PCM, TEM AHERA	PCM, TEM AHERA	PCM, TEM AHERA	PCM, TEM AHERA	PCM, TEM AHERA	PCM, TEM AHERA
Time/Counter (Start)	0800 0	0900 0	0915 0			
Time/Counter (Stop)						
Total Time	07:53	09:09	09:25			
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	2 L/min	2 L/min	2 L/min	2 L/min	2 L/min	2 L/min
MIN/MAX Peak Reading ug/m <sup>3</sup>	7.2 / 71.2	0 / 37.4	4.4 / 23.9			
Average ug/m <sup>3</sup>	10.9	17.8	8.8			
Sample Volume						
Sampling Event	DATA RAM DATA					
Start Date/Time						
End Date/Time						
CO#						

DRAFT GC/MS Results for 10/18/01 DRAFT

Pis name	NYC367	NYC368	NYC369	NYC370	NYC374	INYC372
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient	North Tower	South Tower	Austin Tobin Plaza
Sample Number			Pier 25 (North)			
Sample Height			10035	10036	10038	10040
Volume		250 mL	Breathing Height 250 mL	Ground Level 25 mL	Ground Level 100 mL	Breathing Height 100 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	540 ppbv	50 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	72 ppbv	28 ppbv	RL=20 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	240 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1200 ppbv	190 ppbv	33 ppbv
Trichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
MTEB	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	130 ppbv	RL=20 ppbv	RL=20 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	4500 ppbv	120 ppbv	RL=20 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	470 ppbv	31 ppbv	RL=20 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
m&p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	200 ppbv	27 ppbv	RL=20 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110 ppbv	RL=20 ppbv	RL=20 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNDIFFERENTIATED  
 AND THE DATA SHOULD BE USED  
 WITH DISCRETION

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PHD-5										IYA-1000	
				COCl <sub>2</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	HNO <sub>3</sub> ppbv	HCl ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	NO ppm	FID ppm	PID ppm				
A	10/18/01	0921	Calm	0	0	0	0	0	0	0	0	0	20.8	0.6	0	0	0.1		
B	10/18/01	0929	Calm	0	0	0	0	0	0	0	0	0	20.7	1.0	0	0	0.1		
2	10/18/01	0933	Calm	0	0	0	0	0	0	0	0	0	20.9	3	0	0	0.2		
F	10/18/01	0939	Light	0	0	0	0	0	0	0	0	0	20.8	0.6	0	0	0.0		
H	10/18/01	0948	Light	0	0	0	0	0	0	0	0	0	20.8	0.2	0	0	0.1		
G-1	10/18/01	0955	Calm	0	0	1.2	0	0	0	0	0	0	20.8	2.6	0	0	0.6		
D	10/18/01	1002	Calm	0	0	0	0	0	0	0	0	0	20.8	0.1	0	0	0.0		
R	10/18/01	1006	Strong	0	0	0	0	0	0	0	0	0	20.5	0.7	0	0	0.0		
W	10/18/01	1014	Light	0	0	0	0	0	0	0	0	0	20.7	0.7	0	0	0.0		
V	10/18/01	1020	Light	0	0	0	0	0	0	0	0	0	20.8	0	0	0	0.0		
S	10/18/01	1032	Light	0	0	0	0	0	0	0	0	0	20.7	0.7	0	0	0.0		
P	10/18/01	1036	Medium	0	0	0	0	0	0	0	0	0	20.8	1.6	0	0	0.0		
3	10/18/01	1042	Calm	0	0	0	0	0	0	0	0	0	20.8	0.5	0	0	0.4		
E	10/18/01	1045	Calm	0	0	0	0	0	0	0	0	0	20.8	3.0	0	0	0.0		
F	10/18/01	1052	Strong	0	0	0	0	0	0	0	0	0	20.8	0.5	0	0	0.0		
Q	10/18/01	1058	Strong	0	0	0	0	0	0	0	0	0	20.8	0.9	0	0	0.0		

A: GREENWICH + BRIDGEMAN  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C-1: BRADDOCK + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: GREENWICH + LIBERTY  
 F: WEST + VESSEY  
 H: CHURCH + BRIDGEMAN  
 I: BRADDOCK + LIBERTY  
 J: GREENWICH + LIBERTY  
 K: WEST + ALBANY  
 L: STOKES + VESSEY  
 M: BRADDOCK + CORAL ST.  
 N: GREENWICH + LIBERTY  
 O: CORAL ST. + ALBANY  
 P: SCOTLAND + ALBANY  
 Q: CO. GAMING + DEY  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: BRIDGEMAN + LIBERTY  
 U: BRIDGEMAN + LIBERTY  
 V: BRIDGEMAN + LIBERTY  
 W: BRIDGEMAN + LIBERTY  
 X: BRIDGEMAN + LIBERTY  
 Y: BRIDGEMAN + LIBERTY  
 Z: BRIDGEMAN + LIBERTY





GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters					Multi-Gas PHD-5					TVA-1000		
				COCl <sub>2</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	HNO <sub>3</sub> ppbv	HCl ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	H <sub>2</sub> O ppm	FID ppm	PID ppm	
Q	10/10/04	1503	SE	0	0	0	Dead	0	0.1	NA	—	—	—	—	0	0.1
J	10/10/04	1506	SE	0	0	0	—	0	0.2	NA	—	—	—	—	0	0.1
N	10/10/04	1510	SE	0	Dead	0	—	0	0.2	NA	—	—	—	—	0	0.2
M	10/10/04	1513	SE	0	—	0	—	0	0.2	NA	—	—	—	—	0	0.1
L	10/10/04	1515	SE	0	—	0	—	0	0.1	NA	—	—	—	—	0	0.0

A: GREENWICH + LIBERTY  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C1: BRADDOCK + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: GORHAM + LIBERTY  
 F: WEST + WESLEY  
 H: CHASE PARK  
 I: BRADDOCK + LIBERTY ST.  
 J: WEST + WARREN  
 K: WEST + ALBANY  
 L: STUY. HS. GREENE  
 M: HARRISON (FREE) + N DEER 25  
 N: WEST + ALBANY  
 O: CG COMMAND POST  
 P: SCOTTSD + ALBANY  
 Q: CG COMMAND POST  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: PLAZA BEGINS FROM DEY

October 18, 2001 (8:02am)

Preliminary Data

New York City/ World Trade Center Sampling Activities  
Exchange Place PATH Dewatering 2 (10/10/01 Sample)

**Preliminary Results Summary:**

**Biochemical Oxygen Demand (BOD5):** The 5 day BOD was reported as 160 mg/L. This is more than double the 69 mg/L BOD5 detected in the 10/03/01 sample collected at the same location. The value reported is less than the 09/15-16/01 Newtown Creek STP influent of 210 mg/L, and about four (4) times greater than the Newtown Creek STP effluent of 38 mg/L.

*(Previously Reported 10/15/01) Toxicity:* Toxicity was measured in water samples, and samples of solids clarified from the sample and added to seawater. The response can be characterized as low-level toxicity. Following 48 hours of testing, the median lethal concentration (LC50) predicted was 83.5 percent tunnel water. Survival in the undiluted and untreated tunnel water was 32.5 percent. Survival was 97.5 percent or higher in all of the dilutions of the effluent (50, 25, 12.5, and 6.25 percent tunnel water). Toxicity was reduced in the tunnel water that was centrifuged. Survival in this sample was 82.5 percent. However, toxicity was not reintroduced with the solids from the centrifuged sample placed in clean seawater. Survival in this treatment was 97.5 percent. The dilution capacity of the receiving stream and any chemical measurements should be taken into account when evaluating management actions.

*(Previously Reported 10/13/01)* Available results are similar to the sample collected on 10/03/01. No PCBs were detected. Several VOCs were detected including MTBE, but all concentrations of detected VOCs were less than 100 ug/L. Fourteen NVOAs were detected, primarily phenol and substituted phenols and benzoic acid. Detected PAHs were all at trace concentrations (<10ug/L). Phenol is the only non-PAH NVOA with marine FWQC. The detected concentration is less than the acute marine criteria; chronic criteria does not exist for phenol. Zinc was detected at more than double the marine acute and chronic FWQC. Sulfate and chloride were elevated, but TSS was significantly less than that detected in the 10/03/01 sample. Oil and Grease and TPH were detected a low concentrations.

**EPA Personnel:** Robert Morrell  
Richard Coleates

**Sampling Date:** October 10, 2001

**Location:** Grab samples from direct discharge to the Hudson River.

**Sample Matrix:** Aqueous

**Analytes (Laboratory):** VOCs (Region 2)  
PCB Congeners (Region 2)

NVOAs (Region 2)  
Metals + mercury (Region 2)  
BOD5 (Region 2)  
COD (Region 2)  
Aquatic Toxicity (marine Mysids and Minnows) (Region 2)  
TSS (Region 2)  
Total Petroleum Hydrocarbons (Region 2)  
Oil and Grease (Region 2)  
Sulfate (Region 2)  
Chloride (Region 2)  
Salinity (Region 2)  
Dissolved Oxygen (Region 2)  
Residual Chlorine (Region 2)  
Alkalinity (Region 2)  
Ammonia (Region 2)  
Dioxins/Furans (contract lab - Paradigm Analytical)  
Asbestos (contract lab)

**Dewatering Activity:** The Port Authority of New York and New Jersey (PANYNJ) initiated pumping from the PATH tunnels at Exchange Place under an existing permit (NJ0076988) on September 11, 2001. PANYNJ estimates that discharge averages 2600 GPM. The F tunnel has been plugged since the WTC disaster, and no dewatering is occurring from that tunnel. Dewatering continues from the E tunnel. Pumps are activated by a manual "float switch", and operate between 8 and 12 hours per day. The tunnel is estimated to fill at between 800 - 1200 gpm. NJDEP had been notified of the enhanced discharge, but neither performed sampling or required additional sampling by PANYNJ. EPA learned of the enhanced discharge on October 01, 2001, performed reconnaissance on October 02, and sampled the discharge on October 03. There were no significant contaminant concentrations detected in that sample.

Plugging the PATH tunnel F near Exchange Place will necessitate pumping the tunnel from Manhattan. The plug is expected to be in place by 10/10/01. PANYNJ has suggested that they would prefer to discharge directly to the Hudson River. There does not appear to be an existing NPDES permit for the proposed discharge.

EPA was informed on 10/09/01 that the characteristics of the discharge at Exchange Place had changed, and was now "black and smelly". To address this, and to characterize the discharge more fully to assess the expected quality of the proposed discharge from the Manhattan side, EPA re-sampled the discharge at Exchange Place on 10/10/01.

#### **Preliminary Results:**

**General Characteristics:** The samples were brown in color with a strong acrid odor. Some, but not all of the color, was removed through centrifugation. Total ammonia was elevated with a concentration of approximately 8.7 mg/L. Ammonia is not typically encountered at this concentration in marine surface samples. Salinity in the sample was 12 parts per thousand (ppt, g/L) which is less than the average of 35 g/L salinity of seawater. There

was no residual chlorine present. Dissolved oxygen, determined in the laboratory, was 2.5 mg/L, lower than saturation indicating an oxygen demand from the sample. The alkalinity of the sample was approximately 140 mg/L. This concentration is slightly higher than would be predicted for a sample with a balanced salinity of 12 ppt.

**Metals:** Several metals were detected that had not been detected in the Hudson River samples or the 10/03/01 PATH Exchange Place sample. Results for these metals is tabulated below. Results for zinc exceed both the marine acute and chronic Federal Water Quality Criteria for this metal. Chromium and nickel were detected at concentrations slightly greater than the detection limit. Concentrations of other metals detected in the sample are similar to those detected in the 10/03/01 PATH tunnel discharge sample. Table 1 at the end of this report provides metals data for all non-drinking water WTC disaster samples collected by EPA.

Metal	Concentration (ug/l)	Marine Acute FWQC (ug/l)	Marine Chronic FWQC (ug/l)
Chromium	8.4	1100*	50*
Nickel	6.8	75	8.3
Zinc	210	95	86

\* FWQC for Chromium VI, most stringent chromium criteria.

**PCB Congeners:** The sample was analyzed for 71 PCB congeners. No PCBs were detected in the sample (DL 0.0054 ug/L).

**NVOAs:** Seven (7) non-PAH NVOAs were detected in the sample. Seven PAHs, most substituted naphthalenes, were also detected, but all at trace concentrations (< 10ug/L). Results are tabulated below. Benzoic acid was detected at the highest concentration (580 ug/L), followed by phenol and several substituted phenols. Phenol is the only detected NVOA having established marine acute FWQC. Marine chronic criteria has not been established for phenol. The concentration detected in the PATH tunnel effluent is more than 10 times less than the marine acute FWQC. Proposed acute and chronic FWQC for 2,4,5-trichlorophenol were also not exceeded in the sample.

Compound	Concentration (ug/l)	Marine Acute FWQC (ug/l)	Marine Chronic FWQC (ug/l)
Benzoic Acid	580	NA	NA
Phenol	450	5,800	NA
4-Methyl Phenol	110	NA	NA

2 - Methyl Phenol	67	NA	NA
Benzyl Alcohol	53	NA	NA
2, 4- Dimethyl Phenol	53	NA	NA
2,4,5-Trichlorophenol	5.2	240 p	11 p

NA: No marine FWQC

p: Proposed Criteria

**VOCs:** The sample was analyzed for VOCs including MTBE and trichlorofluoromethane (freon-11). Acetone (90 ug/L), methylene chloride (17 ug/L), 2-butanone (21 ug/L), toluene (18 ug/L), meta and para xylenes (10 ug/L), MTBE (65 ug/L), and total xylenes (10 ug/L) were detected. No VOCs were detected in the trip blank. Results are similar to those in the 10/03/01 sample, except for the detection of MTBE which is generally associated with oxygenated fuels.

**Toxicity:** Toxicity testing was performed by the USEPA Region II laboratory on the Tunnel Water Discharge to the Hudson River using a small marine crustacean, *Mysidopsis bahia* (Mysid) and a juvenile/larval fish species, *Menidia beryllina* (Inland Silversides Minnow). The tests were 48- Hour exposures and the test endpoint was mortality.

Mysids were more sensitive to the tunnel water than the fish. Following 48 hours of testing, the median lethal concentration (LC50) predicted was 83.5 percent tunnel water. Basically, if 83.5 percent tunnel water was mixed with 16.5 percent clean seawater, then 50 percent of the organisms would not survive. Survival was 97.5 percent or higher in all of the dilutions of the effluent (50, 25, 12.5, and 6.25 percent tunnel water).

Toxicity was reduced in the tunnel water that was centrifuged. Survival in this sample was 82.5 percent. Survival in the undiluted and untreated tunnel water was 32.5 percent. However, toxicity was not reintroduced with the solids from the centrifuged sample placed in clean seawater. Survival in this treatment was 97.5 percent.

All of the mortality occurred during the initial 24 hours and none during the final 24 hours of the tests.

While there was toxicity measured, the response can be characterized as low-level toxicity. The dilution capacity of the receiving stream and any chemical measurements should be taken into account when determining appropriate management actions

Survival was relatively high in the *Menidia beryllina* tests. Survival in the 100 percent tunnel water was 85 percent and increased according in all of the test dilutions.

All QC for the test including control survival and reference toxicant testing were

acceptable. A report will be prepared and be available sometime this coming week (week of October15).

**Other Parameters:**

Parameter	Concentration 10/10/01	Concentration 10/03/01	Other Comparative Data
Total Petroleum Hydrocarbons (mg/L)	5.4	ND (DL 5 mg/L)	Low
Oil and Grease (mg/L)	8.9	Not Analyzed	Low
Non-Filterable Residue (TSS) (mg/L)	12	26	18 mg/L in Hudson River 10/14/01 samples
COD (mg/L)	880	Not Analyzed	250 Weak 500 Medium 1000 Strong <sup>1</sup>
Sulfate	950	Not Analyzed	2,710 mg/L in Seawater <sup>2</sup>
Chloride (mg/L)	5700	Not Analyzed	19,350 mg/L in Seawater <sup>2</sup>
Alkalinity (mg/L)	140	Not Analyzed	50 Weak 100 Medium 200 Strong <sup>1</sup>
Total Ammonia (mg/L)	8.7	Not Analyzed	12 Weak 25 Medium 50 Strong <sup>1</sup>
Salinity (g/L (ppth))	12	Not Analyzed	34.92 ppth in Seawater <sup>1</sup>
DO (Lab) (mg/L)	2.5	Not Analyzed	Low

BOD5 (mg/L)	160	69	Newtown Creek Influent 210 mg/L, Newtown Creek Effluent 38 mg/L
pH	7.23	7.75	Neutral

1. Metcalf and Eddy, 1991, Wastewater Engineering: Treatment, Disposal, and Reuse, Table 3-16 Composition of untreated domestic wastewater.

2. Florida Oceanographic Society, 2001, [www.fosusa.org/parameters.htm](http://www.fosusa.org/parameters.htm).

Exchange Place PATH Tunnel Discharge 09/10/01 Sampling Parameters			
Parameter	Container	Preservation	Laboratory
Metals incl Mercury	2 L glass	pH < 2 w/ HNO <sub>3</sub> / 4°C	EPA Region 2
NVOAs	3 L amber glass	4°C	
PCB Congeners (71)	3 L amber glass		
VOCs + Freon + MTBE	6 x 40 ml sample 3 x 40 ml trip blank	pH < 2 w/ HCL/ 4°C	
Petroleum Hydrocarbons/ Oil and Grease	3 L clear wide mouth glass	pH < 2 w/ H <sub>2</sub> SO <sub>4</sub> / 4°C	
Sulfate/Chloride	500 ml Cubitaner	4°C	
BOD5	1 Gallon Cubitaner	4°C	
COD	250 ml Cubitaner	pH < 2 w/ H <sub>2</sub> SO <sub>4</sub> / 4°C	
Toxicity/Salinity/DO/Residual Chlorine/Ammonia, Alkalinity	3.5 Gallon total (Cubitaners)	4°C	
TSS	250 ml Cubitaner		
Dioxins/Furans	2 L amber glass		REAC Contract
Asbestos	2 L polyethylene		

Table 1: Metals Results from WTC Disaster Non-Drinking Water Sampling

Metal	Hudson River Background (CW Bridge)		Hudson River North WTC		Hudson River West WTC		Hudson River South WTC		East River (South St)		Runoff (Receptor St)		Runoff (Receptor St)		Midtown Pumping Station		Newtown Creek STP Effluent		Exchange Place Tunnel		Exchange Place Tunnel		PATH Tunnel		
	Background	North WTC	West WTC	South WTC	WTC	WTC	WTC	WTC	WTC	WTC	09/14/01	09/20/01	09/20/01	09/20/01	Station	STP	STP	10/03/01	10/03/01	10/03/01	10/03/01	10/03/01	10/03/01	10/10/01	
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	30	ND	ND	ND	ND	7.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aluminum	410	240	ND	ND	ND	ND	ND	ND	420	640,000	1,500	1,500	1,500	1,500	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	140	19	19	19	19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Barium	23	18	17	17	17	17	17	17	19	8,600	60	60	60	38	150	160	160	160	160	160	160	160	160	652	
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	78	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	696	
Calcium	260,000	290,000	280,000	290,000	290,000	290,000	290,000	290,000	270,000	5,500,000	240,000	240,000	240,000	64,000	35,000	460,000	490,000	490,000	490,000	490,000	490,000	490,000	490,000	176	
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	180	
Cobalt	ND	ND	ND	ND	ND	ND	ND	ND	ND	160	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	280*	
Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,000	23	23	23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	280*	
Copper	ND	ND	ND	ND	ND	ND	ND	ND	ND	4,000	29	29	29	46	41	ND	ND	ND	ND	ND	ND	ND	ND	280*	
Iron	390	230	200	200	200	200	200	200	440	320,000	1,500	1,500	1,500	730	540	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	333	
Potassium	260,000	300,000	300,000	310,000	310,000	310,000	310,000	310,000	290,000	100,000	6,200	6,200	6,200	47,000	25,000	200,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	81	
Magnesium	860,000	820,000	960,000	960,000	960,000	960,000	960,000	960,000	940,000	990,000	8,400	8,400	8,400	130,000	61,000	260,000	240,000	240,000	240,000	240,000	240,000	240,000	240,000	77	
Manganese	56	40	40	40	40	40	40	40	66	32,000	53	53	53	100	74	380	230	230	230	230	230	230	230	410	
Sodium	7,200,000	8,300,000	8,300,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,000,000	100,000	9,500	9,500	9,500	1,100,000	530,000	3,500,000	3,100,000	3,100,000	3,100,000	3,100,000	3,100,000	3,100,000	3,100,000	43	
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	910	8	8	8	8	8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	272.0*
Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	5,200	31	31	31	8	8	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	56	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	470	34	34	34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Vanadium	ND	ND	ND	ND	ND	ND	ND	ND	ND	790	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Zinc	ND	ND	ND	ND	ND	ND	ND	ND	ND	49,000	150	150	150	94	80	210	210	210	210	210	210	210	210	1,050*	
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

\* Not detected in HR background 1/2 HR Background detection limit (DLs: Cr 6.0 ug/L, Ni 5 ug/L, Zn 40 ug/L) used for calculation.



**Table 2: Volatile Organic Compounds Detected in Exchange Place PATH Tunnel effluent**

<b>Compound</b>	<b>Concentration (ug/L)</b>	<b>Concentration (ug/L)</b>
Chloromethane	10 QE	ND
Acetone	80 QE	90 QR
Methylene Chloride	12	17
2-Butanone	21 QE	21
Toluene	13	18
m & p - Xylenes	ND	10
2-Hexanone	10	ND
Methyl Tert-Butyl ether	68	65
Total Xylenes	ND	10

QE - Accuracy check sample below lower acceptance limit

QR - Spike Recoveries below lower acceptance limit

NJPDES Permit NJ0076988 parameters.

DSN	Monthly Average Flow, GPD (Appl)	Long Term Average Flow, GPD (DMR)	Description of Treatment
001	7200	480	None
002	32000	480	None
003	NA	NA	None

Parameter	Non-numeric Effluent Limit	Monitoring Requirements Frequency	Type
Flow (GPD)	BMP	Semi-Annually	Calculated
pH	BMP	Semi-Annually	Grab
TSS, mg/L			
TOC, mg/L			
Petroleum Hydrocarbons, mg/L			

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Saturday, October 20, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 19 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 4:00 p.m. 10/20)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 55 samples taken in and around ground zero from October 17 through October 18. An additional sample collected on October 16, previously not reported, was also analyzed. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1008, with 27 samples above the standard.

Eight air samples taken in New Jersey from October 16 through October 18 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 126, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Fifty-seven samples were collected from October 16 through October 18. Five exceedances of the AHERA standard were observed. These include map locations 9B (sift area), 9C (sift area), 14 (barge area), 11 (indoor wash station) and 12 (indoor wash station). They occurrences are being investigated further. The remaining samples showed results less than the AHERA standard.

**Ambient Air Sampling:**

**Metals** - The results of 10 samples collected on October 15 showed either no detectable levels of metals, or were below applicable EPA action guidelines, OSHA permissible exposure levels and the National Ambient Air Quality Standards for lead.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on October 18 at Pace University, the Borough of Manhattan Community College, and the U.S. Coast Guard building located in Battery Park. All 24-hour averages were below the National Ambient Air Quality Standards (65 ug/m<sup>3</sup>) for all stations.

PM<sub>10</sub> - Monitoring for PM<sub>10</sub> was conducted from October 9 to October 14 at Pace University, the Borough of Manhattan Community College, the U.S. Coast Guard building, P.S. 274 in Brooklyn and the Canal Street Post Office. All 24-hour averages were below the National Ambient Air Quality Standards (150 ug/m<sup>3</sup>) for all stations.

PM<sub>10</sub> monitoring was also conducted on October 15 at Pace University, the Borough of Manhattan Community College, the U.S. Coast Guard building and P.S. 274. These 24-hour averages were all below the National Ambient Air Quality Standards.

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Sunday, October 21, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. ([Link to more detailed information on the standards.](#)) EPA is collecting data from 19 fixed monitors in and around ground zero ([Link to the map](#)) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 4:00 p.m. 10/21)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 18 samples taken in and around ground on October 19. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1026, with 27 samples above the standard.

Eight air samples taken in New Jersey on October 18 through October 19 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 134, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Thirty-eight samples were collected from October 18 through October 19. All samples showed results less than the AHERA standard.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Sunday, October 21, 2001 (2:00 PM)**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 19, 0001 to 1200 hrs)
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location N) was not analyzed.
- NJ (Oct 18)
  - All 4 samples analyzed were below the TEM AHERA standard.
- NJ (Oct 19)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 18, 0600 to 1900 hrs) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Oct 18, 1830 - Oct 19, 0630 hrs) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*	
10/19/01	02047	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/19/01	02048	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/19/01	02049	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/19/01	02050	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

COC# 04822

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location  
Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

Sampling Times  
1035 (10/19/01) to 1835 (10/19/01)  
1116 (10/19/01) to 1916 (10/19/01)  
1145 (10/19/01) to 1945 (10/19/01)  
1218 (10/19/01) to 2118 (10/19/01)  
ERT: 10/21/01 09:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/18/01 0600 to 10/18/01 1900

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mmm <sup>2</sup>	f/cc	Structures (#) 0.5-5µ	S/mm <sup>2</sup> S-f/cc*
10/18/01	03384	P Loc # 1	720	Air	<7.0	<0.004	2**	15.56
10/18/01	03385	P Loc # 2	720	Air	<7.0	<0.004	0	8.89
10/18/01	03386	P Loc # 3	720	Air	<7.0	<0.004	0	8.89
10/18/01	03387	P Loc # 4	720	Air	<7.0	<0.004	0	8.89
10/18/01	03388	P Loc # 5	720	Air	<7.0	<0.004	0	8.89
10/18/01	03389	P Loc # 6	720	Air	<7.0	<0.004	0	8.89
10/18/01	03390	P Loc # 7	720	Air	<7.0	<0.004	0	8.89
10/18/01	03391	P Loc # 8	720	Air	<7.0	<0.004	0	8.89
10/18/01	03392	S Loc # 9A	720	Air	7.64	<0.004	1**	17.78
10/18/01	03393	S Loc # 9B	720	Air	<7.0	<0.004	2**	17.78
10/18/01	03394	S Loc # 10 A	720	Air	<7.0	<0.004	1**	8.89
10/18/01	03395	S Loc # 10 B	720	Air	7.64	0.004	1**	17.78
10/18/01	03396	W Loc # 11	720	Air	11.48	0.008	1**	8.89
10/18/01	03397	W Loc # 12 A	720	Air	16.56	0.009	4**	44.44
10/18/01	03398	W Loc # 12 B	720	Air	<7.0	<0.004	2**	26.67
10/18/01	03399	B Loc # 13	720	Air	<7.0	<0.004	1**	8.89
10/18/01	03400	B Loc # 14	720	Air	<7.0	<0.004	1**	8.89
10/18/01	03401	T Loc # 15	720	Air	<7.0	<0.004	0	8.89
10/18/01	03402	T Loc # 16	504	Air	<7.0	<0.005	3**	26.67

cc# 04643 & 04644

\*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates  
NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/21/01 9:50 AM



NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/18/01 1830 to 10/19/01 0630

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>
10/18-19/2001	03411	P Loc # 1	706	Air	<7.0	<0.004	1**	0.0048
10/18-19/2001	03412	P Loc # 2	707	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03413	P Loc # 3	702	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03414	P Loc # 4	710	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03415	P Loc # 5	711	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03416	P Loc # 6	712.5	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03417	P Loc # 7	711	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03418	P Loc # 8	713	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03419	S Loc # 9A	720	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03420	S Loc # 9B	713	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03421	S Loc # 10 A	716	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03422	S Loc # 10 B	707	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03423	W Loc # 11	715	Air	12.74	0.007	0	<0.0048
10/18-19/2001	03424	W Loc # 12A	720	Air	30.57	0.016	0	<0.0048
10/18-19/2001	03425	W Loc # 12B	720	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03426	B Loc # 13	712	Air	8.92	0.005	1**	0.0066
10/18-19/2001	03427	B Loc # 14	715	Air	<7.0	<0.004	0	<0.0048
10/18-19/2001	03428	T Loc # 15	542	Air	33.12	0.024	0	<0.0048
10/18-19/2001	03429	T Loc # 16	700	Air	17.83	0.010	0	<0.0048

02#04645 & 04646

\*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/20/01 9:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/19/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		Structures (#)		TEM (AHERA)	
					f/ft <sup>3</sup>	f/ft <sup>3</sup>	0.5µ-5µ	>5µ	S/mm <sup>2</sup>	S-ftcc*
10/19/01	10584	A	1440	Air	53.5	0.014	0	0	<15.50	<0.0041
10/19/01	10585	B	1440	Air	71.34	0.019	0	0	<15.50	<0.0041
10/19/01	10586	C 1	1440	Air	16.86	0.004	0	0	<15.50	<0.0041
10/19/01	10588	D	1440	Air	22.93	0.006	0	0	<15.50	<0.0041
10/19/01	10593	E	1440	Air	33.12	0.009	0	0	<15.50	<0.0041
10/19/01	10594	F	1440	Air	20.38	0.005	0	0	<15.50	<0.0041
10/19/01	10597	H	1440	Air	17.83	0.005	0	0	<15.50	<0.0041
10/19/01	10598	I	1440	Air	21.66	0.006	0	0	<15.50	<0.0041
10/19/01	10599	J	1395	Air	23.83	0.007	0	0	<15.50	<0.0041
10/19/01	10600	K	1440	Air	17.0	<0.002	0	0	<15.50	<0.0041
10/19/01	10602	L	1440	Air	39.49	0.011	0	0	<15.50	<0.0041
10/19/01	10608	M 1	1440	NS	NS	NS	NS	NS	NS	NS
10/19/01	10609	N	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/19/01	10601	P	1440	Air	25.48	0.003	0	0	<15.50	<0.0041
10/19/01	10602	Q,Dup	1440	Air	10.19	0.003	0	0	<15.50	<0.0041
10/19/01	10601	S	1440	Air	15.29	0.004	0	0	<15.50	<0.0041
10/19/01	10600	U	1440	Air	7.64	0.002	0	0	<15.50	<0.0041
10/19/01	10601	V	1440	Air	15.29	0.004	0	0	<15.50	<0.0041

ref: 04-314 & 04315

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St
- H: South side of Chase Manhattan Plaza at Pine St
- I: SE corner of West St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: West St. & Broadway in median strip
- M1: West St. & Broadway North Park rec. area (north side of Sluyvesant High), access to TAGA bus area
- N: South side of Pier 2/5 south of Harrison St. at bulkhead
- O: South side of Pier 2/5 (not to be confused with Pier 2/5)
- P: NE corner of South End Ave & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location

NS: Not sampled  
\*Structures (S) roughly equivalent to fiber (f)  
NR: Not requested  
NA: not analyzed due to overloading of particulates

ERT: 10/21/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-19-01.xls

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM ( AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ	S/mm <sup>2</sup>	S-f/cc*
10/18/01	02042	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/18/01	02043	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/18/01	02044	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/18/01	02045	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

COC# 04107

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	0950 (10/18/01) to 1750 (10/18/01)
CITGO Terminal	1034 (10/18/01) to 1834 (10/18/01)
FMC Terminal	1103 (10/18/01) to 1907 (10/18/01)
Shell Terminal	1133 (10/18/01) to 1933 (10/18/01)

ERT: 10/20/01 09:50 AM

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Monday, October 22, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 19 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 2:00 p.m. 10/22)**

**Ambient Air Sampling:**

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on October 19 and October 20 at Pace University, the Borough of Manhattan Community College and the U.S. Coast Guard building located in Battery Park. All 24-hour averages were below the National Ambient Air Quality Standards (65 ug/m<sup>3</sup>) for all stations.

**Particulate Monitoring** - Samples collected on October 20 and October 21 using personal monitors at fixed air monitoring map locations L (north east side of Stuyvesant High School), R (north west side of Stuyvesant) and N (south side of Pier 25) were all below the OSHA time weighted average for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 19, 20 and 21 in the plume on the debris pile. For each of the days, benzene exceeded the OSHA time weighted permissible exposure level at one debris pile location in the smoke plume at ground level.

**Direct Readings** - Direct readings were taken October 19, 20 and 21. On October 19 and 20, there were no significant readings noted. On October 21, there was an overall increase in carbon monoxide readings taken throughout the monitoring area in lower Manhattan. Several direct readings of carbon monoxide were detected above the National Ambient Air Quality Standard (NAAQS) 8-hour average of 9 parts per million (ppm), but below the NAAQS 1-hour average of 35 ppm and the OSHA permissible level of 50 ppm.

**Bulk Dust**

**PAHs** - Two dust samples were collected on October 10 from rooftops in the vicinity of the World Trade Center and analyzed. Both samples showed elevated levels of polyaromatic hydrocarbons (PAHs) above EPA action guidelines, which are based on a 30-year exposure. Neither sample was above the action guideline adjusted to a one-year exposure. The rooftop location limits the potential for exposure. Roofing material may also have contributed to these

results. Dust samples collected on September 16 at street-level locations had significantly lower PAH levels.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Monday, October 22, 2001 (2:00 PM)

Ambient Air Sampling Locations

- NYC / ER (Oct 19) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **26.44 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **18.37 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **15.43 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 20) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **27.77 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **24.82 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **20.22 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 20) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 6 hours.
  - Station L values ranged from 59.1 to 124.2 ug/m<sup>3</sup> with an average of 110.7 ug/m<sup>3</sup>.
  - Station N values ranged from 0 to 139.5 ug/m<sup>3</sup> with an average of 116.9 ug/m<sup>3</sup>.
  - Station R values ranged from 58.2 to 144.7 ug/m<sup>3</sup> with an average of 121.6 ug/m<sup>3</sup>.
- NYC / ER (Oct 21) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 3½ hours.
  - Station L values ranged from 58.2 to 98.5 ug/m<sup>3</sup> with an average of 83.8 ug/m<sup>3</sup>.
  - Station N values ranged from 0 to 101.1 ug/m<sup>3</sup> with an average of 86.1 ug/m<sup>3</sup>.
  - Station R values ranged from 51.2 to 79.3 ug/m<sup>3</sup> with an average of 67.7 ug/m<sup>3</sup>.
- NYC / ER (Oct 19) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location on the debris pile in the plume at ground level.
- NYC / ER (Oct 20) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location on the debris pile in the plume at ground level.
- NYC / ER (Oct 21) - Volatile organics (TAGA)

- Benzene exceeded OSHA TWA PEL (1 ppm) at one location on the debris pile in the plume at ground level.

#### Bulk/Dust Samples

- NYC / ER (Oct 10) - Semi-volatile organic compounds (base neutral acid extractable)
  - 2 dust samples obtained from rooftops in the vicinity of the WTC (22 Cortlandt, 7<sup>th</sup> fl. and 600 Gateway Plaza, 34<sup>th</sup> fl.) revealed elevated levels of polyaromatic hydrocarbons (PAHs).
  - Both samples were above the EPA Removal Action guidance levels (based on a 30-year exposure) represented as Toxic Equivalency Factors (TEFs) for benzo(a)pyrene.
  - Both samples were below the adjusted EPA Removal Action guidance levels (based on a 1-year exposure) represented as Toxic Equivalency Factors (TEFs) for benzo(a)pyrene.
  - Assuming the roofs have not been cleaned, limited potential exists for exposure due to location.
  - Depending on the roofing materials used, the location (roof) may have contributed somewhat to the sample results.
  - Dust samples previously collected on Sep 16 from street-level locations had significantly lower PAH levels.

#### Direct Reading Instruments

- NYC / ER (Oct 19)
  - Nothing of significance noted.
- NYC / ER (Oct 20)
  - Nothing of significance noted.
- NYC / ER (Oct 21)
  - Several readings noted above the carbon monoxide NAAQS (8 hr. average) of 9 ppm, but below the NAAQS (1 hr. average) of 35 ppm and the OSHA PEL of 50 ppm.

#### Water

- NYC / ER (Oct 5) - Total Petroleum Hydrocarbon Fingerprint/PCBs
  - 1 water sample collected from the basement of 140 West St.
  - The sample appeared to be indicative of a highly weathered fuel oil, most likely #4 fuel oil.
  - PCBs were not detected in the sample.



U.S. EPA/Environmental Response Team Center  
 Response Engineering Analytical Contract  
 Air Sampling Work Sheet  
 DATARAM - Total Particulate Monitoring  
 Lockheed Martin Corp., Edison, NJ  
 U.S. EPA Contract No. 68-C99-223



Site: WTC-ER  
 Sampler: RM/BW  
 Date: 10/20/01

WA#: RIA00236  
 U.S. EPA/ERTC WAM: Singhvi  
 REAC Task Leader: Bradstreet

Location	Stuyv. H.S. L	Pier 25 V-Ball N	TAGA		
Pump #	799162	022375	986809		
Time/Counter (Start)	0820	0823	0810		
Time/Counter (Stop)	<sup>1410</sup> 1402	1402	1413		
Total Time					
Pump Fault	Y/N	Y/ <del>N</del>	Y/N	Y/N	Y/N
Flow Rate	2 L/min	2 L/min	2 L/min	2 L/min	2 L/min
Min/Max (ug/m <sup>3</sup> )	<del>89.1/124.2</del> 80.9/131.5	000.0/139.5	058.2/149.7		
Average (ug/m <sup>3</sup> )	<del>116.7</del> <sup>110.7</sup>	116.9	121.6		
MET Station on Site?: Y/ <del>N</del>					





U.S. EPA/Environmental Response Team Center  
 Response Engineering Analytical Contract  
 Air Sampling Work Sheet  
 DATARAM - Total Particulate Monitoring  
 Lockheed Martin Corp., Edison, NJ  
 U.S. EPA Contract No. 68-C99-223



Site: WTC-ER

WA#: RIA00236

Sampler: M. Hoop

U.S. EPA/ERTC WAM: Singhi

Date: 10/21/01

REAC Task Leader: Bradstreet

Location	Stuyv. H.S. L <small>100%</small>	Pier 25 V-Ball N <small>100%</small>	TAGA <small>100%</small>		
Pump #	986809	022375	799162		
Time/Counter (Start)	0835 / 0	0830 /	0815 / 0		
Time/Counter (Stop)	1200 /	1200 / 03:30	1200 / 03:45		
Total Time		03:30	03:45		
Pump Fault	Y (N)	Y (N)	Y (N)	Y / N	Y / N
Flow Rate	2 L/min	2 L/min	2 L/min	2 L/min	2 L/min
Min/Max (ug/m <sup>3</sup> )	58.2 / 98.5	0.0 / 101.4 <del>101.4</del>	51.2 / 79.3		
Average (ug/m <sup>3</sup> )	83.84	86.1	67.7		
MET Station on Site?: Y (N) <u>All-TAG #3</u>					

Results of the Analysis for PCBs in Water  
 WA# 0-236 WTC Site

Client ID	WBLK100501			03835 A		
Location	-			140 West St.		
Percent Solid	100			100		
	Conc.	MDL	Conc.	MDL	Conc.	MDL
Analyte	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Aroclor 1016	U	0.25	U		2.7	
Aroclor 1221	U	0.5	U		5.4	
Aroclor 1232	U	0.25	U		2.7	
Aroclor 1242	U	0.25	U		2.7	
Aroclor 1248	U	0.25	U		2.7	
Aroclor 1254	U	0.25	U		2.7	
Aroclor 1260	U	0.25	U		2.7	
Aroclor 1268	U	0.25	U		2.7	

Aroclor 1016	U	0.25	U	2.717391
Aroclor 1221	U	0.5	U	5.434783
Aroclor 1232	U	0.25	U	2.717391
Aroclor 1242	U	0.25	U	2.717391
Aroclor 1248	U	0.25	U	2.717391
Aroclor 1254	U	0.25	U	2.717391
Aroclor 1260	U	0.25	U	2.717391
Aroclor 1268	U	0.25	U	2.717391

Results of the Analysis for BNA in Soil  
 WA # 0-0236 WTC - NYC ER Site  
 (Results are Based on Dry Weight)

Sample No.	SBLK101101	03814	03815
Sample Location	Lab Blank	600 Gateway 39th	22 Courtland 7th
GC/MS File Name	WTC041	WTC042	WTC043
Matrix	Soil	Soil	Soil
Dilution Factor	1	5	5
% Solid	100	94.4	95.3

Compound Name	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg
Phenol	U	330	U	1800	970 J	1700
bis(2-Chloroethyl)Eth	U	330	U	1800	U	1700
2-Chlorophenol	U	330	U	1800	U	1700
1,3-Dichlorobenzene	U	330	U	1800	U	1700
1,4-Dichlorobenzene	U	330	U	1800	U	1700
Benzyl alcohol	U	330	U	1800	U	1700
1,2-Dichlorobenzene	U	330	U	1800	U	1700
2-Methylphenol	U	330	U	1800	U	1700
bis(2-Chloroisopropyl)	U	330	U	1800	U	1700
4-Methylphenol	U	330	U	1800	U	1700
N-Nitroso-Di-n-propyl	U	330	U	1800	U	1700
Hexachloroethane	U	330	U	1800	U	1700
Nitrobenzene	U	330	U	1800	U	1700
Isophorone	U	330	U	1800	U	1700
2-Nitrophenol	U	330	U	1800	U	1700
2,4-Dimethylphenol	U	330	U	1800	U	1700
bis(2-Chloroethoxy)m	U	330	U	1800	U	1700
2,4-Dichlorophenol	U	330	U	1800	U	1700
1,2,4-Trichlorobenzen	U	330	U	1800	U	1700
Naphthalene	U	330	1700 J	1800	13000	1700
4-Chloroaniline	U	330	U	1800	U	1700

Hexachlorobutadiene	U	330	U	1800	U	1700
4-Chloro-3-methylphe	U	330	U	1800	U	1700
2-Methylnaphthalene	U	330	650 J	1800	4500	1700
Hexachlorocyclopenta	U	330	U	1800	U	1700
2,4,6-Trichlorophenol	U	330	U	1800	U	1700
2,4,5-Trichlorophenol	U	330	U	1800	U	1700
2-Chloronaphthalene	U	330	U	1800	U	1700
2-Nitroaniline	U	330	U	1800	U	1700
Dimethylphthalate	U	330	U	1800	U	1700
Acenaphthylene	U	330	U	1800	470 J	1700
2,6-Dinitrotoluene	U	330	U	1800	U	1700
3-Nitroaniline	U	330	U	1800	U	1700
Acenaphthene	U	330	2400	1800	22000	1700
2,4-Dinitrophenol	U	330	U	1800	U	1700
4-Nitrophenol	U	330	U	1800	U	1700
Dibenzofuran	U	330	1800	1800	18000	1700
2,4-Dinitrotoluene	U	330	U	1800	U	1700
Diethylphthalate	U	330	U	1800	U	1700
4-Chlorophenyl-pheny	U	330	U	1800	U	1700
Fluorene	U	330	2700	1800	34000	1700
4-Nitroaniline	U	330	U	1800	U	1700
4,6-Dinitro-2-methylph	U	330	U	1800	U	1700
N-Nitrosodiphenylami	U	330	U	1800	U	1700
4-Bromophenyl-pheny	U	330	U	1800	U	1700
Hexachlorobenzene	U	330	U	1800	U	1700
Pentachlorophenol	U	330	U	1800	U	1700
Phenanthrene	U	330	18000	1800	220000	1700
Anthracene	U	330	5400	1800	78000	1700
Carbazole	U	330	2900	1800	35000	1700
Dl-n-butylphthalate	U	330	2300	1800	3300	1700
Fluoranthene	U	330	20000	1800	210000	1700
Pyrene	U	330	16000	1800	170000	1700
Butylbenzylphthalate	U	330	12000	1800	36000	1700
Benzo(a)anthracene	U	330	7300	1800	71000	1700
3,3'-Dichlorobenzidine	U	330	U	1800	U	1700

Chrysene	U	330	7200	1800	68700	1700
Bis(2-Ethylhexyl)phth	U	330	13000	1800	21300	1700
Di-n-octylphthalate	U	330	2100	1800	4100	1700
Benzo(b)fluoranthene	U	330	7100	1800	62300	1700
Benzo(k)fluoranthene	U	330	7300	1800	67300	1700
Benzo(a)pyrene	U	330	8500	1800	76300	1700
Indeno(1,2,3-cd)pyren	U	330	3900	1800	33300	1700
Dibenzo(a,h)anthrace	U	330	U	1800	U	1700
Benzo(g,h)perylene	U	330	4200	1800	35000	1700

## DRAFT GCMS Results for 10/21/01 DRAFT

File name	NYC393	NYC394	NYC395	NYC396	NYC397	NYC398
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient No. Park Pier	North Tower Plume	South Tower	Austrn Tobin Plaza
Sample Number			10041	10042	10043	10044
Sample Height			breathing	ground	ground	ground
Volume		100 mL	100 mL	25 mL		100 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	870 ppbv	110 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110 ppbv	49 ppbv	RL=20 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Stomomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	35 ppbv	2,400 ppbv	150 ppbv	140 ppbv
Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3,700 ppbv	200 ppbv	RL=20 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	570 ppbv	55 ppbv	RL=20 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	240 ppbv	RL=40 ppbv	RL=20 ppbv
m,p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	59 ppbv	RL=40 ppbv	RL=20 ppbv
O-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	41 ppbv	RL=40 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	43 ppbv	RL=40 ppbv	RL=20 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv

## DRAFT GC/MS Results for 10/20/01 DRAFT

File Name	NYC385	NYC386	NYC387	NYC388	NYC390	NYC389
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient Pier 25 (North)	North Tower	Austin Tobin Plaza	South Tower
Sample Number			10065	10066	10067	10068
Sample Height			breathing	Ground Level	Breathing Height	Ground Level
Volume		100 mL	100 mL	25 mL	100 mL	25 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	13,000 ppbv	RL=20 ppbv	190 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	4,700 ppbv	RL=20 ppbv	RL=40 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	60 ppbv	RL=20 ppbv	130 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	460 ppbv	RL=20 ppbv	RL=40 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	200 ppbv	RL=20 ppbv	RL=40 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	4,600 ppbv	RL=20 ppbv	RL=40 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110 ppbv	RL=20 ppbv	RL=40 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	35 ppbv	4,600 ppbv	110 ppbv	560 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	390 ppbv	RL=20 ppbv	RL=40 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,100 ppbv	RL=20 ppbv	85 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	700 ppbv	RL=20 ppbv	47 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	15,000 ppbv	27 ppbv	310 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	250 ppbv	RL=20 ppbv	RL=40 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	90 ppbv	RL=20 ppbv	RL=40 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	90 ppbv	RL=20 ppbv	RL=40 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110 ppbv	RL=20 ppbv	RL=40 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	7,400 ppbv	RL=20 ppbv	100 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	RL=20 ppbv	RL=40 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	6,000 ppbv	RL=20 ppbv	120 ppbv
m&p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	420 ppbv	RL=20 ppbv	RL=40 ppbv
O-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	380 ppbv	RL=20 ppbv	RL=40 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	4,600 ppbv	RL=20 ppbv	58 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	190 ppbv	RL=20 ppbv	RL=40 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	340 ppbv	RL=20 ppbv	RL=40 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	160 ppbv	RL=20 ppbv	RL=40 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv	RL=40 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

DRAFT GC/MS Results for 10/19/01 DRAFT

File name	NYC377	NYC378	NYC379	NYC380	NYC381
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient	North Tower	Ausu Tobin Plaza
Sample Number			N. Park Pier 10037	10061	10063
Sample Height			breathing	ground	breathing
Volume		0.25 L	0.25 L	0.025 L	0.25 L
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	280	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	170	RL=20 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	410	RL=20 ppbv
Trichlorofluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1-Chloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
trans-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Ethanol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	87	RL=20 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	30	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	720	RL=20 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	290	RL=20 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	280	RL=20 ppbv
m&p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	78	RL=20 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv

NO GC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED  
 WITH DISCRETION



DRAFT GC/MS Results for 10/19/01 DRAFT

File name	NYC382			
Sample Location	South Tower			
Sample Number	10064			
Sample Height	Ground			
Volume	.025 L			
Propylene	4100			
Dichlorodifluoromethane	220			
Dichlorotrifluoroethane	RL=20 ppbv			
Chloromethane	3300			
Vinyl Chloride	RL=20 ppbv			
1,3-Butadiene	RL=20 ppbv			
Bromomethane	89			
Chloroethane	210			
Trichlorofluoromethane	310			
Isopropyl Alcohol	RL=20 ppbv			
Acetone	4800			
Trichlorotrifluoroethane	RL=20 ppbv			
1,1-Dichloroethane	RL=20 ppbv			
3-Chloropropene	RL=20 ppbv			
Methylene Chloride	RL=20 ppbv			
MTBE	RL=20 ppbv			
trans-1,2-Dichloroethane	RL=20 ppbv			
Hexane	490			
1,1-Dichloroethane	RL=20 ppbv			
Vinyl Acetate	RL=20 ppbv			
2-Butanone	700			
cis-1,2-Dichloroethane	RL=20 ppbv			
Ethyl Acetate	RL=20 ppbv			
Chloroform	RL=20 ppbv			
Tetrahydrofuran	270			
1,1,1-Trichloroethane	RL=20 ppbv			
Cyclohexane	RL=20 ppbv			
Carbon Tetrachloride	RL=20 ppbv			
1,2-Dichloroethane	160			
Benzene	6400			
Heptane	230			
Trichloroethane	RL=20 ppbv			
1,2-Dichloropropane	RL=20 ppbv			
1,4-Dioxane	64			
Methyl Isobutyl Ketone	110			
cis-1,3-Dichloropropene	RL=20 ppbv			
Toluene	2000			
trans-1,3-Dichloropropene	RL=20 ppbv			
1,1,2-Trichloroethane	RL=20 ppbv			
2-Hexanone	94			
Tetrachloroethane	RL=20 ppbv			
Dibromochloromethane	RL=20 ppbv			
1,2-Dibromoethane	RL=20 ppbv			
Chlorobenzene	91			
Ethylbenzene	1400			
m,p-Xylenes	130			
O-Xylene	160			
Styrene	550			
Bromofom	RL=20 ppbv			
1,1,2,2-Tetrachloroethane	RL=20 ppbv			
4-Ethyltoluene	130			
1,3,5-Trimethylbenzene	91			
1,2,4-Trimethylbenzene	82			
1,3-Dichlorobenzene	RL=20 ppbv			
1,4-Dichlorobenzene	RL=20 ppbv			
Benzyl Chloride	RL=20 ppbv			
1,2-Dichlorobenzene	RL=20 ppbv			
1,2,4-Trichlorobenzene	RL=20 ppbv			
Hexachloro-1,3-Butadiene	RL=20 ppbv			

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION



GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Type Meters					Multi-Gas PHD-5						TVA-1000	
				COCl <sub>2</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	H <sub>2</sub> F ppbv	HCl ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	CO <sub>2</sub> %	LEL %	O <sub>2</sub> %	CO ppm	NO ppm	FID ppm	PID ppm
N	10/21/01	11:33	CALW	ND	ND	ND	ND	ND	ND	ND	ND	0	20.7	2.5	ND	ND
M	10/21/01	11:34	CALW	ND	ND	ND	ND	ND	ND	ND	ND	0	20.7	2.4	ND	ND
L	10/21/01	11:45	CALW	ND	ND	ND	ND	ND	ND	ND	ND	0	21.3	1.5	ND	ND

- R: GREENWICH + BRIGLEY
- B: CHURCH + DEY
- C: CHURCH + LIBERTY
- C-1: BRANDONY + LIBERTY
- D: GREENWICH + LIBERTY
- E: SOMMERS + LIBERTY
- F: WEST + VERSES
- H: CHASE PARK
- I: BRANDONY + CORAL ST.
- J: WEST + WARREN
- K: WEST + ALBANY
- L: STUB. B.S. (TREE)
- M: HARRISON (TREE) + N PER 25
- N: PER 25
- O: GREENWICH + LIBERTY
- P: GREENWICH + WEST
- Q: CO COMMAND POST
- R: LIBERTY + WEST
- S: GREENWICH + LIBERTY
- T: RUTER BRIDGE FROM DEY

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Acq. Date	Time	Wind Dir.	Tape Meters										C12				Multi Gas PPH-5				CANNONBALL				CNA M/REF:					
				COCl <sub>2</sub>		H <sub>2</sub> S		HCN		HCl		HF		H <sub>2</sub> O		H <sub>2</sub>		O <sub>2</sub>		CO		HCN		VOC		VOC		PID		PID	
				ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
A	10/20/01	102300	01M	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
B	10/20/01	1027	01M	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
C	10/20/01	1037	2.4/W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
H	10/20/01	1044	2.6/W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
I	10/20/01	1052	1.1/W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
D	10/20/01	1059	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
K	10/20/01	1105	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
P	10/20/01	1112	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
S	10/20/01	1123	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
E	10/20/01	1135	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
F	10/20/01	1145	0.9 A/E	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Q	10/20/01	1152	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
T	10/20/01	1217	1.8/W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
V	10/20/01	1239	2.2/W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
J	10/20/01	1301	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
N	10/20/01	1316	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			

A: GREENWICH + LIBERTY    E: SOUTHEND + LIBERTY    J: WEST + WARREN    T: PIER 6  
 B: CHURCH + DEY    F: WEST + VESSEY    K: WEST + ALBANY    U: CG COMMAND POST  
 C: CHURCH + LIBERTY    H: CHURCH + LIBERTY    L: STUY VS. (FREE)    V: LIBERTY + WEST  
 C-1: BROADWAY + LIBERTY    I: BROADWAY + LOCAL ST.    M: HARRISON (FREE) + N PIER 25    2: GREENWICH + LIBERTY  
 D: GREENWICH + LIBERTY    \* BATTERY LOW (TURNING OFF SENSOR STATIONS)

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PHD-5				TVA-1000				
				COCl <sub>2</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	HNO <sub>3</sub> ppbv	HF ppbv	HCl ppbv	U.S. ppt	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	HCN ppm	OVA FID ppm	N <sub>2</sub> O FID ppm
M 1	20/Oct	1330	21/SE	ND	ND	ND	ND	ND	ND	ND	ND	21.0	2.4	ND	0.5	ND
L	20/Oct	1341	ND	ND	ND	ND	ND	ND	ND	ND	ND	21.0	ND	ND	0.2	ND

A: GREENWICH + LIBERTY      E: SOUTHEND + LIBERTY      J: WEST + WARREN      P: SOUTHEND + ALBANY  
 B: CHURCH + DEY              F: WEST + NESSEY              K: WEST + ALBANY              Q: CG COMMAND POST  
 C: CHURCH + LIBERTY            H: CHURCH PARK                  L: STUY. HS. (GREEK)            R: LIBERTY + WEST  
 G: BROADWAY + LIBERTY        I: BROADWAY + WALL ST.        M: HARBORON (FREE) + N DEK 25    S: GREENWICH + LIBERTY  
 D: GREENWICH + LIBERTY        N.A.: WEST ST.                    T: TARA BRASS FROM DEY

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

*Air Real Time*

Location	Date	Time	Wind Dir.	Wind Ckm	Tape Meters						Multi-Gas PHD-5						TVA-1001			
					COCl <sub>2</sub> ppbv	HCN	HCl ppbv	H <sub>2</sub> S ppm	HCN ppm	LEL %	O <sub>2</sub> %	CO ppm	NO ppb	PID ppm	FID ppm	PID MD	NO MD	MD		
																			MD	MD
A	10-19	0943																		
B		0948	S3																	
C1		0953	NW7																	
H		1001	WS																	
I		1007	N4																	
D		1012	WS																	
K		1014	W7																	
T		1020	W10																	
S		1102	SW5																	
P		1108	WS																	
E		1116	CMW																	
F		1125	S6																	
O		1140	S3																	
J		1152	SW5																	
N		1203	WS																	
M		1216	W3																	

4: GREENWICH + LIBERTY  
 5: CHURCH + DEY  
 6: CHURCH + LIBERTY  
 7: BROADWAY + LIBERTY  
 8: GREENWICH + LIBERTY  
 9: SUMNER + LIBERTY  
 10: WEST + NYSE  
 11: CHINESE MARKET  
 12: BROADWAY + WORLD ST.  
 13: WEST + WALL ST.  
 14: WEST + WALL ST.  
 15: STUYVESANT + CHINESE MARKET  
 16: STUYVESANT + CHINESE MARKET  
 17: WEST + WALL ST.  
 18: WEST + WALL ST.  
 19: WEST + WALL ST.  
 20: WEST + WALL ST.  
 21: WEST + WALL ST.  
 22: WEST + WALL ST.  
 23: WEST + WALL ST.  
 24: WEST + WALL ST.  
 25: WEST + WALL ST.  
 26: WEST + WALL ST.  
 27: WEST + WALL ST.  
 28: WEST + WALL ST.  
 29: WEST + WALL ST.  
 30: WEST + WALL ST.  
 31: WEST + WALL ST.  
 32: WEST + WALL ST.  
 33: WEST + WALL ST.  
 34: WEST + WALL ST.  
 35: WEST + WALL ST.  
 36: WEST + WALL ST.  
 37: WEST + WALL ST.  
 38: WEST + WALL ST.  
 39: WEST + WALL ST.  
 40: WEST + WALL ST.

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PHD-5				TVA-1000		
				CO <sub>2</sub> ppbv	H <sub>2</sub> S ppbv	HCN	HCN	H <sub>2</sub> S ppm	HCN ppm	CO ppm	NO ppm	FID ppm	PID ppm	
A	9-19	1405	W7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B		1408	W4											
C1		1410	WS											
X		1416	CRUM											
Z		1421	CRUM											
D		1440	N3											
R		1441	SW3											
S		1510	W4											
P		1513	W4											
E		1515	CRUM											
F		1524	SW7											
G		1537	SW2											
N		1535	CRUM											
N		1538	CRUM											
M		1544	CRUM											
L		1547	CRUM											

A: GREENWICH + BRADDOCK  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C1: BRADDOCK + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOUTHEND + LIBERTY  
 F: WEST + DESEY  
 H: CHURCH PLAZA  
 I: BRADDOCK + CORAL ST.  
 J: WEST + WARREN  
 K: WEST + ALBANY  
 L: STUR. WS. (FREE)  
 M: HARRISON (FREE) + N DECK 25  
 P: SOUTHEND + ALBANY  
 Q: CG COMMAND POST  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: PLAZA BRICKS FROM DEY

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Tuesday, October 23, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 19 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 5:00 p.m. 10/23)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 39 samples taken in and around ground zero October 18 through October 19. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1065, with 27 samples above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - 19 samples were collected from 6:00 p.m. on October 19 through 7:30 a.m. on October 20. All samples showed results less than the AHERA standard.

**Particulate Monitoring** - Samples collected on October 19, 20, and 21 using portable monitors showed no significant readings. Samples collected on October 22 showed an increase from previous results.

**Ambient Air Sampling:**

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on October 21 at Pace University, the Borough of Manhattan Community College, and the U.S. Coast Guard building located in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standards (65 ug/m<sup>3</sup>) for all stations.

**Particulate Monitoring** - Samples collected on October 22 using personal monitors (datarams) from Fixed Air Monitoring L (north east side of Stuyvesant High), R (north west side of Stuyvesant High School), and N (South side of Pier 25) were all below the OSHA time-weighted average permissible level for particulates.



**Direct Air Readings** - Using portable monitors, direct air readings were taken in and around ground zero on October 22. Carbon monoxide was detected above the National Ambient Air Quality Standard (NAAQS) 8-hour average of 9 ppm, however the readings were below the NAAQS 1-hour average of 35 ppm and the OSHA permissible level of 50 ppm.

**Bulk/Dust**

**PCBs** - Two dust samples were collected and analyzed from rooftops in the vicinity of the former World Trade Center on October 10. These samples were analyzed for pesticides and PCBs. Pesticides were not detected and PCBs were detected at trace concentrations, well below levels of concern.

**Asbestos** - Asbestos was detected above 1% chrysotile in 5 of 87 samples collected from structural steel taken from the debris pile to metal recycling facilities.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Tuesday, October 23, 2001 (3 PM)**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 18, 1200 - 2400 hrs)
  - All 18 samples analyzed for the period 1200 to 2400 hrs were below the TEM AHERA standard.
  - 1 sample was not submitted.
  - 2 additional samples (Locations U and V) for the period 0001 to 1200 hrs were below the TEM AHERA standard.
- NYC / ER (Oct 19, 1200 - 2400 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location P) was not analyzed due to a wet filter.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 19, 1800 - Oct 20, 0730) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 1 additional sampling location (W Location #12B) was added to monitor the perimeter.
- Fresh Kills (Oct 19) - Dataram
  - Nothing of significance to report based on daily average concentrations.
  - Maximum readings have increased significantly from previous day.
- Fresh Kills (Oct 20) - Dataram
  - Nothing of significance to report based on daily average concentrations.
  - Maximum readings have decreased significantly from previous day.
- Fresh Kills (Oct 21) - Dataram
  - Nothing of significance to report based on daily average concentrations.
- Fresh Kills (Oct 22) - Dataram
  - Daily average concentrations have increased.

Ambient Air Sampling Locations

- NYC / ER (Oct 21) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **28.86 ug/m<sup>3</sup>**
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **29.59 ug/m<sup>3</sup>**.

- Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was  $25.03 \text{ ug/m}^3$ .
- All readings below the National Ambient Air Quality Standard for  $\text{PM}_{2.5}$  ( $65 \text{ ug/m}^3$ ).
- NYC / ER (Oct 22) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated between 5½ to 7 hours.
  - Station L values ranged from 57.6 to 192.4  $\text{ug/m}^3$  with an average of 173.7  $\text{ug/m}^3$ .
  - Station N values ranged from 72.3 to 187.4  $\text{ug/m}^3$  with an average of 140.7  $\text{ug/m}^3$ .
  - Station R values ranged from 26.7 to 273.2  $\text{ug/m}^3$  with an average of 77.2  $\text{ug/m}^3$ .
- NYC / ER (Oct 21) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations on the debris pile in the plume at ground level.
  - Chlorodifluoromethane (Freon-22) was noted as a Tentatively Identified Compound (TIC) at apparently significant concentrations in samples collected from the debris pile in the plume at ground level.

#### Bulk/Dust Samples

- NYC / ER (Oct 10) - Pesticide/PCBs
  - 2 dust samples obtained from rooftops in the vicinity of the WTC (22 Cortlandt, 7<sup>th</sup> fl. and 600 Gateway Plaza, 34<sup>th</sup> fl.)
  - Pesticides were not detected.
  - PCBs detected at trace concentrations well below levels of concern.
- NYC / ER (Oct 12) - Asbestos
  - Asbestos was detected above 1% chrysotile in 5 of 87 samples collected from structural steel brought to metal recycling facilities.

#### Direct Reading Instruments

- NYC / ER (Oct 22)
  - Consistent readings noted above the carbon monoxide NAAQS (8 hr. average) of 9 ppm, but below the NAAQS (1 hr. average) of 35 ppm and the OSHA PEL of 50 ppm.
  - Indications of low levels of hydrogen fluoride (OSHA PEL = 3 ppm) and sulfur dioxide (OSHA PEL = 5 ppm) well below the respective OSHA PELs (TWA).
  - Phosgene was not detected during this period.

NYC Emergency Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/19/01 1800 to 10/20/01 0730

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/imm <sup>2</sup>	f/cc	Structures (#)	S/imm <sup>2</sup>
10/19-20/2001	03452	P Loc # 1	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03453	P Loc # 2	743	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03454	P Loc # 3	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03455	P Loc # 4	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03456	P Loc # 5	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03457	P Loc # 6	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03458	P Loc # 7	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03459	P Loc # 8	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03460	S Loc # 9A	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03461	S Loc # 9B	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03462	S Loc # 10 A	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03463	S Loc # 10 B	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03464	W Loc # 11	720	Air	25.48	0.014	0	17.78
10/19-20/2001	03465	W Loc # 12A	720	Air	21.66	0.012	0	14.44
10/19-20/2001	03466	W Loc # 12B	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03467	B Loc # 13	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03468	B Loc # 14	720	Air	<7.0	<0.004	0	<8.89
10/19-20/2001	03469	T Loc # 15	720	Air	12.74	0.007	0	8.89
10/19-20/2001	03470	T Loc # 16	720	Air	<7.0	<0.004	1**	53.33

\*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates  
NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/imm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/22/01 9:50 AM

NYC Emergency Response  
 Stations Air Sampling Results at Field Locations  
 Sampling Date and Time: 10/18/1 1200 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (f) <sup>a</sup>	S-f/cc <sup>b</sup>
10/18/01	10581	A	1440	Air	40.76	0.011	0	<15.50
10/18/01	10582	B	1440	Air	56.05	0.015	0	<15.50
10/18/01	10583	C	1440	Air	53.1	0.015	0	<15.50
10/18/01	10586	D	1440	Air	44.59	0.012	0	<15.50
10/18/01	10570	E	1440	Air	11.46	0.003	0	<15.50
10/18/01	10571	F	1440	pt Submitted				
10/18/01	10564	H	1440	Air	71.34	0.019	0	<15.50
10/18/01	10565	I	1440	Air	27.0	<0.002	0	<15.50
10/18/01	10573	J	1440	Air	30.57	0.009	0	<15.50
10/18/01	10574	K	1440	Air	27.0	<0.002	0	<15.50
10/18/01	10574	L	1440	Air	27.0	<0.002	0	<15.50
10/18/01	10575	M	1440	Air	22.93	0.006	0	<15.50
10/18/01	10576	N	1440	Air	12.74	0.003	0	<15.50
10/18/01	10589	P	1440	Air	27.0	<0.002	0	<15.50
10/18/01	10579	P DUP	1440	Air	20.38	0.006	0	<15.50
10/18/01	10572	Q	1440	Air	10.19	0.003	0	<15.50
10/18/01	10585	S	1440	Air	11.46	0.003	0	<15.50
10/18/01	10577	T	1440	Air	10.19	0.002	0	<15.50
10/18/01	10578	V	1440	Air	10.19	0.002	0	<15.50
10/18/01	10562	U	1440	Air	30.57	0.008	0	<15.50
10/18/01	10563	V	1440	Air	11.46	0.003	0	<15.50

col 04311 & 04313

\*Sampled 10/18/01 0001 to 1200

Sampling Locations:

- A. NE corner of West Broadway & Barclay
- B. SE corner of Church & Duoy St.
- C. NE corner of Broadway & Liberty St.
- C1. SW corner of Broadway & Liberty St.
- D. East end of Albany St. at Greenwich St.
- E. Western end of Liberty St. at South End Ave
- F. Northern median strip of Vesey & West St
- G. Church and Duane St.
- H. South side of Chase Manhattan Plaza at Pine St.
- I. NE corner of Wall St. & Broadway
- J. NE corner of Wall St. & Broadway
- K. West St. & Albany at median strip
- L. On walkway toward North Park rec area (north side of Shuyesant High), access to TAGA bus area
- M1. West St. - 50 yards south of Harrison St. at bulkhead
- N. South side of Pier 25 (next to volleyball court)
- P. NE corner of South End Ave. & Albany
- Q. Barclay & West St. (center island) in proximity to USCG command post
- R. TAGA Bus Location
- S. Rector & South End
- U. Pier 8 Hellport
- V. Pier 8 Bus Sign

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy [TEM] EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-18-01a.xls

ERT: 10/22/01 09:50 AM

NS: Not sampled  
 \*Structure (S) roughly equivalent to fiber (f)  
 NR: Not requested  
 NA: not analyzed due to overflowing of particulates

NYC Emergency Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/19/01 1200 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/cc	f/m <sup>3</sup>	Structures (#)	S/mm <sup>2</sup>
10/19/01	10681	A	1098	Air	0.003	8.92	0	<12.92
10/19/01	10682	B	1302	Air	0.004	15.29	0	<15.50
10/19/01	10683	C1	1343	Air	0.002	10.19	0	<15.50
10/19/01	10684	D	1440	Air	0.002	7.64	0	<15.50
10/19/01	10685	E	1285	Air	<0.002	<7.0	0	<15.50
10/19/01	10686	F	1116	Air	<0.002	<7.0	0	<15.50
10/19/01	10687	G	874	Air	0.003	10.19	0	<11.07
10/19/01	10688	H	970	Air	<0.002	<7.0	0	<15.50
10/19/01	10689	I	1246	Air	<0.002	<7.0	0	<15.50
10/19/01	10690	J	1440	Air	<0.002	<7.0	0	<15.50
10/19/01	10691	K	1246	Air	<0.002	<7.0	0	<15.50
10/19/01	10692	L	1440	Air	<0.002	<7.0	0	<15.50
10/19/01	10693	M	1246	Air	<0.002	<7.0	0	<15.50
10/19/01	10694	N	1440	Air	<0.002	<7.0	0	<15.50
10/19/01	10695	O	1246	Air	<0.002	<7.0	0	<15.50
10/19/01	10696	P	1440	Air	<0.002	<7.0	0	<15.50
10/19/01	10697	Q	1246	Air	<0.002	<7.0	0	<15.50
10/19/01	10698	R	1440	Air	<0.002	<7.0	0	<15.50
10/19/01	10699	S	1246	Air	<0.002	<7.0	0	<15.50
10/19/01	10700	T	1440	Air	<0.002	<7.0	0	<15.50
10/19/01	10701	U	1246	Air	<0.002	<7.0	0	<15.50
10/19/01	10702	V	1440	Air	<0.002	<7.0	0	<15.50

see notes & logs

NS: Not sampled  
 \*Structure (S) roughly equivalent to fiber (f)  
 NR: Not requested  
 NA: not analyzed due to overloading of particulates

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: West end of Albany St. at South End Ave  
 F: NE corner of West St. & Broadway  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of West St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Sluyterant High), access to TAGA bus area  
 M: West St. - 50 yards south of Harrison St. at bullhead  
 N: South side of Pier 25 (next to volleyball court)  
 O: NE corner of South End Ave. & Albany  
 P: NE corner of West St. & Broadway  
 Q: TAGA Bus Location  
 R: TAGA Bus Location

NIOSH 7400: Fiber Analysis via NIOSH 7400, Revision 3, Issue 2, 8/1/594  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-19-01a.xls

ERT 10/22/01 09:50 AM

Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
October 22, 2001

Location	Longitude	Latitude	DataRam ID	Tag#	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2480	1	31	07:45:00	10	00:15:00	100	0.0	31.9	59.6	306.1
2	-74.198262	40.566883	2152	1	31	07:45:00	10	00:15:00	100	0.0	27.7	57.8	182.9
3	-74.198685	40.570054	2011	1	31	07:45:00	10	00:15:00	100	0.0	0.1	55.0	419.3
4	-74.201380	40.569790	2294	1	31	07:45:00	10	00:15:00	100	0.0	20.1	62.6	300.5
5	-74.205873	40.568892	2295	1	42	10:30:00	10	00:15:00	100	0.0	11.1	27.8	786.7
6	-74.207406	40.563818	2012	1	30	07:30:00	10	00:15:00	100	0.0	8.8	63.1	200.4
7	-74.205414	40.560434	2226	1	30	07:30:00	10	00:15:00	100	0.0	0.2	72.0	758.4
8	-74.203019	40.561915	2363	1	30	07:30:00	10	00:15:00	100	0.0	36.0	72.5	2326.5

Daily Data/Ram Particulate Monitoring Summary Sheet  
Staten Island Landfill  
October 20, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2295	1	24	06:00:00	10	00:15:00	100	0.0	0.0	56.5	443.7
2	-74.198262	40.566883	2363	1	24	06:00:00	10	00:15:00	100	0.0	0.0	45.1	732.3
3	-74.198685	40.570054	2011	1	24	06:00:00	10	00:15:00	100	0.0	0.1	17.3	2122.7
4	-74.201380	40.569790	2480	1	25	06:15:00	10	00:15:00	100	0.0	13.2	24.3	878.7
5	-74.205873	40.568892	2012	1	25	06:15:00	10	00:15:00	100	0.0	2.9	16.8	73.8
6	-74.207406	40.563818	2294	1	25	06:15:00	10	00:15:00	100	0.0	0.0	27.9	67.5
7	-74.205414	40.560434	2152	1	25	06:15:00	10	00:15:00	100	0.0	0.0	21.2	678.3
8	-74.203019	40.561915	2226	1	25	06:15:00	10	00:15:00	100	0.0	0.0	23.1	560.6



Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 October 21, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2295	1	42	0:30:00	10	00:15:00	100	0.0	11.1	27.8	786.7
2	-74.198262	40.566883	2363	1	45	11:15:00	10	00:15:00	100	0.0	11.6	36.6	1393.8
3	-74.198685	40.570054	2011	1	45	11:15:00	10	00:15:00	100	0.0	0.1	34.5	2245.0
4	-74.201380	40.569790	2480	1	45	11:15:00	10	00:15:00	100	0.0	11.3	37.0	247.7
5	-74.205873	40.568892	2012	1	45	11:15:00	10	00:15:00	100	0.0	0.1	34.7	1066.8
6	-74.207406	40.563818	2294	1	45	11:15:00	10	00:15:00	100	0.0	11.7	28.6	1078.5
7	-74.205414	40.560434	-	1	-	-	10	00:15:00	100	0.0	-----	-----	-----
8	-74.203019	40.561915	2294	1	45	11:15:00	10	00:15:00	100	0.0	11.7	28.6	1078.5

Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
October 19, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2295	1	40	10:00:00	10	00:15:00	100	0.0	0.0	25.1	468.0
2	-74.198262	40.566883	2226	1	39	09:45:00	10	00:15:00	100	0.0	4.0	26.5	971.7
3	-74.198685	40.570054	2012	1	39	09:45:00	10	00:15:00	100	0.0	0.3	25.4	2311.4
4	-74.201380	40.569790	2152	1	40	10:00:00	10	00:15:00	100	0.0	0.0	29.2	5940.0
5	-74.205873	40.568892	2294	1	40	10:00:00	10	00:15:00	100	0.0	0.0	51.4	12757.0
6	-74.207406	40.563818	2011	1	39	09:45:00	10	00:15:00	100	0.0	0.0	28.8	23236.2
7	-74.205414	40.560434	2480	1	39	09:45:00	10	00:15:00	100	0.0	4.7	35.8	5545.2
8	-74.203019	40.561915	2363	1	38	09:30:00	10	00:15:00	100	0.0	0.0	14.6	314.9

Results of the Analysis for Pesticide/PCBs in Soil  
 WA# 0-236 WTC NYC ER Site  
 Based on Dry Weight

Analyte	SBLK101101		03814		03815	
	Conc.	MDL	Conc.	MDL	Conc.	MDL
Percent Solid	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
a-BHC	U	3.3	U	3.5	U	3.5
g-BHC	U	3.3	U	3.5	U	3.5
b-BHC	U	3.3	U	3.5	U	3.5
Heptachlor	U	3.3	U	3.5	U	3.5
d-BHC	U	3.3	U	3.5	U	3.5
Aldrin	U	3.3	U	3.5	U	3.5
Heptachlor Epoxide	U	3.3	U	3.5	U	3.5
g-Chlordane	U	3.3	U	3.5	U	3.5
a-Chlordane	U	3.3	U	3.5	U	3.5
Endosulfan (I)	U	3.3	U	3.5	U	3.5
p,p'-D D E	U	3.3	U	3.5	U	3.5
Dieldrin	U	3.3	U	3.5	U	3.5
Endrin	U	3.3	U	3.5	U	3.5
p,p'-D D D	U	3.3	U	3.5	U	3.5
Endosulfan (II)	U	3.3	U	3.5	U	3.5
p,p'-D D T	U	3.3	U	3.5	U	3.5
Endrin Aldehyde	U	3.3	U	3.5	U	3.5
Endosulfan Sulfate	U	3.3	U	3.5	U	3.5
Methoxychlor	U	3.3	U	3.5	U	3.5
Endrin Ketone	U	3.3	U	3.5	U	3.5
Toxaphene	U	83	U	88	U	87

03814  
 600 Gateway 34th  
 94.4

03815  
 22 Courlland 7th  
 95.3

Aroclor 1016	42	U	44	U	44
Aroclor 1221	83	U	88	U	87
Aroclor 1232	42	U	44	U	44
Aroclor 1242	42	U	44	U	44
Aroclor 1248	42	U	44	U	44
Aroclor 1254	42	U	44	U	44
Aroclor 1260	42	U	44	550 W	44
Aroclor 1268	42	U	44	1200 W	44

**NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION**

**DRAFT GC/MS Results for 10/22/01 DRAFT**

File name	NYC406	NYC407	NYC408
Sample Location	Austin Tobin Plaza	North Tower	North Tower
Sample Number	10050	10045	10047
Sample Height	Breathing	Ground	Ground
Volume	250 mL	1 mL	1 mL
Propylene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Chloromethane	RL=20 ppbv	9600 ppbv	6100 ppbv
Vinyl Chloride	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,3-Butadiene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Bromomethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Chloroethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Acetone	130 ppbv	8600 ppbv	6300 ppbv
Trichlorotrifluoroethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
3-Chloropropene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Methylene Chloride	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
MTBE	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Hexane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Vinyl Acetate	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
2-Butanone	RL=20 ppbv	1100 ppbv	810 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Ethyl Acetate	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Chloroform	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Cyclohexane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Benzene	RL=20 ppbv	13000 ppbv	8700 ppbv
Heptane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Trichloroethene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,4-Dioxane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Toluene	RL=20 ppbv	3700 ppbv	2300 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
2-Hexanone	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Tetrachloroethene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Dibromochloromethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Chlorobenzene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Ethylbenzene	RL=20 ppbv	3100 ppbv	1800 ppbv
m&p-Xylenes	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
o-Xylene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Styrene	RL=20 ppbv	3100 ppbv	1600 ppbv
Bromoform	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Benzyl Chloride	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=1000 ppbv	RL=1000 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

DRAFT GC/MS Results for 10/22/01 DRAFT

File name	NYC401	NYC402	NYC403	NYC404	NYC405
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient N. Park Pier	North Tower	South Tower
Sample Number			10946	10945	10948
Sample Height			Breathing	Ground	Breathing
Volume		250 mL	250 mL	20 mL	20 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	12000 ppbv	570 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	160 ppbv	RL=50 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	750 ppbv	RL=50 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	510 ppbv	RL=50 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11000 ppbv	1400 ppbv
Trichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
M/TBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	410 ppbv	RL=50 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	907 ppbv	RL=50 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1700 ppbv	160 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	740 ppbv	68 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	15000 ppbv	1000 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	260 ppbv	RL=50 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	57 ppbv	RL=50 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	RL=50 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	RL=50 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	4800 ppbv	360 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	150 ppbv	RL=50 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110 ppbv	RL=50 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,2-Dibromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	630 ppbv	RL=50 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	4900 ppbv	401 ppbv
m&o-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	275 ppbv	260 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	RL=50 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	6800 ppbv	140 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	RL=50 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	200 ppbv	RL=50 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	97 ppbv	RL=50 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	RL=50 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	RL=50 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	85 ppbv	RL=50 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	220 ppbv	RL=50 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	64 ppbv	RL=50 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv

Ground Joe

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PHD-5										TVA-1000	
				COCl <sub>2</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	H <sub>2</sub> F ppbv	Cl <sub>2</sub> ppbv	HCl ppbv	HNO <sub>2</sub> ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	HCN ppm	NO ppm	FID ppm		
A	10/22/01	1008	CALM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B	10/22/01	1015	CALM	NA	0.6	NA	NA	NA	NA	NA	NA	NA	0.2	0	20.9	14	NA	NA	1.4
Loc #2	10/22/01	1022	CALM	NA	0.7	NA	NA	NA	NA	NA	NA	NA	NA	0	20.9	24	NA	NA	1.1
C1	10/22/01	1025	CALM	NA	NA	NA	NA	NA	NA	NA	NA	0.2	0	20.9	30	NA	NA	NA	2.9
H	10/22/01	1030	CALM	NA	NA	NA	NA	NA	NA	NA	NA	0.2	0	20.9	20	NA	NA	NA	NA
I	10/22/01	1036	CALM	NA	NA	NA	NA	NA	NA	NA	NA	0.2	0	20.9	32	NA	NA	NA	NA
D	10/22/01	1043	CALM	NA	NA	NA	NA	NA	NA	NA	NA	0.2	0	20.9	22	NA	NA	NA	NA
K	10/22/01	1048	CALM	NA	NA	NA	NA	NA	NA	NA	NA	0.3	2	20.9	20	NA	NA	NA	0.3
T	10/22/01	1057	CALM	NA	NA	NA	NA	NA	NA	NA	NA	0.3	2	20.9	19	NA	NA	NA	0.3
V	10/22/01	1103	CALM	NA	NA	NA	NA	NA	NA	NA	NA	0.3	2	20.9	29	NA	NA	NA	0.7
S	10/22/01	1111	CALM	NA	NA	NA	NA	NA	NA	NA	NA	0.2	3	20.9	28	NA	NA	NA	0.7
P	10/22/01	1114	CALM	NA	NA	NA	NA	NA	NA	NA	NA	0.2	2	20.9	32	NA	NA	NA	NA
Loc #1	10/22/01	1120	CALM	NA	1.1	NA	NA	NA	NA	NA	NA	0.2	2	20.9	13	NA	NA	NA	1.5
E	10/22/01	1123	CALM	NA	NA	NA	NA	NA	NA	NA	NA	0.2	2	20.7	12	NA	NA	NA	NA
F	10/22/01	1129	CALM	NA	NA	NA	NA	NA	NA	NA	NA	0.2	3	20.8	16	NA	NA	NA	3.1
Q	10/22/01	1137	CALM	NA	1.3	NA	NA	NA	NA	NA	NA	0.2	2	20.8	16	NA	NA	NA	NA

A: GREENWICH + BRADLEY  
 B: CHURCH + LIBERTY  
 C: CHURCH + LIBERTY  
 C1: BRADLEY + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: GORRARD + LIBERTY  
 F: WEST + WESLEY  
 G: CHURCH + LIBERTY  
 H: CHURCH + LIBERTY  
 I: BRADLEY + LIBERTY  
 J: WEST + LIBERTY  
 K: WEST + LIBERTY  
 L: STUY. VS. (FREE)  
 M: HYDROGEN (FREE) + N THER 2.5  
 P: SOUTHEND + ABBINNY  
 Q: CG (DUMKIND) TEST  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: PAPER TROOPS FROM DET.

Location	NO <sub>x</sub> ppm	CO ppm	SO <sub>2</sub> ppm	HCN ppm	FID ppm
A	NA	NA	NA	NA	NA
B	NA	NA	NA	NA	NA
Loc #2	NA	NA	NA	NA	NA
C1	NA	NA	NA	NA	NA
H	NA	NA	NA	NA	NA
I	NA	NA	NA	NA	NA
D	NA	NA	NA	NA	NA
K	NA	NA	NA	NA	NA
T	NA	NA	NA	NA	NA
V	NA	NA	NA	NA	NA
S	NA	NA	NA	NA	NA
P	NA	NA	NA	NA	NA
Loc #1	NA	NA	NA	NA	NA
E	NA	NA	NA	NA	NA
F	NA	NA	NA	NA	NA
Q	NA	NA	NA	NA	NA

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters										Multi-Gas PHD-5				TVA-1000	
				COCl <sub>2</sub>	H <sub>2</sub> F	H <sub>2</sub> SO <sub>4</sub>	Cl <sub>2</sub>	HCl	H <sub>2</sub> S	SO <sub>2</sub>	LEL	O <sub>2</sub>	CO	H <sub>2</sub> CO	NO	FID	PID		
A	1/22/01	1400	calm	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	20.9	21	NA	4	0.8	
B	1/22/01	1406	calm	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	20.8	31	NA	3	1.6	
Loc 3	1/22/01	1410	calm	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	20.8	24	NA	2	NA	
C 2	1/22/01	1415	calm	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	20.7	18	NA	3	NA	
H	1/22/01	1419	calm	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	20.8	22	NA	3	0.9	
I	1/22/01	1422	calm	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	20.8	24	NA	2	0.2	
D	1/22/01	1427	calm	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	20.8	21	NA	2	0.1	
K	1/22/01	1430	calm	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	20.8	12	NA	2	0.2	
M/V	1/22/01	1437	calm	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	20.7	26	NA	3	2.1	
S	1/22/01	1448	calm	NA	NA	NA	NA	NA	NA	NA	NA	0.3	3	20.7	21	NA	3	0.3	
P	1/22/01	1456	calm	NA	NA	NA	NA	NA	NA	NA	NA	0.2	3	20.7	9.5	NA	3	1.9	
Loc 2	1/22/01	1500	calm	NA	NA	NA	NA	NA	NA	NA	NA	0.1	3	20.7	15	NA	3	1.4	
E	1/22/01	1505	calm	NA	NA	NA	NA	NA	NA	NA	NA	0.2	3	20.8	14	NA	3	0.4	
F	1/22/01	1520	calm	NA	NA	NA	NA	NA	NA	NA	NA	0.2	2	20.8	16	NA	3	NA	
G	1/22/01	1522	calm	NA	NA	NA	NA	NA	NA	NA	NA	0.1	2	20.9	15	NA	3	NA	
J	1/22/01	1527	calm	NA	NA	NA	NA	NA	NA	NA	NA	0.3	1	20.9	25	NA	3	0.5	

R: GREENWICH + BRIGBY  
 S: CHURCH + DEY  
 C1: BRIGBY + LIBERTY  
 3: GREENWICH + LIBERTY  
 E: SOUTHEND + LIBERTY  
 F: WEST + VESSEY  
 H: CHURCH + BRIGBY  
 I: BRIGBY + LIBERTY  
 J: WEST + BRIGBY  
 K: WEST + BRIGBY  
 L: STUY. HS. (GREEN)  
 M: HARRISON (GREEN) + N. HARRISON + LIBERTY  
 N: HARRISON (GREEN) + N. HARRISON + LIBERTY  
 O: CG (DUMMIS) POST  
 P: SOUTHEND + BRIGBY  
 1: LIBERTY + WEST  
 2: GREENWICH + LIBERTY  
 3: TUPAC FROM DEY  
 3: 20.8  
 3: 3.3  
 3: 0.1





U.S. EPA/Environmental Response Team Center  
 Response Engineering Analytical Contract  
 Air Sampling Work Sheet  
 DATARAM - Total Particulate Monitoring  
 Lockheed Martin Corp., Edison, NJ  
 U.S. EPA Contract No. 68-C99-223



Site: WTC-ER

WA#: R1A00236

Sampler: A. Hooper

U.S. EPA/ERTC WAM: Singhvi

Date: 10/22/01

REAC Task Leader: Bradstreet

Location	Stuyv. H.S. L	Pier 25 V-Ball N	TAGA		
Pump #	986809	799162	22375		
Time/Counter (Start)	0915 / 0	0920 / 0	0907 / 0		
Time/Counter (Stop)	1545 / 06:30	1450 / 0530	1100 / 07:00		
Total Time	06:30	05:30	07:00		
Pump Fault	Y / <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Y / <input checked="" type="checkbox"/>	Y / N	Y / N
Flow Rate	2 L/min	2 L/min	2 L/min	2 L/min	2 L/min
Min/Max (ug/m <sup>3</sup> )	57.6 / 192.4	72.3 / 187.4	26.7 / 273.2		
Average (ug/m <sup>3</sup> )	173.7 ug/m <sup>3</sup>	140.7 ug/m <sup>3</sup>	77.2 ug/m <sup>3</sup>		
MET Station on Site?: Y/N	↓ RAW SHORT				

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Wednesday, October 24, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 19 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 5:00 p.m. 10/24)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 99 samples taken in and around ground zero from October 20 through October 22. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1164, with 27 samples above the standard.

Four air samples taken in New Jersey on October 20 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 138, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - 57 samples were collected from October 19 to October 21; 55 of these samples showed results less than the AHERA standard. Two samples taken on October 20 exceeded the 70 structures per millimeter squared ( $70 \text{ S/mm}^2$ ) AHERA standard. A sample taken at an indoor wash station showed a reading of  $80 \text{ S/mm}^2$ ; the other sample taken inside a supply tent showed a reading of  $72 \text{ S/mm}^2$ .

**Ambient Air Sampling:**

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 23 in the direct area of the debris pile at ground zero. Benzene exceeded the OSHA time-weighted average permissible level at two locations. EPA detected elevated readings of a compound, which has tentatively been identified as Freon-22 (chlorodifluoromethane). These air samples are collected down, within the debris pile using extended probes. EPA will do additional sampling and analysis to both confirm if the compound is Freon-22 and to determine the actual levels detected.

EPA is working with the local agencies and health and safety officers working at ground zero to closely monitor this situation so that workers can take appropriate precautions.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on October 22 at Pace University, the Borough of Manhattan Community College, and the U.S. Coast Guard building located in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standards (65 ug/m<sup>3</sup>) for all stations.

**Particulate Monitoring** - EPA used portable monitors to collect samples on October 23 in the following areas, which are also the locations of Fixed Air Monitors: L (north east side of Stuyvesant High), R (north west side of Stuyvesant High School), and N (South side of Pier 25). All readings were all below the OSHA time-weighted average permissible level for particulates.

**Silicates** - Ten samples collected on October 8 showed no detectable levels of silicates.

**Dioxin** - Ten samples were collected in the restricted work area near ground zero on October 8 and analyzed for dioxin. Four of the samples showed results above the level at which EPA would take some type of action to reduce people's exposure. This action level, however, is based on a 30-year exposure scenario. None of the ten samples were above the EPA's action level adjusted to a 1-year exposure duration. These levels do not pose a short-term health affect but should be monitored if they persist for a longer period of time.

**Direct Air Readings** - Using portable monitors, direct air readings were taken in and around ground zero on October 23. No significant readings, including those for carbon monoxide, were detected.

#### **Bulk/Dust**

**Dioxin** - Two dust samples were collected on October 8 from rooftops in the vicinity of the former World Trade Center. Both samples were below the EPA residential cleanup goal of 1 part per billion.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Wednesday, October 24, 2001 (12 noon)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 20, 0001 - 1200 hrs)
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 2 samples (Locations L and P) were not analyzed due to a battery failure and a wet filter, respectively.
- NYC / ER (Oct 20, 1201 - 2400 hrs)
  - All 21 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 21, 0001 - 1200 hrs)
  - All 21 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 21, 1201 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 22, 0001 - 1200 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location D) was not analyzed due to a pump failure.
- NJ / ER (Oct 20)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 19, 0800 - 2000) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Oct 20, 0700 - 1900) - Asbestos
  - 2 of 19 samples analyzed were above the TEM AHERA standard.
  - Exceedances of the TEM AHERA standard occurred at indoor "Wash" Location #12A (80 S/mm<sup>3</sup>) and indoor "Staging/Supply" Tent Location # 16 (72 S/mm<sup>3</sup>).
- Fresh Kills (Oct 20, 1900 - Oct 21, 0730) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.

Ambient Air Sampling Locations

- NYC / ER (Oct 8) - Silicates
  - All 10 samples did not detect any silicates.
- NYC / ER (Oct 8) - Dioxin
  - 4 of the 10 samples (Location B, 3, C1, and D) collected were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - No samples were identified above the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.
  - Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for long-term (chronic exposure).
- NYC / ER (Oct 22) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **25.85 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **22.59 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **21.87 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 23) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated between 6 to 6½ hours.
  - Station L values ranged from 58.0 to 262.9 ug/m<sup>3</sup> with an average of 118.4 ug/m<sup>3</sup>.
  - Station N values ranged from 80.9 to 193.5 ug/m<sup>3</sup> with an average of 120.3 ug/m<sup>3</sup>.
  - Station R values ranged from 81.5 to 172.5 ug/m<sup>3</sup> with an average of 108.1 ug/m<sup>3</sup>.
- NYC / ER (Oct 23) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations on the debris pile in the plume at ground level.
  - Chlorodifluoromethane (Freon-22) continues to be noted as a Tentatively Identified Compound (TIC) at apparently significant concentrations in samples collected from the debris pile in the plume at ground level.
  - 2 separate samples collected at the North Tower location (3 hours apart) both tentatively identified chlorodifluoromethane (Freon-22).
  - Similarly, 2 separate samples collected on October 22 at the North Tower location (4 hours apart) both tentatively identified chlorodifluoromethane (Freon-22).
  - Note: Yesterday's VOC results were from samples collected on Oct 22 (the Sampling Situation Report cover page identified the date as Oct 21).

Bulk/Dust Samples

- NYC / ER (Oct 8) - Dioxin
  - 2 dust samples obtained from rooftops in the vicinity of the WTC (22 Cortlandt, 7<sup>th</sup> fl. and 600 Gateway Plaza, 34<sup>th</sup> fl.)

- All samples below the EPA residential cleanup goal of 1 ppb.

Direct Reading Instruments

- NYC / ER (Oct 23)
  - Nothing of significance reported.

NYC Emergency Response  
Air Sampling and/or Toran results  
Sampling Date: 10/08/01

Sample No.	WC5234-1	00791	00792	00793	00794	00795	00716				
Sampling Location	Relined Blank	TAGA	TAGA	A-Baruch & West Broadway	B-Church & Day St.	Loc 3 SW Side of VTC 5	C-Liberty St. & Broadway				
Volume (Liters)	0	7395	7395	5635	5434	5390	5225				
Analyte	EMPC ng	MDL ng	Result ng	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>
123478-HCDD	U	0.020	U	0.0027	0.0027	U	0.0026	0.0037	U	0.0021	0.0038
123478-HCDD	U	0.014	U	0.014	0.014	U	0.014	0.014	U	0.014	0.014
123478-HCDD	U	0.0085	U	0.014	0.014	U	0.0085	0.014	U	0.014	0.014
123478-HCDD	U	0.014	U	0.0009	0.0009	U	0.0015	0.014	U	0.014	0.014
1234678-HPCDD	U	0.014	U	0.014	0.014	U	0.0093	0.014	U	0.014	0.014
1234678-HPCDD	U	0.0047	U	0.014	0.014	U	0.018	0.014	U	0.014	0.014
1234678-HPCDD	0.0181 J	0.20	U	0.027	0.027	U	0.035	0.027	U	0.037	0.128
2078-TCDF	U	0.020	U	0.0027	0.0027	U	0.0096	0.0035	U	0.0037	0.0117
12378-PcCDF	U	0.0028	U	0.014	0.014	U	0.0010	0.014	U	0.014	0.014
22478-PcCDF	U	0.010	U	0.014	0.014	U	0.0011	0.014	U	0.014	0.014
123478-HCDD	U	0.010	U	0.014	0.014	U	0.0114	0.014	U	0.0114	0.014
123978-HCDD	U	0.0030	U	0.014	0.014	U	0.0013	0.014	U	0.014	0.014
12378-HCDD	U	0.014	U	0.014	0.014	U	0.0085	0.014	U	0.0085	0.014
12378-HCDD	U	0.014	U	0.014	0.014	U	0.0113	0.014	U	0.0113	0.014
1234678-HPCDF	U	0.0034	U	0.014	0.014	U	0.0096	0.014	U	0.0096	0.014
1234788-HPCDF	U	0.010	U	0.014	0.014	U	0.018	0.014	U	0.018	0.014
OCDF	U	0.0058	0.20	0.027	0.027	U	0.018	0.022	U	0.018	0.047
Total TCDDs	U	U	U	0.0052	0.0052	U	0.0013	0.0052	U	0.0013	0.0052
Total PCDDs	U	U	U	0.0164	0.0164	U	0.0084	0.0164	U	0.0084	0.0164
Total HcCDDs	U	U	U	0.0070	0.0070	U	0.0134	0.0070	U	0.0134	0.0070
Total TCDFs	U	U	U	0.0032	0.0032	U	0.0026	0.0032	U	0.0026	0.0032
Total PCDFs	U	U	U	0.0102	0.0102	U	0.0121	0.0102	U	0.0121	0.0102
Total HcCDFs	U	U	U	0.0041	0.0041	U	0.0054	0.0041	U	0.0054	0.0041
Total Adjusted Conc	0.0000	0.0000	0.0000	0.0013	0.0013	0.0000	0.0013	0.0000	0.0013	0.0000	0.0013
TEQ (ND=0)	0.0039	0.0006	0.0004	0.0028	0.0028	0.0000	0.0028	0.0000	0.0028	0.0000	0.0028
TEQ (ND=1/2)	0.0039	0.0006	0.0004	0.0028	0.0028	0.0000	0.0028	0.0000	0.0028	0.0000	0.0028

EMPC: Estimated Maximum Possible Concentration  
TEQ: Toxicity Equivalent

The TEQ (ND=1/2) is calculated using 1/2 of the estimated detection limit for U (non detect) values.

10-08-01dtskz.06

ERTC: 10/21/01 09:50 AM

NYC Response  
 Solid Sample - dioxin and furan results  
 Sampling Date 10/08/01  
 Results Based on Dry Weight

Sample ID	MRL K-6246-1		03814		600 Gateway 34th		03815		22C Citrand 7th	
	Lab Location	Method	Blank	100%	EMPC	MDL	EMPC	MDL	EMPC	MDL
Percent Solids	Result	EMPC	MDL	Result	EMPC	MDL	Result	EMPC	MDL	Result
	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
Analysite										
2379-TCDD	U		0.50	4.06			0.55	13.3		0.54
12378-PeCDF	U	0.156	2.5	4.76			2.7	14.4		2.7
12378-HxCDD	U	0.116	2.5	4.5			2.7	14.4		2.7
12379-HxCDF	U	0.188	2.5	8.57			2.7	26.0		2.7
12379-HxCDD	U	0.188	2.5	8.57			2.7	26.0		2.7
1234678-HxCDD	0.482 J		5.0	30.90			5.5	33.50		5.4
OCDD	2.20 J									
2379-TCDF	U		0.90	29.0			0.55	50.2		0.54
12378-PeCDF	0.142 J		2.5	5.1			2.7	14.4		2.7
12378-HxCDF	0.146 J	0.130	2.5	54.1			2.7	66.3		2.7
12378-HxCDD	0.146 J	0.146	2.5	34.1			2.7	44.1		2.7
1234678-HxCDF	0.150 J		2.5	12.9			2.7	12.9		2.7
1234678-HxCDD	0.210 J		2.5	12.9			2.7	12.9		2.7
1234678-HpCDF	0.262 J		2.5	23.7			2.7	21.2		2.7
1234789-HpCDD	U	0.222	2.5	23.7			2.7	21.2		2.7
OCDF	0.762 J		5.0	167			5.5	176		5.4
Total TCDDs	U			291				1130		
Total PeCDFs	U			159				537		
Total HxCDFs	0.0940			159				537		
Total HxCDDs	0.492			620				653		
Total TCDFs	U			1230				1750		
Total PeCDDs	0.142			600				689		
Total HxCDFs	0.508			465				400		
Total HxCDDs	0.262			277				261		
Total Adjusted Conc.										
TEQ (NI=0)	0.0684			51.3				76.9		
TEQ (NI=12)	0.126			51.6				77.4		

cc# 05129

EMPC = Estimated Maximum Possible Concentration  
 MDL = Method Detection Limit  
 The TEQ (NI=12) is calculated using 1/2 of the estimated detection limit for U (non detect) values.

ERT: 10/20/01 9:50 AM



NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*	
10/20/01	02052	Liberty Park	610	Air	<7.0	<0.004	0	0	<15.50	<0.0098
10/20/01	02053	CITGO Terminal	739.2	Air	<7.0	<0.004	0	0	<15.50	<0.0081
10/20/01	02054	FMC Terminal	110	Air	<7.0	<0.025	0	0	<15.50	<0.054
10/20/01	02055	Shell Terminal	610	Air	<7.0	<0.004	0	0	<15.50	<0.0098

COCF 04823

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1220 (10/20/01) to 1006 (10/21/01)
CITGO Terminal	1255 (10/20/01) to 1039 (10/21/01)
FMC Terminal	1320 (10/20/01) to 1118 (10/21/01)
Shell Terminal	1355 (10/20/01) to 1148 (10/21/01)

ERT: 10/23/01 09:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results at First Locations  
 Sampling Date and Time: 10/21/01 1201 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					fmm <sup>2</sup>	l/ft <sup>3</sup>	Structures (P) <sup>1</sup>	S-fiber <sup>2</sup>	
10/21/01	10605	A	720	Air	19.11	0.010	0	<8.61	<0.0046
10/21/01	10606	B	720	Air	36.57	0.016	0	<8.61	<0.0046
10/21/01	10607	C 1	720	Air	<7.0	<0.004	0	<8.61	<0.0046
10/21/01	10610	D	720	Air	<7.0	<0.004	0	<8.61	<0.0046
10/21/01	10617	E	720	Air	10.19	0.005	0	<8.61	<0.0046
10/21/01	10618	F	720	Air	43.31	0.023	0	<8.61	<0.0046
10/21/01	10619	G	720	Air	<7.0	<0.004	0	<8.61	<0.0046
10/21/01	10620	H	720	Air	8.92	0.004	0	<8.61	<0.0046
10/21/01	10621	I	720	Air	11.46	0.006	0	<8.61	<0.0046
10/21/01	10623	L	720	Air	<7.0	<0.004	0	<8.61	<0.0046
10/21/01	10622	M 1	720	Air	8.92	0.005	0	<8.61	<0.0046
10/21/01	10621	N	720	Air	11.46	0.006	0	<8.61	<0.0046
10/21/01	10616	P	720	Air	<7.0	<0.004	0	<8.61	<0.0046
10/21/01	10624	P Dup	720	Air	<7.0	<0.004	0	<8.61	<0.0046
10/21/01	10619	Q	720	Air	12.74	0.007	0	<8.61	<0.0046
10/21/01	10615	S	720	Air	<7.0	<0.004	0	<8.61	<0.0046
10/21/01	10613	U	720	Air	<7.0	<0.004	0	<8.61	<0.0046
10/21/01	10614	V	720	Air	<7.0	<0.004	0	<8.61	<0.0046
10/21/01	10612	T	720	Air	<7.0	<0.004	0	<8.61	<0.0046

ref 04693 & 04317

NS: Not sampled

\*Structure (S) roughly equivalent to fiber (f)  
 NR: Not requested  
 NA: not analyzed due to overloading of particulates

ERT: 10/23/01 09:50 AM

- Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty St.  
 C.1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St at Greenwich St.  
 E: East end of Albany St at South End Ave  
 F: North side of West St at Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball court)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)  
 FL-10-21-01a.xls

NYC Emergency Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/22/01 08:01 to 12:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCMA by NIOSH 7400		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Structures (f) 0.5µ-5µ	S-fiber* S/mm <sup>3</sup>
10/22/01	10641	A	720	Air	28.03	0.015	0	<8.61
10/22/01	10642	B	720	Air	22.93	0.012	0	<8.61
10/22/01	10643	C-1	718	Air	30.57	0.015	0	<8.61
10/22/01	10646	D	NS	Air	Not Sampled - Pump Failed		0	
10/22/01	10653	E	720	Air	8.92	0.005	0	<8.61
10/22/01	10650	E Dip	720	Air	7.64	0.004	0	<8.61
10/22/01	10654	F	720	Air	7.64	0.004	0	<8.61
10/22/01	10655	G	720	Air	10.19	0.005	0	<8.61
10/22/01	10656	H	720	Air	25.3	0.016	0	<8.61
10/22/01	10656	J	720	Air	<7.0	<0.004	0	<8.61
10/22/01	10647	K	720	Air	15.29	0.008	0	<8.61
10/22/01	10659	L	720	Air	<7.0	<0.004	0	<8.61
10/22/01	10658	M-1	720	Air	10.19	0.005	0	<8.61
10/22/01	10657	N	720	Air	<7.0	<0.004	0	<8.61
10/22/01	10652	P	720	Air	<7.0	<0.004	0	<8.61
10/22/01	10655	Q	720	Air	<7.0	<0.004	0	<8.61
10/22/01	10651	S	720	Air	<7.0	<0.004	0	<8.61
10/22/01	10653	T	720	Air	<7.0	<0.004	0	<8.61
10/22/01	10659	U	720	Air	15.56	0.009	0	<8.61
10/22/01	10646	V	720	Air	<7.0	<0.004	0	<8.61

see cells B & C4819

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Alley St. (between St. Ann and St. Nicholas Ave)
- E: West end of Liberty St. (between St. Ann and St. Nicholas Ave)
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Sluyswesant High), access to TAGA bus area
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- O: NE corner of South End Ave. & Albany
- P: West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location

NS: Not sampled  
 \*Structure (S) roughly equivalent to fiber (f)  
 NR: Not requested  
 NA: not analyzed due to overloading of particulates

ERT: 10/23/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCN); 70 S/mm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-22-01.xls

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/19/01 0800 to 2000

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*
10/19/2001	03431	P Loc # 1	599.7	Air	<7.0	<0.004	0	<7.27
10/19/2001	03432	P Loc # 2	595.1	Air	<7.0	<0.005	0	<7.27
10/19/2001	03433	P Loc # 3	529.8	Air	<7.0	<0.005	0	<7.27
10/19/2001	03434	P Loc # 4	596	Air	<7.0	<0.005	0	<7.27
10/19/2001	03435	P Loc # 5	619.1	Air	<7.0	<0.004	0	<7.27
10/19/2001	03436	P Loc # 6	581.1	Air	<7.0	<0.005	0	<7.27
10/19/2001	03437	P Loc # 7	578.3	Air	<7.0	<0.005	0	<7.27
10/19/2001	03438	P Loc # 8	576	Air	<7.0	<0.005	0	<7.27
10/19/2001	03439	S Loc # 9A	548	Air	8.92	<0.006	0	<7.27
10/19/2001	03440	S Loc # 9B	558	Air	<7.0	<0.005	1**	<7.27
10/19/2001	03441	S Loc # 10A	523	Air	<7.0	<0.005	1**	<7.27
10/19/2001	03442	S Loc # 10B	539	Air	<7.0	<0.005	0	<7.27
10/19/2001	03443	W Loc # 11	529	Air	<7.0	<0.005	0	<7.27
10/19/2001	03444	W Loc # 12A	533	Air	39.49	0.023	0	<7.27
10/19/2001	03445	W Loc # 12B	536	Air	<7.0	<0.005	0	<7.27
10/19/2001	03446	B Loc # 13	525	Air	<7.0	<0.005	0	<7.27
10/19/2001	03447	B Loc # 14	525	Air	<7.0	<0.005	0	<7.27
10/19/2001	03448	T Loc # 15	520	Air	12.74	0.009	2**	<7.27
10/19/2001	03449	T Loc # 16	521	Air	21.66	0.016	6**	<7.27

000F0467/094648

\*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particles/les  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 410CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA), 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/23/01 9:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/20/01 0700 to 10/20/01 1900

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>
10/20/01	03473	P Loc # 1	674.3	Air	<7.0	<0.004	1**	0.0043
10/20/01	03474	P Loc # 2	720	Air	<7.0	<0.004	0	<0.0048
10/20/01	03475	P Loc # 3	720	Air	<7.0	<0.004	5**	44.44
10/20/01	03476	P Loc # 4	620	Air	<7.0	<0.004	0	<0.0050
10/20/01	03477	P Loc # 5	720	Air	<7.0	<0.004	0	<0.0048
10/20/01	03478	P Loc # 6	720	Air	<7.0	<0.004	0	<0.0048
10/20/01	03479	P Loc # 7	720	Air	<7.0	<0.004	0	<0.0048
10/20/01	03480	P Loc # 8	720	Air	<7.0	<0.004	0	<0.0048
10/20/01	03481	S Loc # 9A	708	Air	<7.0	<0.004	0	<0.0048
10/20/01	03482	S Loc # 9B	705	Air	<7.0	<0.004	0	<0.0048
10/20/01	03483	S Loc # 10A	695	Air	<7.0	<0.004	0	<0.0048
10/20/01	03484	S Loc # 10B	710	Air	<7.0	<0.004	0	<0.0048
10/20/01	03485	W Loc # 11	709	Air	<7.0	<0.004	0	<0.0048
10/20/01	03486	W Loc # 12A	720	Air	19.75	0.011	8**	80
10/20/01	03487	W Loc # 12B	720	Air	<7.0	<0.004	0	<0.0048
10/20/01	03488	B Loc # 13	720	Air	<7.0	<0.004	0	<0.0048
10/20/01	03489	B Loc # 14	720	Air	<7.0	<0.004	0	<0.0048
10/20/01	03490	T Loc # 15	542	Air	<7.0	<0.004	0	<0.0048
10/20/01	03491	T Loc # 16	694	Air	17.2	0.010	8**	72

00291465284653

\*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Filter Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/23/01 9:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/20/01 1900 to 10/21/01 07:30

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/ftm <sup>3</sup>	f/cc	Structures (#)	>5µ	S-ftm <sup>3</sup>	S-ftcc <sup>*</sup>
10/20-21/2001	03484	P Loc # 1	635	Air	<7.0	<0.004	0	0	<7.87	<0.0048
10/20-21/2001	03485	P Loc # 2	635	Air	<7.0	<0.004	0	0	<7.87	<0.0048
10/20-21/2001	03486	P Loc # 3	635	Air	<7.0	<0.004	0	0	<7.87	<0.0048
10/20-21/2001	03487	P Loc # 4	637	Air	<7.0	<0.004	0	0	<7.87	<0.0048
10/20-21/2001	03488	P Loc # 5	635	Air	<7.0	<0.004	0	0	<7.87	<0.0048
10/20-21/2001	03489	P Loc # 6	639	Air	<7.0	<0.004	1**	0	7.87	0.0047
10/20-21/2001	03500	P Loc # 7	646	Air	<7.0	<0.004	0	0	<7.87	<0.0047
10/20-21/2001	03501	P Loc # 8	643	Air	<7.0	<0.004	0	0	<7.87	<0.0047
10/20-21/2001	03502	S Loc # 9A	662	Air	<7.0	<0.004	0	0	<7.87	<0.0047
10/20-21/2001	03503	S Loc # 9B	646	Air	<7.0	<0.004	0	0	<7.87	<0.0047
10/20-21/2001	03504	S Loc # 10 A	645	Air	<7.0	<0.004	0	0	<7.87	<0.0047
10/20-21/2001	03505	S Loc # 10 B	645	Air	<7.0	<0.004	0	0	<7.87	<0.0047
10/20-21/2001	03506	W Loc # 11	645	Air	7.64	0.005	0	0	<7.87	<0.0047
10/20-21/2001	03507	W Loc # 12A	669	Air	21.66	0.013	0	0	<7.87	<0.0046
10/20-21/2001	03508	W Loc # 12B	665	Air	<7.0	<0.004	2**	0	15.75	0.0095
10/20-21/2001	03509	B Loc # 13	638	Air	<7.0	<0.004	0	0	<7.87	<0.0048
10/20-21/2001	03510	B Loc # 14	637	Air	<7.0	<0.004	0	0	<7.87	<0.0048
10/20-21/2001	03511	T Loc # 15	638	Air	8.92	0.005	3**	0	23.62	0.0143
10/20-21/2001	03512	T Loc # 16	667	Air	9.55	0.005	0	0	<7.87	<0.0045

cccr0664 & 04655

\*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates  
NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/23/01 9:50 AM

NYC Emergency Response  
 Silica - Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/09/01 08:30 to 16:30

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
10/8/01	00817	A	1020	Air	<0.01	<0.01	<0.01
10/8/01	00818	B	960	Air	<0.01	<0.01	<0.01
10/8/01	00820	C-1	1000	Air	<0.01	<0.01	<0.01
10/8/01	00821	D	1000	Air	<0.01	<0.01	<0.01
10/8/01	NS	E					
10/8/01	00822	P	1000	Air	<0.01	<0.01	<0.01
10/8/01	00823	S	1600	Air	<0.01	<0.01	<0.01
10/8/01	00815	TAGA	960	Air	<0.01	<0.01	<0.01
10/8/01	00816	TAGA	1020	Air	<0.01	<0.01	<0.01
10/8/01	00819	Loc. 3 SW Side of WTC 5	1000	Air	<0.01	<0.01	<0.01

ccnr 0498

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to volleyball court)
- N: South side of Pier 25 (next to volleyball court)
- O: NE corner of South End Ave. & Albany
- P: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

NS: Not sampled

ERT 10/23/01 9:50 AM

NIOSH 7500: Silica crystalline by XRD

FL-10-08-01silica.xls

NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/20/01 00:01 to 12:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEP (AHERA)		S-floc*
					f/m <sup>3</sup>	f/cc	Structures (f) <sup>†</sup>	S/m <sup>3</sup>	
10/20/01	10861	A	1008	Air	17.2	0.007	0	<12.92	<0.0049
10/20/01	10862	B	946	Air	<7.0	<0.003	0	<11.07	<0.0045
10/20/01	10863	C 1	1106	Air	<7.0	<0.003	0	<12.92	<0.0045
10/20/01	10865	D	1014	Air	<7.0	<0.003	0	<12.92	<0.0049
10/20/01	10870	E	1440	Air	<7.0	<0.002	0	<12.92	<0.0035
10/20/01	10871	F	812	Air	<7.0	<0.003	0	<9.69	<0.0046
10/20/01	10884	H	928	Air	<7.0	<0.003	0	<11.07	<0.0045
10/20/01	10885	I	940	Air	<7.0	<0.003	0	<12.92	<0.0045
10/20/01	10887	J	914	Air	<7.0	<0.002	0	<11.07	<0.0047
10/20/01	10887	K	914	Air	<7.0	<0.002	0	<11.07	<0.0047
10/20/01	10887	L	914	Air	Not Sampled - Battery Failure	<7.0	0	<11.07	<0.0046
10/20/01	10880	M 1	926	Air	<7.0	<0.003	0	<12.92	<0.0047
10/20/01	10878	N	1062	Air	<7.0	<0.003	0	<6.45	<0.0044
10/20/01	10859	P	512	Air	Not Analyzed Wet Filter	<7.0	0	<12.92	<0.0035
10/20/01	10872	Q	558	Air	<7.0	0.002	0	<9.69	<0.0044
10/20/01	10876	Q DUP	1440	Air	7.64	0.002	0	<11.07	<0.0047
10/20/01	10858	S	850	Air	<7.0	<0.003	0	<11.07	<0.0047
10/20/01	10873	T	914	Air	<7.0	<0.003	0	<11.07	<0.0047
10/20/01	10872	U	914	Air	<7.0	<0.003	0	<12.92	<0.0040
10/20/01	10873	T	1246	Air	<7.0	<0.002	0	<12.92	<0.0040

see 10882 & 8440

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (s.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- E: West end of Rivington St. at Greenwich St.
- F: West end of Rivington St. at West Broadway
- F: Northern median strip of Vesey & West St.
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Sluysen High), access to TAGA bus area
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- O: NE corner of South End Ave. & Albany
- P: Bay St. & West St. (Corner stands in proximity to USCG command post)
- R: TAGA Bus Location

\*Structure (S) roughly equivalent to fiber (f)  
NR: Not requested  
NA: not analyzed due to overloading of particulates

ERT: 10/23/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 f/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-20-01-46



NYC Emergency Response  
 Ambient Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/20/01 12:01 to 2:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCMA by NIOSH 7400		TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (#)	S-f/cc*	
10/20/01	10831	A	1220	Air	19.11	0.005	0	<13.33	<0.0042
10/20/01	10832	B	1264	Air	17.63	0.005	0	<13.33	<0.0041
10/20/01	10833	C1	1114	Air	<7.0	<0.002	0	<13.33	<0.0036
10/20/01	10834	D	1238	Air	11.46	0.004	0	<13.33	<0.0034
10/20/01	10835	E	750	Air	8.92	0.005	0	<13.33	<0.0046
10/20/01	10834	F	1202	Air	<7.0	<0.002	0	<13.33	<0.0043
10/20/01	10835	H	1146	Air	7.64	0.003	0	<13.33	<0.0045
10/20/01	10848	J	1226	Air	<7.0	<0.002	0	<13.33	<0.0042
10/20/01	10850	J DUP	1160	Air	<7.0	<0.002	0	<13.33	<0.0044
10/20/01	10837	K	1106	Air	7.01	0.002	0	<13.33	<0.0046
10/20/01	10838	L	1146	Air	<7.0	<0.002	0	<13.33	<0.0039
10/20/01	10848	M1	1306	Air	<7.0	<0.002	0	<13.33	<0.0039
10/20/01	10847	N	1242	Air	<7.0	<0.002	0	<13.33	<0.0044
10/20/01	10842	P	1160	Air	<7.0	<0.002	0	<13.33	<0.0044
10/20/01	10845	Q	1132	Air	7.01	0.002	0	<13.33	<0.0045
10/20/01	10841	S	1440	Air	<7.0	<0.002	0	<13.33	<0.0039
10/20/01	10850	S DUP	1320	Air	<7.0	<0.002	0	<13.33	<0.0039
10/20/01	10850	V	1354	Air	10.83	0.003	0	<13.33	<0.0039
10/20/01	10851	U	1336	Air	<7.0	<0.002	0	<13.33	<0.0039
10/20/01	10838	T	1336	Air	<7.0	<0.002	0	<13.33	<0.0035

NS: Not sampled  
 \*Structure (S) roughly equivalent to fiber (f)  
 NR: Not requested  
 NA: not analyzed due to overloading of particulates

- Sampling Locations:**
- A: NE corner of West Broadway & Barclay
  - B: SE corner of Church & Dey St.
  - C: Trinity (a.k.a. Church) & Liberty
  - D: East end of Liberty St. at Greenwich St.
  - E: West end of Liberty St. at South End Ave
  - F: Northern median strip of Vesey & West St.
  - G: Church and Duane St.
  - H: South side of Chase Manhattan Plaza at Pine St.
  - I: SE corner of Wall St. & Broadway
  - J: NE corner of Warren & West St.
  - K: West St. & Albany in median strip
  - L: One-way street access (north side of Sullivan High), access to TAGA bus area
  - M1: West St. - 50 yards south of Harrison St. at bulkhead
  - N: South side of Pier 25 (next to volleyball court)
  - P: NE corner of South End Ave. & Albany
  - Q: Barclay & West St. (center island) in proximity to USCG command post
  - R: TAGA bus location

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/19/94  
 Aerosol Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 400/PR Part 603 (AHERA)  
 Standard criteria: EPA 400/PR Part 603 (AHERA); 0.01 fibers/cc (PCMA), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/21/01 00:10 to 12:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					ft/m <sup>3</sup>	f/cc	Structures (ft) <sup>a</sup>	S/mm <sup>2</sup>
10/21/01	10533	A	1108	Air	12.74	0.004	NA	NA
10/21/01	10534	B	1028	Air	21.06	0.009	NA	NA
10/21/01	10535	C.1	1044	Air	<7.0	<0.003	0	<13.33
10/21/01	10536	D	1182	Air	<7.0	<0.002	0	<13.33
10/21/01	10544	E	538	Air	<7.0	<0.002	0	<13.33
10/21/01	10545	F	1045	Air	12.74	0.005	1*	0.0049
10/21/01	10538	H	1002	Air	<7.0	<0.003	1*	0.0050
10/21/01	10537	I	1164	Air	<7.0	<0.002	0	<13.33
10/21/01	10548	J	1050	Air	<7.0	<0.003	0	<13.33
10/21/01	10555	J DUP	1090	Air	8.82	0.003	0	<13.33
10/21/01	10539	K	1162	Air	7.84	0.003	0	<13.33
10/21/01	10541	L	1058	Air	<7.0	<0.002	0	<13.33
10/21/01	10540	M.1	1058	Air	<7.0	<0.002	0	<13.33
10/21/01	10549	N	1018	Air	<7.0	<0.003	0	<13.33
10/21/01	10544	P	1016	Air	<7.0	<0.003	0	<11.43
10/21/01	10547	Q	1106	Air	<7.0	<0.002	0	<13.33
10/21/01	10543	S	1204	Air	<7.0	<0.002	0	<13.33
10/21/01	10552	S DUP	1022	Air	<7.0	<0.003	1*	0.0050
10/21/01	10542	V	1248	Air	<7.0	<0.002	0	<16.00
10/21/01	10541	W	848	Air	7.91	<0.003	0	<11.43
10/21/01	10549	T	1058	Air	<7.0	<0.003	0	<13.33

NS: Not sampled  
\*Structure (S) roughly equivalent to fiber (f)  
NR: Not requested  
NA: not analyzed due to overloading of particulates

- Sampling Locations:**  
A: NE corner of West Broadway & Barclay  
B: SE corner of Church & Dey St.  
C: Trinity (k.k.a. Church) & Liberty St.  
D: SW corner of Broadway & Liberty St.  
E: Eastern end of West End St.  
F: Western end of Liberty St. at South End Ave  
G: Northern median strip of Vesey & West St  
H: Church and Duane St.  
I: South side of Chase Manhattan Plaza at Pine St.  
J: SE corner of Wall St. & Broadway  
K: NE corner of Warren & West St.  
L: West St. & Albany in median strip  
M: West side of North Park (across north side of Shuyesant High), access to TAGA bus area  
N: West St. 50' (near 1st St. on board)  
O: South side of Park 25 (next to volleyball court)  
P: NE corner of South End Ave. & Albany  
Q: Barclay & West St. (center island) in proximity to USCG command post  
R: TAGA Bus Location

ERT: 10/23/01 01:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, or 25 mm filter (TEM)

**DataRam Particulate Monitoring**

Date: 10/23/01

	Station L	Station N	Station R (TAGA)
Start time	*		
End time	*		
Elapsed time	6:38	6:15	6:00
Max	262.9 ug/m3	193.5ug/m3	172.5 ug/m3
Min	58.0 ug/m3	80.9 ug/m3	81.5 ug/m3
Avg	118.4 ug/m3	120.3 ug/m3	108.1 ug/m3

\*Start and end times not reported for this day, only elapsed time.

All averages below OSHA TWA of 5,000ug/m3 and ACGIH 3,000 ug/m3. DataRam particulate monitors are measuring particulates, not any one particular size.

DRAFT GC/MS Results for 10/23/01 DRAFT

File name	NYC411	NYC412	NYC415	NYC413	NYC416	NYC417	NYC418
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient Blank	North Tower	South Tower	Austin Tobin	North Tower
Sample Number			10051	10052	10053	10054	10055
Sample Height			Breathing Level	Ground Level	Ground Level	Breathing Height	Ground Level
Volume		250 mL	250 mL	25 mL	25 mL	100 mL	1 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	18,000 ppbv*	9,900 ppbv	RL=20 ppbv	12,000 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	60 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2,600 ppbv*	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,100 ppbv*	140 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	390 ppbv	490 ppbv	RL=20 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	85 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	12,000 ppbv*	17,000 ppbv	720 ppbv	11,000 ppbv
Trichlorofluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	450 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
trans-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	460 ppbv	750 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,600 ppbv*	4,400 ppbv	110 ppbv	1,700 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	130 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,200 ppbv*	2,500 ppbv	52 ppbv	1,400 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	24,000 ppbv*	21,000 ppbv	RL=20 ppbv	20,000 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	270 ppbv	540 ppbv	RL=20 ppbv	RL=20 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	280 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	160 ppbv	420 ppbv	84 ppbv	RL=20 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	170 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	17,500 ppbv*	9,900 ppbv	RL=20 ppbv	7,000 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	160 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	150 ppbv	250 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	350 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	430 ppbv	160 ppbv	RL=20 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	5,100 ppbv*	10,000 ppbv	RL=20 ppbv	5,000 ppbv
m&p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	380 ppbv	690 ppbv	RL=20 ppbv	3,200 ppbv
O-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	380 ppbv	490 ppbv	RL=20 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3,500 ppbv*	2,800 ppbv	RL=20 ppbv	2,200 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	170 ppbv	460 ppbv	RL=20 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	180 ppbv	290 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	130 ppbv	260 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	170 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	190 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	64 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv

\* Concentration from dilution run 1mL - Data File NYC414

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

GROUND ZERO TASK FORCE... REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PPD-5										TVA-1000		
				COCl <sub>2</sub> ppbv	H <sub>2</sub> SO <sub>4</sub> ppbv	HF ppbv	HNO <sub>3</sub> ppbv	HCl ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	ND ppm	FID ppm	FID ppm				
A	10/23/01	915	N02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	10/23/01	925	N02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	10/23/01	930	N02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Z	10/23/01	935	N04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C	10/23/01	940	N06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	10/23/01	950	E03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	10/23/01	955	E04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	10/23/01	1005	N01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	10/23/01	1010	N01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
T	10/23/01	1020	N05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
V	10/23/01	1025	N08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
V	10/23/01	1027	N08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	10/23/01	1038	N02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	10/23/01	1043	N04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L	10/23/01	1047	N02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	10/23/01	1051	N04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

R: GREENWICH + BRICLUY  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C-1: BRADDOCK + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOUTHEND + LIBERTY  
 F: WEST + VESLEY  
 H: CHURCH PLAZA  
 I: BRADDOCK + LIBERTY  
 J: WEST + JAMISON  
 K: WEST + ALBANY  
 L: 5702 N.S. (GREEN)  
 M: HARRISON (GREEN) + N. PEAR 25  
 N: GREENWICH + LIBERTY  
 O: CG COMMAND POST  
 P: LIBERTY + WEST  
 Q: GREENWICH + LIBERTY  
 R: PLAZA BRICKS FROM DEY

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GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters						Multi-Gas PFD-5						TVA-1000	
				CO <sub>2</sub> ppbv	H <sub>2</sub> S ppbv	HCN ppbv	NO ppbv	HCl ppbv	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	NO ppm	FID ppm	PID ppm		
F	10/20/01	1100	WSW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q	10/20/01	1105	SSW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J	10/21/01	1110	WSW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	10/22/01	1120	WSW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
W	10/23/01	1125	SSW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L	10/24/01	1130	WSW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

A: GREENWICH + BRADLEY  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 D: BRADLEY + LIBERTY  
 E: SOHREN + LIBERTY  
 F: WEST + WESLEY  
 G: CHASE PLAZA  
 H: BRADLEY + LIBERTY  
 I: GREENWICH + LIBERTY  
 J: SOHREN + WAREN  
 K: WEST + BRADLEY  
 L: STU? WS. (TRAIL)  
 M: HARRISON (RSE) + N. PEAR ZS  
 N: GREENWICH + LIBERTY  
 O: GREENWICH + WEST  
 P: SOHREN + BRADLEY  
 Q: CG GIMMAD POST  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: PIERA STRESS FROM DEY

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters						Multi-Gas PHD-5										TVA-1000	
				COCl <sub>2</sub> ppbv	HF	ELSO <sub>4</sub> ppbv	HNO <sub>3</sub> ppbv	HCl ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	NO ppm	FID ppm	FID ppm					
A	10/23/01	1335	NW2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.8	ND		
B	10/23/01	1340	NW2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.8	ND		
3	10/23/01	1345	NW4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7	ND		
Z	10/23/01	1347	CAEA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7	ND		
I	10/23/01	1352	NW4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.9	ND		
D	10/23/01	1359	NW2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.8	ND		
K	10/23/01	1410	SE2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.8	ND		
T	10/23/01	1420	EE4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7	ND		
V	10/23/01	1430	EE4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	ND		
S	10/23/01	1440	EE2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.8	ND		
P	10/23/01	1445	EE3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	ND		
I	10/23/01	1450	NW4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	0.2		
N	10/23/01	1503	EE5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.8	0.5		
M	10/23/01	1508	SEB8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	1.2		
L	10/23/01	1510	EE3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	ND		

A: GREENWICH + BRADLEY  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C1: BRADWAY + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOMERS + LIBERTY  
 F: WEST + VESAY  
 H: CHASE PARK  
 I: BRADWAY + LIBERTY  
 J: WEST + WARREN  
 K: WEST + ALBANY  
 L: ST. W. (VRE)  
 M: HARRISON (VRE) + N PAR 25  
 P: SCOTTSBORO + ALBANY  
 Q: CG COMMAND POST  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: BATA BARRACKS FROM DEY

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**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Thursday, October 25, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 19 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 5:00 p.m. 10/25)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 79 samples taken in and around ground zero from October 22 through October 24. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1243, with 27 samples (all collected prior to September 30) above the standard.

Eight air samples taken in New Jersey from October 21 and October 22 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 146, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - 92 samples were collected on October 21. All of these samples showed results less than the school re-entry standard.

**Ambient Air Sampling:**

**PCBs** - Sampling for polychlorinated biphenyls (PCBs) was conducted on October 11. PCBs were not detected in seven of the samples. Three of the samples showed trace amounts, well below levels of concern.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 24 in the direct area of the debris pile at ground zero. Benzene exceeded the OSHA time-weighted average permissible level at two locations. EPA detected elevated readings of a compound, which has tentatively been identified as Freon-22 (chlorodifluoromethane) in samples collected from within



the debris pile using extended probes. EPA will do additional sampling and analysis to both confirm if the compound is Freon-22 and to determine the actual levels detected. EPA is working with the local agencies and health and safety officers working at ground zero to closely monitor this situation so that workers can take appropriate precautions.

**Particulate Monitoring** - EPA used portable monitors to collect samples on October 24 in the following areas, which are also the locations of Fixed Air Monitors: L (north east side of Stuyvesant High), R (north west side of Stuyvesant High School), and N (South side of Pier 25). All readings were all below the OSHA time-weighted average permissible level for particulates.

**Asbestos (Supplemental Monitoring)** - Ninety-nine asbestos samples were taken at the locations of the following fixed particulate matter (PM 2.5) monitoring stations: Pace University, Manhattan Boro Community College, the Coast Guard Building in Battery Park, Public School (PS) 154 at 333 E. 135<sup>th</sup> St in the Bronx, Intermediate School 143 at 511 W. 182<sup>nd</sup> St in Manhattan, PS 274 at 800 Bushwick Ave. in Brooklyn, PS 44 at 80 Maple Parkway in Staten Island, and PS 199 at 3290 48<sup>th</sup> Ave. in Queens. Ninety-seven of the samples showed results less than the school re-entry standard, with two samples - one in Manhattan, one in Queens - above the standard.

**Direct Air Readings** - Using portable monitors, direct air readings were taken in and around ground zero on October 24. Low levels of chlorine below the OSHA permissible level were detected. Several carbon monoxide readings were detected above the National Ambient Air Quality Standard (NAAQS) 8-hour average of 9 ppm, however the readings were below the NAAQS 1-hour average of 35 ppm and the OSHA permissible level of 50 ppm.

**Bulk/Dust:**

**PCBs** - Two dust samples were collected on October 8 from rooftops in the vicinity of the former World Trade Center. Both samples detected trace concentrations PCBs that were well below levels of concern.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Thursday, October 25, 2001 (3 PM)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 22, 1201 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 23, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 23, 1201 - 2400 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location D) was destroyed by a motor vehicle.
- NYC / ER (Oct 24, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NJ / ER (Oct 21)
  - All 4 samples analyzed were below the TEM AHERA standard.
- NJ / ER (Oct 22)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 10, 1900 - Oct 11, 0700) - Asbestos
  - Errata: The corrected chart (attached) revises the results to reflect that the number of structures (S) detected were in the range of 0.5 - 5u, not >5u as previously reported.
  - All other results remain the same.
- Fresh Kills (Oct 21, 0600 - 1830) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 sample P Location # 2 was not submitted.
- Fresh Kills (Oct 21, 1800 - Oct 22, 0800) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 sample T Location # 15 was not analyzed due to overloading of particles.

- Fresh Kills (Oct 22, 0630 - 1900) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 sample T Location # 16 was not analyzed due to overloading of particles.
- Fresh Kills (Oct 23, 0700 - 1830) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Oct 23, 1800 - Oct 24, 0600) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.

#### Ambient Air Sampling Locations

- NYC / ER (Oct 11) - PCBs
  - Trace amounts detected in 3 of 10 samples.
  - 7 samples did not detect any PCBs.
  - All concentrations are below the EPA Removal Action level guidelines.
- NYC / ER (Oct 24) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 6 hours.
  - Station L values ranged from 74.0 to 99.1 ug/m<sup>3</sup> with an average of 74.1 ug/m<sup>3</sup>.
  - Station N values ranged from 62.6 to 69.7 ug/m<sup>3</sup> with an average of 62.7 ug/m<sup>3</sup>.
  - Station R values ranged from 56.5 to 78.0 ug/m<sup>3</sup> with an average of 65.1 ug/m<sup>3</sup>.
- NYC / ER (Oct 24) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations on the debris pile in the plume at ground level.
  - Chlorodifluoromethane (Freon-22) continues to be noted as a Tentatively Identified Compound (TIC) in samples collected from the debris pile (North Tower and South Tower) in the plume at ground level.
  - Analytical standard required to confirm both the presence of Freon-22 and its concentration.
- NYC / ER (Sep 28 - Oct 13) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 98 samples were collected from these monitoring sites.
  - 1 sample collected from rooftop of Site 2 (104.99 S/mm<sup>2</sup>) over a 12-hour period

- exceeded TEM AHERA standard on Oct 9<sup>th</sup>.
- 1 sample collected from rooftop of Site 9 (93.33 S/mm<sup>2</sup>) over a 12-hour period exceeded TEM AHERA standard on Oct 12<sup>th</sup>.

Bulk/Dust Samples

- NYC / ER (Oct 8) - PCBs
  - 2 dust samples obtained from rooftops in the vicinity of the WTC (22 Cortlandt, 7<sup>th</sup> fl. and 600 Gateway Plaza, 34<sup>th</sup> fl.).
  - All samples below the EPA residential cleanup guideline of 1 ppm.

Direct Reading Instruments

- NYC / ER (Oct 24)
  - Low levels of chlorine detected in the morning below the OSHA PEL (1 ppm).
  - Several readings noted above the carbon monoxide NAAQS (8 hr. average) of 9 ppm, but below the NAAQS (1 hr. average) of 35 ppm and the OSHA PEL of 50 ppm.

NYC Emergency Response  
 Air Samples - Modified Method 680 PCB results  
 Sampling Date 10/11/01

Sample No.	05047		05048		05049		05050		05052		05051	
	D	P	S	E	Lot Blank	Field Blank						
Sampling Location	5434	5412	4719*	5379	0	0						
Sample Volume (L)												
Analyte	Result	MDL	Result	MDL	Result	MDL						
	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng	ng						
209-DcCB	U	1.84	U	1.85	U	2.12	U	1.86	U	10.0	U	10.0
Sum of McCBs	U	1.84	U	1.85	U	2.12	U	1.86	U	10.0	U	10.0
Sum of DiCBs	U	1.84	U	1.85	U	2.12	U	1.86	U	10.0	U	10.0
Sum of TriCBs	U	1.84	U	1.85	U	2.12	U	1.86	U	10.0	U	10.0
Sum of TeCBs	U	1.84	U	1.85	U	2.12	U	1.86	U	10.0	U	10.0
Sum of PeCBs	U	1.84	U	1.85	U	2.12	U	1.86	U	10.0	U	10.0
Sum of HxCBs	U	1.84	U	1.85	U	2.12	U	1.86	U	10.0	U	10.0
Sum of HpCBs	U	1.84	U	1.85	U	2.12	U	1.86	U	10.0	U	10.0
Sum of OcCBs	U	1.84	U	1.85	U	2.12	U	1.86	U	10.0	U	10.0
Sum of NoCBs	U	1.84	U	1.85	U	2.12	U	1.86	U	10.0	U	10.0
Total	0	0	0	0	0	0	0	0	0	0	0	0

\*Sampling time and volume are estimated.  
 Sample line was disconnected from pump for up to an hour

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/min <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*	
10/21/01	02057	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/21/01	02058	CITGO Terminal	331	Air	<7.0	<0.008	0	0	<6.15	<0.0072
10/21/01	02059	FMC Terminal	474	Air	<7.0	<0.006	0	0	<6.15	<0.0050
10/21/01	02060	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

COC# 04825

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1006 (10/21/01) to 1806 (10/21/01)
CITGO Terminal	1039 (10/21/01) to 1610 (10/21/01)
FMC Terminal	1118 (10/21/01) to 1932 (10/21/01)
Shell Terminal	1148 (10/21/01) to 1948 (10/21/01)

ERT: 10/24/01 9:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/10/01 19:00 to 10/11/01 07:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*
10/11/01	03074	P Loc #1	718	Air	<7.00	<0.004	2**	0.0025
10/11/01	03075	P Loc #2	600	Air	<7.00	<0.004	0	<0.0051
10/11/01	03076	P Loc #3	720	Air	7.64	0.004	0	<0.0048
10/11/01	03077	P Loc #4	720	Air	<7.00	<0.004	0	<0.0048
10/11/01	03078	P Loc #5	720	Air	<7.00	<0.004	0	<0.0048
10/11/01	03079	P Loc #6	720	Air	<7.00	<0.004	0	<0.0048
10/11/01	03080	P Loc #7	716	Air	<7.00	<0.004	0	<0.0048
10/11/01	03081	P Loc #8	720	Air	<7.00	<0.004	0	<0.0048
10/11/01	03082	S Loc #9A	265	Air	<7.00	<0.010	0	<0.0128
10/11/01	03083	S Loc #8C	631	Air	<7.00	<0.004	0	<0.0054
10/11/01	03084	S Loc #8C	507	Air	7.64	0.005	0	<0.0054
10/11/01	03085	S Loc #10 A	648.3	Air	<7.00	<0.004	0	<0.0053
10/11/01	03086	S Loc #10 B	635	Air	<7.00	<0.004	0	<0.0054
10/11/01	03087	W Loc #11	659.2	Air	11.46	0.007	3**	0.0140
10/11/01	03088	B Loc #12	657	Air	14.01	0.008	8**	0.0376
10/11/01	03089	B Loc #13	692.2	Air	<7.00	<0.004	1**	0.0044
10/11/01	03090	B Loc #14	666.3	Air	<7.00	<0.004	0	<0.0045

cc# 04623

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates  
\*\* Chrysotiles; no other types of asbestos were detected.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 703 (AHERA)  
Standard criteria: EPA 40CFR Part 703 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/24/01 9:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/21/01 0600 to 10/21/01 1830

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/imm?	f/cc	Structures (#)	S/imm?
10/21/2001	03515	P Loc # 1	445.7	Air	<7.0	<0.006	0	<7.87
10/21/2001	03516	P Loc # 2	523.7	Air	Not submitted			<0.0069
10/21/2001	03517	P Loc # 3	482	Air	<7.0	<0.006	1**	6.06
10/21/2001	03518	P Loc # 4	720	Air	<7.0	<0.004	1**	8.75
10/21/2001	03534	P Loc # 5	720	Air	<7.0	<0.004	0	<8.75
10/21/2001	03520	P Loc # 6	720	Air	<7.0	<0.004	0	<8.75
10/21/2001	03521	P Loc # 7	720	Air	<7.0	<0.004	0	<8.75
10/21/2001	03522	P Loc # 8	720	Air	<7.0	<0.004	0	<8.75
10/21/2001	03523	S Loc # 9A	716	Air	<7.0	<0.004	0	<8.75
10/21/2001	03524	S Loc # 9B	747	Air	<7.0	<0.004	0	<8.75
10/21/2001	03525	S Loc # 10 A	720	Air	13.38	0.007	0	<8.75
10/21/2001	03526	S Loc # 10 B	720	Air	<7.0	<0.004	1**	8.75
10/21/2001	03527	W Loc # 11	689	Air	<7.0	<0.004	0	<7.87
10/21/2001	03528	W Loc # 12A	171.6	Air	<7.0	<0.016	0	<7.87
10/21/2001	03529	W Loc # 12B	171	Air	<7.0	<0.016	0	<7.87
10/21/2001	03530	B Loc # 13	720	Air	<7.0	<0.004	2**	17.50
10/21/2001	03531	B Loc # 14	720	Air	<7.0	<0.004	0	<8.75
10/21/2001	03532	T Loc # 15	720	Air	<7.0	<0.004	0	<8.75
10/21/2001	03533	T Loc # 16	320	Air	<7.0	<0.008	0	<7.87

cccr04656 & 57

\*\* Chrysotile, no other types of asbestos were detected.

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method.  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denudes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/imm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/24/01 9:50 AM

FK-10-21-01a.xls



NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/21/01 1600 to 10/22/01 0600

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*
10/22/2001	03537	P Loc # 1	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03538	P Loc # 2	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03539	P Loc # 3	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03540	P Loc # 4	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03541	P Loc # 5	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03542	P Loc # 6	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03543	P Loc # 7	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03544	P Loc # 8	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03545	S Loc # 9A	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03546	S Loc # 9B	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03547	S Loc # 10 A	637	Air	<7.0	<0.004	0	<8.00
10/22/2001	03548	S Loc # 10 B	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03549	W Loc # 11	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03550	W Loc # 12A	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03551	W Loc # 12B	720	Air	8.92	0.005	0	<8.89
10/22/2001	03552	B Loc # 13	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03553	B Loc # 14	634	Air	<7.0	<0.004	0	<8.89
10/22/2001	03554	T Loc # 15	323.3	Air	<7.0	<0.006	0	<8.00
10/22/2001	03555	T Loc # 16	820	Air	<7.0	<0.003	0	<10.00

cccr04659.8.59

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/24/01 9:50 AM

FK-10-22-01.xls

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/22/01 0630 to 10/22/01 1900

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*
10/22/2001	03558	P Loc # 1	716	Air	<7.0	<0.004	0	<8.89
10/22/2001	03559	P Loc # 2	714	Air	<7.0	<0.004	0	<0.0048
10/22/2001	03560	P Loc # 3	720	Air	<7.0	<0.004	0	<8.89
10/22/2001	03561	P Loc # 4	705.3	Air	<7.0	<0.004	0	<0.0048
10/22/2001	03562	P Loc # 5	699.7	Air	<7.0	<0.004	0	<8.89
10/22/2001	03563	P Loc # 6	698.5	Air	<7.0	<0.004	0	<0.0049
10/22/2001	03564	P Loc # 7		Air	<7.0	<0.004	0	<8.89
10/22/2001	03565	P Loc # 8	693.9	Air	<7.0	<0.004	0	<8.00
10/22/2001	03566	S Loc # 9A	654	Air	<7.0	<0.004	0	0.0047
10/22/2001	03567	S Loc # 9B	668	Air	<7.0	<0.004	0	<8.00
10/22/2001	03568	S Loc # 10 A	667	Air	<7.0	<0.004	0	<0.0046
10/22/2001	03569	S Loc # 10 B	640	Air	10.8	0.006	0	<8.00
10/22/2001	03570	W Loc # 11	695	Air	7.64	0.004	1**	<0.0048
10/22/2001	03571	W Loc # 12A	694	Air	12.74	0.007	0	8.0
10/22/2001	03572	W Loc # 12B	695	Air	<7.0	<0.004	0	<8.00
10/22/2001	03573	B Loc # 13	708	Air	<7.0	<0.004	3*	<0.0044
10/22/2001	03574	B Loc # 14	711	Air	<7.0	<0.004	8**	24.0
10/22/2001	03575	T Loc # 15	648	Air	7.64	0.004	0	64.0
10/22/2001	03576	T Loc # 16	699.5	Air	<7.0	<0.004	0	<8.00

\*\*Chrysotile, no other type of asbestos fiber fou

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/24/01 9:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/22/01 12:11 to 2:49

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					fmm <sup>2</sup>	f/cc	Structures #/0.5µ-5µ	S-f/cc*
10/22/01	10671	A	720	Air	58.6	0.031	0	<8.61
10/22/01	10672	B	720	Air	20.36	0.011	0	<8.61
10/22/01	10673	C 1	720	Air	40.76	0.022	0	<8.61
10/22/01	10676	D	720	Air	53.5	0.029	0	<8.61
10/22/01	10683	E	720	Air	11.46	0.006	0	<8.61
10/22/01	10684	F	720	Air	8.92	0.005	0	<8.61
10/22/01	10685	G	720	Air	16.96	0.009	0	<8.61
10/22/01	10675	H	720	Air	40.76	0.022	0	<8.61
10/22/01	10676	I	720	Air	26.75	0.014	0	<8.61
10/22/01	10677	J	720	Air	30.57	0.016	0	<8.61
10/22/01	10689	L	720	Air	<7.0	<0.004	0	<8.61
10/22/01	10690	LDNJP	720	Air	<7.0	<0.004	0	<8.61
10/22/01	10688	M 1	720	Air	8.92	0.005	0	<8.61
10/22/01	10687	N	720	Air	8.92	0.005	0	<8.61
10/22/01	10682	P	720	Air	10.19	0.005	0	<8.61
10/22/01	10685	Q	720	Air	11.46	0.006	0	<8.61
10/22/01	10681	S	720	Air	8.92	0.005	0	<8.61
10/22/01	10682	T	720	Air	29.76	0.014	0	<8.61
10/22/01	10680	U	720	Air	<7.0	<0.004	0	<8.61
10/22/01	10678	V	720	Air	7.64	0.004	0	<8.61

ref: 03132 & 04133

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: Trinity (a.k.a. Church) & Liberty St.
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Intersection of Broadway & South Street Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TACA bus area
- M 1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TACA Bus Location
- S: Rector & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

- NS: Not sampled
- \*Structure (S) roughly equivalent to fiber (f)
- NR: Not requested
- NA: not analyzed due to overloading of particulates

ERT: 10/24/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-22-01a.xls

NYC Emergency Response  
Asbestos Air Sampling Results at Field Locations  
Sampling Date and Time: 10/23/01 06:01 to 12:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Structures (f) <sup>a</sup>	S-f/cc <sup>b</sup>
10/23/01	05531	A	705	Air	8.52	0.005	0	<8.61
10/23/01	05532	B	720	Air	20.38	0.011	0	9.61
10/23/01	05533	C-1	720	Air	10.19	0.005	0	<8.61
10/23/01	05536	D	720	Air	28.03	0.015	0	<8.61
10/23/01	05543	E	720	Air	24.2	0.013	0	<8.61
10/23/01	05544	F	720	Air	17.3	0.009	0	<8.61
10/23/01	05545	G	720	Air	17.0	0.009	0	<8.61
10/23/01	05535	H	720	Air	<7.0	<0.004	0	<8.61
10/23/01	05537	J	720	Air	20.38	0.011	1**	8.61
10/23/01	05548	L	720	Air	<7.0	<0.004	0	<8.61
10/23/01	05549	M 1	720	Air	<7.0	<0.004	0	<8.61
10/23/01	05550	M 1 Dup.	720	Air	<7.0	<0.004	0	<8.61
10/23/01	05547	N	720	Air	21.88	0.012	0	<8.61
10/23/01	05542	P	720	Air	11.46	0.006	0	<8.61
10/23/01	05541	Q	720	Air	24.83	0.013	0	<8.61
10/23/01	05539	S	680	Air	14.83	0.008	0	<8.61
10/23/01	05540	U	720	Air	24.2	0.013	0	<8.61
10/23/01	05538	V	720	Air	11.46	0.006	0	<8.61
10/23/01	05538	T	720	Air	11.46	0.006	0	<8.61

06/09/18 & 09/19  
NS: Not sampled  
\*Structure (S) roughly equivalent to fiber (f)  
NR: Not requested  
NA: not analyzed due to overloading of particulates  
\*\*: Chrysotile. No other asbestos fibers were found.

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Newark St.
- E: West end of Liberty St. at Newark St.
- F: Middle of Liberty St. at South of Ave
- G: Northern median strip of Vesey & West St
- H: Church and Duane St.
- I: South side of Chase Manhattan Plaza at Pine St.
- J: SE corner of Wall St. & Broadway
- K: NE corner of Warren & West St.
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Taga & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Helipad
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

ERT: 10/24/01 09:50 AM  
NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Solid Samples - PCB Results  
 Sampling Date: 10/08/01  
 Results Based on Dry Weight

Sample No.	W/G6249-1P	03814	03815
Sampling Location	Melford Plank	600 Gateway 34th	22 Cortland 7th
Percent Solids	100	91	93
Analyte	Result ng/g	MDL ng/g	Result ng/g
209-DeCB	U	0.250	U
Sum of MoCBs	U	0.250	11.4
Sum of DiCBs	U	0.250	U
Sum of TriCBs	U	0.250	U
Sum of TeCBs	U	0.250	8.78
Sum of PeCBs	U	0.250	135
Sum of HxCBs	U	0.250	429
Sum of HpCBs	U	0.250	289
Sum of OcCBs	U	0.250	45.6
Sum of NoCBs	U	0.250	4.59
Total	0	441	923

coc# 05129

ERT: 10/25/01 9:50 PM

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S-f/cc*
10/22/01	02063	Liberty Park	480	Air	<7.0	<0.006	0	<6.15
10/22/01	02064	CITGO Terminal	480	Air	10.19	0.008	0	<6.15
10/22/01	02065	FMC Terminal	480	Air	<7.0	<0.006	0	<6.15
10/22/01	02066	Shell Terminal	480	Air	<7.0	<0.006	0	<6.15

COC# 04826

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 nm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1159 (10/22/01) to 1959 (10/22/01)
CITGO Terminal	1300 (10/22/01) to 2100 (10/22/01)
FMC Terminal	1345 (10/22/01) to 2145 (10/22/01)
Shell Terminal	1430 (10/22/01) to 2230 (10/22/01)

ERT: 10/25/01 09:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/23/01 0700 to 10/23/01 1830

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/ftm <sup>3</sup>	f/cc	Structures (#)	S/ftm <sup>3</sup>	S-f/cc*	
10/23/2001	03601	P Loc # 1	559.9	Air	<7.0	<0.005	0	0	<8.00	<0.0055
10/23/2001	03602	P Loc # 2	709.8	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/23/2001	03603	P Loc # 3	633.6	Air	<7.0	<0.004	1**	1**	16.0	0.0037
10/23/2001	03604	P Loc # 4	581.8	Air	<7.0	<0.005	0	0	<8.00	<0.0053
10/23/2001	03605	P Loc # 5	700.1	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23/2001	03606	P Loc # 6	700.5	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23/2001	03607	P Loc # 7	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/23/2001	03608	P Loc # 8	695.4	Air	<7.0	<0.004	0	0	<8.00	<0.0044
10/23/2001	03609	S Loc # 9A	683	Air	<7.0	<0.004	0	0	<8.00	<0.0046
10/23/2001	03610	S Loc # 9B	674	Air	<7.0	<0.004	0	0	<8.00	<0.0047
10/23/2001	03611	S Loc # 10 A	657	Air	<7.0	<0.004	0	0	<8.00	<0.0046
10/23/2001	03612	S Loc # 10 B	664	Air	<7.0	<0.004	0	0	<8.00	<0.0047
10/23/2001	03613	W Loc # 11	652	Air	10.83	0.006	0	0	<8.00	<0.0047
10/23/2001	03614	W Loc # 12A	653	Air	40.76	0.024	6**	0	48	0.0283
10/23/2001	03615	W Loc # 12B	695	Air	11.46	0.006	0	0	<8.00	<0.0044
10/23/2001	03616	B Loc # 13	709	Air	13.38	0.007	0	0	<8.89	<0.0048
10/23/2001	03617	B Loc # 14	711	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/23/2001	03618	T Loc # 15	662	Air	14.65	0.009	0	0	<8.00	<0.0047
10/23/2001	03619	T Loc # 16	623	Air	29.30	0.018	1**	0	8	0.0049

00294666 & 66

\*\*Chrysotile, no other type of asbestos fiber found

NS: Not sampled  
 A/E/AMF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (F)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/25/01 9:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/23/01 1800 to 10/24/01 0600

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/ftm <sup>3</sup>	f/cc	Structures (#)	S/ftm <sup>3</sup>	S-f/cc*	
10/23-24/2001	03622	P Loc # 1	692	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03623	P Loc # 2	693	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03624	P Loc # 3	695	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03625	P Loc # 4	702	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03626	P Loc # 5	703	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03627	P Loc # 6	709	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03628	P Loc # 7	711	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03629	P Loc # 8	712	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03630	S Loc # 9A	720	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03631	S Loc # 9B	361	Air	<7.0	<0.007	0	0	<8.00	<0.0085
10/23-24/2001	03632	S Loc # 10 A	720	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03633	S Loc # 10 B	713	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03634	W Loc # 11	679	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03635	W Loc # 12A	635	Air	<7.0	<0.004	1**	2**	<8.89	<0.0049
10/23-24/2001	03636	W Loc # 12B	720	Air	<7.0	<0.004	0	0	0.0145	<0.0049
10/23-24/2001	03637	B Loc # 13	699	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/23-24/2001	03638	B Loc # 14	696	Air	<7.0	<0.004	0	0	8.89	0.0049
10/23-24/2001	03639	T Loc # 15	720	Air	<7.0	<0.004	0	0	8.89	0.0049
10/23-24/2001	03640	T Loc # 16	654	Air	<7.0	<0.004	1**	1**	16	0.0094

see 0364067 & 03688

\*\* Chrysotile, no other types of asbestos detected

NS: Not sampled  
 A/E/AMF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 - Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

FK-10-24-01.xls

ERT: 10/25/01 9:50 AM



NYC Emergency Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/23/01 12:01 to 24:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-f/cc
					f/m <sup>3</sup>	f/cc	Structures (f) <sup>a</sup>	S/m <sup>3</sup>	
10/23/01	10701	A	720	Air	59.5	0.029	0	0	<0.0046
10/23/01	10702	B	720	Air	17.83	0.009	0	0	<0.0046
10/23/01	10720	B DUP	720	Air	58.05	0.033	0	0	<0.0046
10/23/01	10703	C1	720	Air	7.04	0.004	0	0	<0.0046
10/23/01	10713	E	720	Air	Sample destroyed by Arizona incident	0	0	0	<0.0046
10/23/01	10714	F	720	Air	31.85	0.017	0	0	<0.0046
10/23/01	10704	H	720	Air	<7.0	<0.004	0	0	<0.0046
10/23/01	10705	I	720	Air	14.01	0.007	0	0	<0.0046
10/23/01	10716	J	720	Air	<7.0	<0.004	0	0	<0.0046
10/23/01	10707	K	720	Air	<7.0	<0.004	0	0	<0.0046
10/23/01	10719	L	720	Air	<7.0	<0.004	0	0	<0.0046
10/23/01	10718	M1	720	Air	16.56	0.009	0	0	<0.0046
10/23/01	10717	N	720	Air	<7.0	<0.004	0	0	<0.0046
10/23/01	10712	P	720	Air	<7.0	<0.004	0	0	<0.0046
10/23/01	10715	Q	720	Air	17.83	0.009	0	0	<0.0046
10/23/01	10718	R	720	Air	<7.0	<0.004	0	0	<0.0046
10/23/01	10708	V	720	Air	<7.0	<0.004	0	0	<0.0046
10/23/01	10708	T	720	Air	7.64	0.004	0	0	<0.0046

62# 04321 & 04322

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Northern signs at top of Vesey & West St.
- F: Southern signs at top of Vesey & West St.
- G: Southern signs at top of Vesey & West St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location

- NS: Not sampled
- \*Structure (S) roughly equivalent to fiber (f)
- NR: Not requested
- NA: not analyzed due to overloading of particulates

ERT: 10/25/01 09:50 AM

NIOSH 7400: Filter Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 800/R-Part 763 (AHERA)  
 Standard criteria: EPA 800/R-Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEA)

FL-1023-01a.xls

NYC Emergency Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/24/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>2</sup>	f/cc	Structures (#) 0.5µ-5µ	S/mm <sup>2</sup>
10/24/01	10723	A	720	Air	43.31	0.023	0	<0.61
10/24/01	10724	B	720	Air	36.94	0.020	0	<0.61
10/24/01	10725	C1	720	Air	<7.0	<0.004	0	<0.0046
10/24/01	10726	D	720	Air	<7.0	<0.004	0	<0.0046
10/24/01	10727	E	720	Air	<7.0	<0.004	0	<0.0046
10/24/01	10728	F	720	Air	<7.0	<0.004	0	<0.0046
10/24/01	10729	F Dup	720	Air	36.67	0.019	0	<0.61
10/24/01	10726	H	720	Air	7.64	0.004	0	<0.61
10/24/01	10727	I	720	Air	11.46	0.006	0	<0.61
10/24/01	10728	J	720	Air	14.01	0.007	0	<0.61
10/24/01	10729	K	720	Air	<7.0	<0.004	0	<0.0046
10/24/01	10741	L	720	Air	<7.0	<0.004	0	<0.0046
10/24/01	10740	M1	720	Air	12.74	0.007	0	<0.61
10/24/01	10739	N	621	Air	<7.0	<0.004	0	<0.0046
10/24/01	10734	P	720	Air	<7.0	<0.004	0	<0.0046
10/24/01	10737	Q	720	Air	<7.0	<0.004	0	<0.0046
10/24/01	10733	S	720	Air	<7.0	<0.004	0	<0.0046
10/24/01	10735	V	720	Air	<7.0	<0.004	1	8.01
10/24/01	10732	Y	720	Air	<7.0	<0.004	0	<0.61
10/24/01	10730	T	720	Air	7.64	0.004	0	<0.61

04# 04324 & 04325

\*\* Chrysotile. No other asbestos fibers were found

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (s.k.a. Church) & Liberty St.
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Northern median strip of Vespy & West St.
- G: Corner of Church & West St.
- H: South side of Chelsea Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location

- NS: Not sampled
- \*Structure (S) roughly equivalent to fiber (f)
- NR: Not requested
- NA: not analyzed due to overloading of particulates

ERT: 10/25/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



U.S. EPA/Environmental Response Team Center  
 Response Engineering Analytical Contract  
 Air Sampling Work Sheet  
 DATARAM - Total Particulate Monitoring  
 Lockheed Martin Corp., Edison, NJ  
 U.S. EPA Contract No. 68-C99-223



id: WTC-ER

WA#: RIA00236

sampler: PM

U.S. EPA/ERTC WAM: Singhvi

date: 10/24/01

REAC Task Leader: Bradstreet

Location	Stuyv. H.S.L.	Pier 25 V-Ball N	TAGA		
Pump #	022375	799162	986809		
Time/Counter (Start)	0838	0845	0832		
Time/Counter (Stop)	1439	1435	1445		
Total Time	361 MIN. 6 HRS. 1 MIN.	350 MIN. 5 HRS. 50 MIN.	373 MIN. 6 HRS. 13 MIN.		
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate	2 L/min	2 L/min	2 L/min	2 L/min	2 L/min
Min/Max (ug/m <sup>3</sup> )	074.0/099.1	062.6/069.7	056.5/078.0		
Average (ug/m <sup>3</sup> )	074.1	062.7	065.1		
MET Station on Site?	Y/N				

990

**Berry Shore**

10/29/01 10:02 AM

To: Wanda Ayala/R2/USEPA/US@EPA

cc:

Subject: WTC Time

Wanda:

Here's my time spent on the WTC issue (stationed in Edison these days):

Sept. 19-20

Sept. 27-28

Oct. 1-2

Other Time spent on issue:

Sept. 24 - 3 hours

Sept. 25 - 3hours

Oct. 1 - 2 hours

Oct. 2 - 2 hours

Oct. 3 - 1 hour

Oct. 4 - 1 hour

Oct. 9 - 2 hours

Oct. 10 - 2 hours

Oct. 11 - 2 hours

Oct. 12 - 1 hour

Oct. 15 - 2 hours

Oct. 16 - 3 hours

Oct. 17 - 2 hours

Oct. 18 - 1 hour

Oct. 22 - 2 hours

Oct. 23 - 1 hour

Expected:

October 30 - 3 hours

November 1 - 8 hours

DRAFT GC/MS Results for 10/24/01 DRAFT

File name	NYC422	NYC423	NYC424	NYC425	NYC427	NYC428	NYC428
Sample Location	Instrument Blank	Tedlar Bag Blank	Pier 25 North	North Tower	South Tower	Austin Tobin	North Tower
Sample Number			10072	10074	10076	10078	10074
Sample Height			Breathing Height	Ground Level	Ground Level	Breathing Height	Ground Level
Volume		100 mL	100 mL	20 mL	20 mL	100 mL	1 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	18,000 ppbv	12,000 ppbv	RL=20 ppbv	20,000 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	280 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11,000 ppbv	8,600 ppbv	RL=20 ppbv	14,000 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	77 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	470 ppbv	140 ppbv	RL=20 ppbv	RL=1 ppmv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	480 ppbv	440 ppbv	RL=20 ppbv	RL=1 ppmv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	130 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	83 ppbv	230 ppbv	41 ppbv	RL=1 ppmv
Acetone	RL=20 ppbv	RL=20 ppbv	36 ppbv	9,000 ppbv	16,000 ppbv	530 ppbv	10,000 ppbv
Trichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
MIBK	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	200 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1680 ppbv	1690 ppbv	RL=20 ppbv	RL=1 ppmv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2,100 ppbv	4,000 ppbv	75 ppbv	2,200 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	63 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	63 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,700 ppbv	2,400 ppbv	38 ppbv	1,700 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	61 ppbv	56 ppbv	RL=20 ppbv	RL=1 ppmv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	20,000 ppbv	19,000 ppbv	29 ppbv	22,000 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	430 ppbv	480 ppbv	RL=20 ppbv	RL=1 ppmv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	450 ppbv	110 ppbv	RL=1 ppmv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	190 ppbv	190 ppbv	RL=20 ppbv	RL=1 ppmv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11,000 ppbv	8,900 ppbv	RL=20 ppbv	11,000 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	150 ppbv	1240 ppbv	RL=20 ppbv	RL=1 ppmv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	260 ppbv	160 ppbv	RL=20 ppbv	RL=1 ppmv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	12,000 ppbv	8,500 ppbv	RL=20 ppbv	11,000 ppbv
m&p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	550 ppbv	510 ppbv	RL=20 ppbv	RL=1 ppmv
O-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	450 ppbv	430 ppbv	RL=20 ppbv	RL=1 ppmv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	8,500 ppbv	2,300 ppbv	RL=20 ppbv	4,200 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
1,1,2,2-Tetrahaloethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	280 ppbv	370 ppbv	RL=20 ppbv	RL=1 ppmv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	320 ppbv	240 ppbv	RL=20 ppbv	RL=1 ppmv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	220 ppbv	RL=20 ppbv	RL=1 ppmv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv	RL=1 ppmv

\* -Concentration from dilution run 1x1L : Data file NYC414

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PHD-5								TVA-1000	
				COCl <sub>2</sub> ppbv	H <sub>2</sub> S ppm	HCl ppbv	HCN ppm	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	HCN ppm	COV <sub>A</sub> FID ppm	PID ppm		
A	10/24/01	9:10	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	10/24/01	9:18	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Loc #2	10/24/01	9:22	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1	10/24/01	9:26	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H1	10/24/01	9:32	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	10/24/01	9:39	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
A	10/24/01	9:49	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	10/24/01	10:03	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
T	10/24/01	10:15	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
U	10/24/01	10:19	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
V	10/24/01	10:24	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	10/24/01	10:33	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	10/24/01	10:37	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Loc #1	10/24/01	10:43	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	10/24/01	10:47	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	10/24/01	10:51	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
G	10/24/01	10:58	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

A: GREENWICH + LIBERTY  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C1: BRADDOCK + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOOTHEND + LIBERTY  
 F: WEST + VESSEY  
 G: CHASE PIERA  
 H: BRADDOCK + LIBERTY  
 I: BRADDOCK + LIBERTY  
 J: GREENWICH + LIBERTY  
 K: WEST + LIBERTY  
 L: STUY. HS. (HREE)  
 M: HARROCK (HREE) + N. PIER 25  
 N: GREENWICH + LIBERTY  
 O: CG COMMAND POST  
 P: SOOTHEND + ALBANY  
 Q: WEST + LIBERTY  
 R: STUY. HS. (HREE)  
 S: HARROCK (HREE) + N. PIER 25  
 T: GREENWICH + LIBERTY  
 U: GREENWICH + LIBERTY  
 V: GREENWICH + LIBERTY  
 W: GREENWICH + LIBERTY  
 X: GREENWICH + LIBERTY  
 Y: GREENWICH + LIBERTY  
 Z: GREENWICH + LIBERTY

ND 1.8  
 ND 2.3  
 ND 2.1  
 ND 2.1

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PID-5							TVA-1000		
				COCl <sub>2</sub> ppbv	H <sub>2</sub> S ppbv	HCl ppbv	HNO <sub>2</sub> ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	HCN ppm	FD ppm	PID ppm		
A	12/14/01	1305	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	12/14/01	1310	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C #2	12/14/01	1313	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C 1	12/14/01	1320	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	12/14/01	1325	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	12/14/01	1328	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	12/14/01	1339	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
G	12/14/01	1346	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	12/14/01	1351	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	12/14/01	1357	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J	12/14/01	1400	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	12/14/01	1405	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
L	12/14/01	1409	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
M	12/14/01	1419	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N	12/14/01	1425	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
O	12/14/01	1435	CALM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

H: GREENWICH + BRADLEY  
 B: CHURCH + DEY  
 C1: CHURCH + LIBERTY  
 C2: BRADLEY + LIBERTY  
 D: GREENWICH + LIBERTY  
 12/14/01 1437 CALM  
 12/14/01 1440 CALM  
 12/14/01 1441 CALM  
 12/14/01 1442 CALM  
 12/14/01 1443 CALM  
 12/14/01 1444 CALM  
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 12/14/01 1496 CALM  
 12/14/01 1497 CALM  
 12/14/01 1498 CALM  
 12/14/01 1499 CALM  
 12/14/01 1500 CALM

E: SOUTHEND + LIBERTY  
 F: WEST + VESSEY  
 H: CHARGE PLAZA  
 I: BRADLEY + LIBERTY  
 J: WEST + VESSEY  
 K: WEST + LIBERTY  
 L: STUR. HS. (FREE)  
 M: HARRISON (FREE) + LIBERTY  
 N: HARRISON (FREE) + LIBERTY  
 O: HARRISON (FREE) + LIBERTY  
 P: SOUTHEND + LIBERTY  
 Q: CG (MIND) POST  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: CHARGE PLAZA FROM DEY  
 U: HARRISON (FREE) + LIBERTY  
 V: HARRISON (FREE) + LIBERTY  
 W: HARRISON (FREE) + LIBERTY  
 X: HARRISON (FREE) + LIBERTY  
 Y: HARRISON (FREE) + LIBERTY  
 Z: HARRISON (FREE) + LIBERTY

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Friday and Saturday  
October 26 & 27, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 19 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations. EPA has begun collecting additional asbestos air monitoring data from 9 supplemental locations which are co-located with existing PM<sub>2.5</sub> stations in all five boroughs.

**Most Recent Results (as of 10:00 a.m. 10/27)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 40 samples taken in and around ground zero from October 24 through October 25. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1324, with 28 samples (27 of these were collected prior to September 30 and one on October 9) above the standard. The total number of samples now reflects the results from the supplemental asbestos monitoring stations in lower Manhattan reported in the 10/25 summary.

Three air samples taken in New Jersey on October 23 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 149, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - 38 samples were collected October 24 through October 25. One sample, at Location 12 A (indoor wash station) exceeded the school re-entry standard, this incident is being investigated further. All of the remaining samples showed results less than the school re-entry standard.

**Particulate Monitoring** - Samples collected on October 25 using portable monitors showed no significant readings, samples could not be collected on October 23 and 24 due to weather conditions.

**Ambient Air Sampling:**



**VOCs** - Nine samples for volatile organic compounds (VOCs) were collected over approximately a 24-hour period September 27 through September 28 at the following locations: Location A (Barclay & West St), Location B (Church & Dey St.), Location C1 (Liberty & Broadway), Location E (Liberty & South End), Location F (Vesey and West St.), Location P (Albany & South End), Location R (north west side of Stuyvesant High School), and Location S (Rector and South End). These locations are near or just beyond the perimeter of the debris pile. VOCs were either not detected or detected at levels below EPA removal action guidelines which are based on a thirty-year exposure duration. This demonstrates that ambient VOC concentrations at the perimeter are significantly lower than levels of VOCs detected using grab samples on the debris pile in the plume.

Sampling for volatile organic compounds (VOCs) was conducted on October 25 in the direct area of the debris pile at ground zero. Benzene exceeded the OSHA time-weighted average permissible level at two locations. Freon-22 (chlorodifluoromethane) was detected and confirmed in samples collected from within the debris pile of the North Tower and in the debris pile of the South Tower at ground level. Levels detected were well below the NIOSH recommended exposure limit of 1,000 ppm. EPA is working with the local agencies and health and safety officers working at ground zero to closely monitor this situation so that workers can take appropriate precautions.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted October 23 through October 25 at Pace University, the Borough of Manhattan Community College, and the U.S. Coast Guard building located in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standards (65 ug/m<sup>3</sup>) for all stations. These results were also less than 40 ug/m<sup>3</sup>, an EPA air quality index which would indicate the air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**Particulate Monitoring** - EPA used portable monitors to collect samples on October 25 in the following areas, which are also the locations of Fixed Air Monitors: L (north east side of Stuyvesant High), R (north west side of Stuyvesant High School), and N (South side of Pier 25). All readings were all below the OSHA time-weighted average permissible level for particulates.

**Direct Air Readings** - Using portable monitors, direct air readings were taken in and around ground zero on October 25. Several carbon monoxide readings were detected above the National Ambient Air Quality Standard (NAAQS) 8-hour average of 9 ppm, however the readings were below the NAAQS 1-hour average of 35 ppm and the OSHA permissible level of 50 ppm.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Friday/Saturday, October 26-27, 2001 (10AM)**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 24, 1200 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 25, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NJ / ER (Oct 23)
  - All 3 samples analyzed were below the TEM AHERA standard.
  - 1 location (Shell Terminal) was not sampled.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 24, 0600 - 1830) - Asbestos
  - All 20 samples analyzed were below the TEM AHERA standard.
  - Includes 2 one time samples (PL Location #1 and PL Location #2) collected in a parking lot located across Fresh Kill Creek at the landfill maintenance building.
  - 1 sample (W Location #11) was not calculated due to no sample volume.
- Fresh Kills (Oct 24, 1800 - Oct 25, 0600) - Asbestos
  - 1 of 18 samples analyzed was above the TEM AHERA standard.
  - Exceedance of the TEM AHERA standard occurred at the indoor "Wash" Location #12A (80 S/mm<sup>2</sup>).
  - 1 sample was not analyzed due to overloading of particulates.
- Fresh Kills (Oct 23) - Particulate Monitoring (Dataram)
  - No readings taken due to weather conditions.
- Fresh Kills (Oct 24) - Particulate Monitoring (Dataram)
  - No readings taken due to weather conditions.
- Fresh Kills (Oct 25) - Particulate Monitoring (Dataram)
  - Abbreviated monitoring period (3½ hrs) due to weather conditions.
  - No readings taken at two stations.
  - Nothing of significance to report based on daily average concentrations.

Ambient Air Sampling Locations

- NYC / ER (Sep 27-28) - Volatile Organic Compounds
  - 9 (Summa) samples collected over a period of approximately 24 hours at previously established air sampling stations (A, B, C1, E, F, P, S, and R) near or just beyond the perimeter of the debris piles.
  - VOCs were either not detected or below the EPA Removal Action guidance levels (based on a 30-year exposure).
  - Evidence that ambient VOC concentrations at the perimeter are significantly reduced as compared to results of grab samples collected on the debris pile in the plume at ground level.
- NYC / ER (Oct 23) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *16.74 ug/m<sup>3</sup>*
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *19.33 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *19.93 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 24) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *20.92 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *24.44 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *19.75 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 25) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *20.54 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *12.38 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *10.53 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 25) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 6 hours.
  - Station L values ranged from 55.1 to 260.8 ug/m<sup>3</sup> with an average of 81.2 ug/m<sup>3</sup>.
  - Station N values ranged from 40.2 to 66.7 ug/m<sup>3</sup> with an average of 45.4 ug/m<sup>3</sup>.
  - Station R values ranged from 40.8 to 68.5 ug/m<sup>3</sup> with an average of 47.6 ug/m<sup>3</sup>.

- NYC / ER (Oct 25) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations on the debris pile in the plume at ground level.
  - Chlorodifluoromethane (Freon-22) was detected and confirmed in the North Tower debris pile (530 ppbv) and at the South Tower debris pile (170 ppbv), both at ground level.
  - Chlorodifluoromethane levels were well below the NIOSH Recommended Exposure Limit (REL) TWA of 1,000 ppm.
  - Chlorodifluoromethane was not detected at Austin Tobin Plaza (Location 3A).

Direct Reading Instruments

- NYC / ER (Oct 25)
  - Several readings noted above the carbon monoxide NAAQS (8 hr. average) of 9 ppm, but below the NAAQS (1 hr. average) of 35 ppm and the OSHA PEL of 50 ppm.

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
10/23/01	02068	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/23/01	02069	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/23/01	02070	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/23/01	10751	Shell Terminal	0	Air	Not Sampled					

COCH 04827

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1330 (10/23/01) to 2130 (10/23/01)
CITGO Terminal	1409 (10/23/01) to 2209 (10/23/01)
FMC Terminal	1448 (10/23/01) to 2248 (10/23/01)
Shell Terminal	
	ERT: 10/26/01 09:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/24/01 0600 to 10/24/01 1830

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/100m <sup>3</sup>	f/cc	Structures (#)	S/100m <sup>3</sup>
10/24/2001	03643	P Loc # 1	652.2	Air	<7.0	<0.004	0	<8.00
10/24/2001	03644	P Loc # 2	720	Air	<7.0	<0.004	0	<8.00
10/24/2001	03645	P Loc # 3	659.4	Air	7.64	0.004	0	<8.00
10/24/2001	03646	P Loc # 4	720	Air	<7.0	<0.004	0	<8.00
10/24/2001	03647	P Loc # 5	720	Air	<7.0	<0.004	0	<8.00
10/24/2001	03648	P Loc # 6	720	Air	<7.0	<0.004	0	<8.00
10/24/2001	03649	P Loc # 7	720	Air	<7.0	<0.004	0	<8.00
10/24/2001	03650	P Loc # 8	720	Air	<7.0	<0.004	0	<8.00
10/24/2001	03651	S Loc # 9A	660	Air	10.83	0.006	0	<8.00
10/24/2001	03652	S Loc # 9B	243	Air	<7.0	<0.011	0	<8.00
10/24/2001	03653	S Loc # 10 A	739	Air	7.64	0.004	0	8.89
10/24/2001	03654	S Loc # 10 B	245	Air	<7.0	<0.011	0	<8.00
10/24/2001	03655	W Loc # 11	0	Air	<7.0	NC	0	<8.00
10/24/2001	03656	W Loc # 12A	729	Air	11.46	0.006	6**	53.33
10/24/2001	03657	W Loc # 12B	731	Air	<7.0	<0.004	3**	26.67
10/24/2001	03658	B Loc # 13	741	Air	<7.0	<0.004	0	<8.00
10/24/2001	03659	B Loc # 14	742	Air	<7.0	<0.004	0	<8.00
10/24/2001	03660	T Loc # 15	709	Air	17.83	0.010	1**	8.89
10/24/2001	03661	T Loc # 16	738	Air	<7.0	<0.004	2**	17.78
10/24/2001	03662	PL Loc # 1	766	Air	7.01	0.003	0	<8.00
10/24/2001	03663	PL Loc # 2	848	Air	<7.0	<0.003	0	<8.00

cccf04688& 04670

\*\*Chrysotile, no other type of asbestos fiber found

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates  
NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (P-3M), 70 S/100m<sup>3</sup>, volume 7200 L, for 25 mm filter (TEM)

ERT: 10/26/01 9:50 AM

FK-10-24-01A.xls

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/24/01 1600 to 10/25/01 0600

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/ftm <sup>3</sup>	f/cc	Structures (#) 0.5-5µ	S-ftcc <sup>a</sup> 5µ		
10/24-25/2001	03666	P Loc # 1	720	Air	<7.0	<0.004	0	1**	8.89	0.0048
10/24-25/2001	03667	P Loc # 2	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/24-25/2001	03668	P Loc # 3	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/24-25/2001	03669	P Loc # 4	715	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/24-25/2001	03670	P Loc # 5	715	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/24-25/2001	03671	P Loc # 6	717	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/24-25/2001	03672	P Loc # 7	718	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/24-25/2001	03673	P Loc # 8	719	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/24-25/2001	03674	S Loc # 9A	630	Air	<7.0	<0.004	0	0	<8.00	<0.0048
10/24-25/2001	03675	S Loc # 9B	718	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/24-25/2001	03676	S Loc # 10 A	595	Air	<7.0	<0.005	0	0	<8.00	<0.0052
10/24-25/2001	03677	W Loc # 10 B	640	Air	<7.0	<0.004	0	0	<8.00	<0.0048
10/24-25/2001	03678	W Loc # 12A	720	Air	<7.0	<0.004	1**	8**	80	0.0428
10/24-25/2001	03680	W Loc # 12B	463	Air	<7.0	<0.006	0	0	<8.00	<0.0073
10/24-25/2001	03681	B Loc # 13	422	Air	<7.0	<0.006	0	0	<8.00	<0.0073
10/24-25/2001	03682	B Loc # 14	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/24-25/2001	03683	T Loc # 15	720	Air	<7.0	<0.004	0	2**	17.78	0.0095
10/24-25/2001	03684	T Loc # 16	651	Air	7.64	0.004	NA	NA	NA	NA

cccf04871 & 04672

\*\* Chrysotile, no other types of asbestos detected

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

FK-10-25-01.xls

ERT: 10/26/01 9:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/26/01 12:00 to 2:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/min <sup>2</sup>	f/cc	Structures (#" > 5µ)	S/fcc*
10/24/01	11021	A	720	Air	80.25	0.043	0	<0.0046
10/24/01	11022	B	720	Air	36.67	0.019	0	<0.0046
10/24/01	11023	C 1	720	Air	10.15	0.005	0	<0.0046
10/24/01	11026	D	720	Air	15.25	0.008	0	<0.0046
10/24/01	11033	E	720	Air	7.54	0.004	0	<0.0046
10/24/01	11034	F	720	Air	8.92	0.005	0	<0.0046
10/24/01	11024	H	720	Air	8.92	0.005	0	<0.0046
10/24/01	11025	I	720	Air	4.70	<0.004	0	<0.0046
10/24/01	11027	J	720	Air	4.70	<0.004	0	<0.0046
10/24/01	11040	J Dup	720	Air	4.70	<0.004	0	<0.0046
10/24/01	11027	K	720	Air	12.74	0.007	0	<0.0046
10/24/01	11039	L	720	Air	4.70	<0.004	0	<0.0046
10/24/01	11038	M 1	720	Air	4.70	<0.004	0	<0.0046
10/24/01	11037	N	720	Air	4.70	<0.004	0	<0.0046
10/24/01	11032	P	720	Air	14.01	0.007	0	<0.0046
10/24/01	11035	O	720	Air	10.15	0.005	0	<0.0046
10/24/01	11031	S	720	Air	4.70	<0.004	0	<0.0046
10/24/01	11029	U	720	Air	4.70	<0.004	0	<0.0046
10/24/01	11028	V	720	Air	4.70	<0.004	0	<0.0046
10/24/01	11026	T	720	Air	4.70	<0.004	0	<0.0046

see 10/26/01 & 01/05/01

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: West end of Albany St. at South End Ave
- F: North side of West 4th St. at West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: NE corner of South End Ave. & Albany
- O: East end of West St. (Center island) in proximity to USCG command post
- R: TAGA Bus location
- S: Rector & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Blue Sign

NIOSH 7400 Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM); 70 S/min<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-24-01a.xls

ERT: 10/26/01 09:50 AM

NS: Not sampled  
\*Structure (S) roughly equivalent to fiber (f)  
NR: Not requested  
NA: not analyzed due to overloading of particulates



NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/25/01 0601 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-f/cc*	
					f/m <sup>3</sup>	f/cc	Structures (f) <sup>†</sup>	Structures (f) <sup>†</sup>		
10/25/01	11651	A	720	Air	29.3	0.016	0	0	<8.51	<0.0046
10/25/01	11652	B	720	Air	19.11	0.010	0	1**	8.61	0.0046
10/25/01	11653	C-1	715	Air	<7.0	<0.004	0	0	<8.51	<0.0046
10/25/01	11656	D	720	Air	12.74	0.007	0	0	<8.51	<0.0046
10/25/01	11653	E	720	Air	16.55	0.009	0	0	<8.51	<0.0046
10/25/01	11654	F	720	Air	12.74	0.007	0	0	<8.51	<0.0046
10/25/01	11654	H	720	Air	<7.0	<0.004	0	0	<8.51	<0.0046
10/25/01	11654	I	720	Air	21.68	0.012	0	0	<8.51	<0.0046
10/25/01	11657	J	720	Air	15.29	0.008	0	0	<8.51	<0.0046
10/25/01	11657	K	720	Air	15.29	0.008	0	0	<8.51	<0.0046
10/25/01	11659	L	720	Air	<7.0	<0.004	0	0	<8.51	<0.0046
10/25/01	11688	M-1	720	Air	10.19	0.005	0	0	<8.51	<0.0046
10/25/01	11687	N	720	Air	7.64	0.004	0	0	<8.51	<0.0046
10/25/01	11070	N Dup	720	Air	<7.0	<0.004	0	0	<8.51	<0.0046
10/25/01	11682	P	720	Air	<7.0	<0.004	0	0	<8.51	<0.0046
10/25/01	11685	Q	720	Air	<7.0	<0.004	0	0	<8.51	<0.0046
10/25/01	11681	S	720	Air	17.83	0.009	0	0	<8.51	<0.0046
10/25/01	11659	U	720	Air	<7.0	<0.004	0	0	<8.51	<0.0046
10/25/01	11658	V	720	Air	<7.0	<0.004	0	0	<8.51	<0.0046
10/25/01	11658	Y	720	Air	<7.0	<0.004	0	0	<8.51	<0.0046

ccf 04846 & 04852

\*\* Chrysotile. No other asbestos fibers were found

NS: Not sampled  
\*Structure (S) roughly equivalent to fiber (f)  
NR: Not requested  
NA: not analyzed due to overloading of particulates

- Sampling Locations:**  
A: NE corner of West Broadway & Barclay St.  
B: SE corner of Church & Day St.  
C: Trinity (i.e.a. Church) & Liberty St.  
C-1: SW corner of Broadway & Liberty St.  
D: East end of Albany St. (Greenwich St. Ave)  
E: West end of Albany St. (Greenwich St. Ave)  
F: Northern median strip of Vesey & West St.  
G: Church and Duomo St.  
H: South side of Chase Manhattan Plaza at Pine St.  
I: SE corner of Wall St. & Broadway  
J: NE corner of Warren & West St.  
K: West St. & Albany in median strip.  
L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area  
M-1: West St. - 50 yards south of Harrison St. at bulkhead  
N: South side of Pier 26 (next to volleyball court)  
O: West End Ave. & Albany  
P: Barclay & West St. (center island) in proximity to USCG command post  
Q: TAGA Bus Location

FRT: 10/25/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40/CFR Part 763 (AHERA)  
Standard criteria: EPA 40/CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-25-01.x6



## DRAFT GC/MS Results for 10/25/01 DRAFT

File name	NYC435	NO EVALUATION HAS BEEN PERFORMED.			NYC439
Sample Location	Instrument Blank	DATA VALIDITY UNSUBSTANTIATED			South Tower
Sample Number		AND THE DATA SHOULD BE USED			10073
Sample Height		WITH DISCRETION			Ground
Volume	0.25 L			0.025 L	0.025 L
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1700	11,000
Chlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	530	170
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1000	10,000
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	24
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	39	160
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	50	400
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	21	28
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3000	14,000
Trichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	64	610
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	94	460
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	560	3,600
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	410	2,100
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	59	460
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2500	18,000
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	51	440
Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	150	460
Methyl isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	43	190
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1200	8,100
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	35	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
n-Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	24	RL=20 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	21
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	58	170
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1300	8,200
m,p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	74	510
O-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	70	430
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	760	2,900
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	46	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	380
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	57	250
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	41	220
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	29
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	29
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	40
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv

DRAFT GC/MS EVALUATION HAS BEEN PERFORMED,  
 NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED  
 WITH DISCRETION

File name	NYC			
Sample Location	Austl Tobin Plaza			
Sample Number	10075			
Sample Height	breathing			
Volume	0.1 L			
Propylene	35			
Chlorodifluoromethane	RL=20 ppbv			
Dichlorodifluoromethane	22			
Dichlorotetrafluoroethane	RL=20 ppbv			
Chloromethane	29			
Vinyl Chloride	RL=20 ppbv			
1,3-Butadiene	RL=20 ppbv			
Bromomethane	RL=20 ppbv			
Chloroethane	RL=20 ppbv			
Trichlorofluoromethane	RL=20 ppbv			
Isopropyl Alcohol	RL=20 ppbv			
Acetone	120			
Trichlorotrifluoroethane	RL=20 ppbv			
1,1-Dichloroethene	RL=20 ppbv			
3-Chloropropene	RL=20 ppbv			
Methylene Chloride	RL=20 ppbv			
MTBE	RL=20 ppbv			
trans-1,2-Dichloroethene	RL=20 ppbv			
Hexane	RL=20 ppbv			
1,1-Dichloroethane	RL=20 ppbv			
Vinyl Acetate	RL=20 ppbv			
2-Butanone	RL=20 ppbv			
cis-1,2-Dichloroethene	RL=20 ppbv			
Ethyl Acetate	RL=20 ppbv			
Chloroform	RL=20 ppbv			
Tetrahydrofuran	RL=20 ppbv			
1,1,1-Trichloroethane	RL=20 ppbv			
Cyclohexane	RL=20 ppbv			
Carbon Tetrachloride	RL=20 ppbv			
1,2-Dichloroethane	RL=20 ppbv			
Benzene	75			
Heptane	RL=20 ppbv			
Trichloroethene	RL=20 ppbv			
1,2-Dichloropropane	RL=20 ppbv			
1,4-Dioxane	40			
Methyl isobutyl Ketone	RL=20 ppbv			
cis-1,3-Dichloropropene	RL=20 ppbv			
Toluene	41			
trans-1,3-Dichloropropene	RL=20 ppbv			
1,1,2-Trichloroethane	RL=20 ppbv			
2-Hexanone	RL=20 ppbv			
Tetrachloroethene	RL=20 ppbv			
Dibromochloromethane	RL=20 ppbv			
1,2-Dibromoethane	RL=20 ppbv			
Chlorobenzene	RL=20 ppbv			
Ethylbenzene	54			
m&p-Xylenes	RL=20 ppbv			
O-Xylene	RL=20 ppbv			
Styrene	RL=20 ppbv			
Bromoform	RL=20 ppbv			
1,1,2,2-Tetrachloroethane	RL=20 ppbv			
4-Ethyltoluene	RL=20 ppbv			
1,3,5-Trimethylbenzene	RL=20 ppbv			
1,2,4-Trimethylbenzene	RL=20 ppbv			
1,3-Dichlorobenzene	RL=20 ppbv			
1,4-Dichlorobenzene	RL=20 ppbv			
Benzyl Chloride	RL=20 ppbv			
1,2-Dichlorobenzene	RL=20 ppbv			
1,2,4-Trichlorobenzene	RL=20 ppbv			
Hexachoro-1,3-Butadiene	RL=20 ppbv			



U.S. EPA/Environmental Response Team Center  
 Response Engineering Analytical Contract  
 Air Sampling Work Sheet  
 DATARAM - Total Particulate Monitoring  
 Lockheed Martin Corp., Edison, NJ  
 U.S. EPA Contract No. 68-C99-223



Site: WTC-ER

WA#: RIA00236

Sampler: RM, BW

U.S. EPA/ERTC WAM: Singhvi

Date: 10/25/01

REAC Task Leader: Bradstreet

Location	Stuyv. H.S. L	Pier 25 V-Ball N	TAGA		
Pump #	799162	986809	022375		
Time/Counter (Start)	0923	0929	0915		
Time/Counter (Stop)	1529	1532	1534		
Total Time	6.06	6.04	6.19		
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate	2 L/min	2 L/min	2 L/min	2 L/min	2 L/min
Min/Max (ug/m <sup>3</sup> )	040.2 / 068.5 053.7 / 060.8	040.2 / 066.7	040.2 / 068.5		
Average (ug/m <sup>3</sup> )	047.6 <sup>041.2</sup>	045.4	047.6		
MET Station on Site?: Y / N.					

(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Type Meters		Multi-Gas PPD-5										TVA-1000	
				COC <sub>1</sub> ppbv	H <sub>2</sub> S ppm	HCHO ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	NO ppm	FID ppm	PID ppm			
A	10/25/01	0155	SW	ND	ND	ND	ND	ND	ND	ND	0	20.8	5.9	ND	ND	3.1	
B	10/26/01	1005	SW	ND	ND	ND	ND	ND	ND	ND	0	20.8	1.2	ND	ND	3.0	
Loc #2	10/26/01	1000	SW	ND	ND	ND	ND	ND	ND	ND	0	20.8	7.3	ND	ND	3.1	
C1	10/25/01	1010	SW	ND	ND	ND	ND	ND	ND	ND	0	20.8	3.5	ND	ND	2.2	
H	10/26/01	1036	SW	ND	ND	ND	ND	ND	ND	ND	0	20.9	1.8	ND	ND	1.8	
F	10/26/01	1034	SW	ND	ND	ND	ND	ND	ND	ND	0	20.8	1.3	ND	ND	1.5	
A	10/26/01	1044	SW	ND	ND	ND	ND	ND	ND	ND	0	20.9	4.8	ND	ND	0.9	
K	10/26/01	1051	SW	ND	ND	ND	ND	ND	ND	ND	0	20.9	5.1	ND	ND	1.0	
T	10/25/01	1085	SW	ND	ND	ND	ND	ND	ND	ND	0	20.8	1.5	ND	ND	0.8	
V	10/26/01	1109	SW	ND	ND	ND	ND	ND	ND	ND	0	20.7	1.7	ND	ND	0.9	
S	10/26/01	1115	SW	ND	ND	ND	ND	ND	ND	ND	0	20.7	1.8	ND	ND	0.9	
P	10/26/01	1121	SW	ND	ND	ND	ND	ND	ND	ND	0	20.7	0.5	ND	ND	0.8	
Loc #1	10/26/01	1127	SW	ND	ND	ND	ND	ND	ND	ND	0	20.7	0.6	ND	ND	0.8	
E	10/26/01	1131	SW	ND	ND	ND	ND	ND	ND	ND	0	20.7	1.4	ND	ND	0.8	
F	10/26/01	1137	SW	ND	ND	ND	ND	ND	ND	ND	0	20.9	4.7	ND	ND	0.8	
Q	10/26/01	1140	SW	ND	ND	ND	ND	ND	ND	ND	0	20.7	5.3	ND	ND	0.8	

R: GREENWICH + BRISLEY  
 S: CHURCH + DEY  
 C1: BRIDGEMAN + LIBERTY  
 B: GREENWICH + LIBERTY  
 T: GREENWICH + LIBERTY  
 N: GREENWICH + LIBERTY  
 ML: GREENWICH + LIBERTY  
 L: GREENWICH + LIBERTY

E: BOWEN + LIBERTY  
 F: WEST + LIBERTY  
 H: CHURCH + LIBERTY  
 I: BRIDGEMAN + LIBERTY  
 J: GREENWICH + LIBERTY  
 K: CHURCH + LIBERTY  
 L: GREENWICH + LIBERTY  
 M: BRIDGEMAN + LIBERTY  
 N: GREENWICH + LIBERTY  
 O: GREENWICH + LIBERTY  
 P: GREENWICH + LIBERTY  
 Q: GREENWICH + LIBERTY  
 R: GREENWICH + LIBERTY  
 S: CHURCH + DEY  
 T: GREENWICH + LIBERTY  
 U: GREENWICH + LIBERTY  
 V: GREENWICH + LIBERTY  
 W: GREENWICH + LIBERTY  
 X: GREENWICH + LIBERTY  
 Y: GREENWICH + LIBERTY  
 Z: GREENWICH + LIBERTY

T: SOUTHSEAS + LIBERTY  
 Q: CO GREENWICH TEST  
 I: LIBERTY + WEST  
 1: LIBERTY + WEST  
 2: GREENWICH + LIBERTY  
 3: GREENWICH + LIBERTY  
 4: GREENWICH + LIBERTY  
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 49: GREENWICH + LIBERTY  
 50: GREENWICH + LIBERTY

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PPD-5							MVA-1000		
				COCl <sub>2</sub> ppbv	HFCs ppbv	HF ppbv	HF <sub>2</sub> ppbv	H <sub>2</sub> S ppm	SO <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	NO ppm	NO <sub>2</sub> ppm	PM <sub>10</sub> ppm	PM <sub>2.5</sub> ppm	
A	1/31/01	1345	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.8	1.0	N/A	N/A	N/A	N/A
B	1/31/01	1349	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.7	1.4	N/A	N/A	N/A	N/A
Loc # 2	1/31/01	1352	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.8	5.6	N/A	N/A	N/A	N/A
C1	1/31/01	1358	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.7	2.3	N/A	N/A	N/A	N/A
(H) Loc # 2	1/31/01	1402	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.9	4.5	N/A	N/A	N/A	N/A
I	1/31/01	1405	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.9	1.3	N/A	N/A	N/A	N/A
A	1/31/01	1414	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.9	1.6	N/A	N/A	N/A	N/A
F	1/31/01	1418	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.8	4.3	N/A	N/A	N/A	N/A
T	1/31/01	1425	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.9	5.4	N/A	N/A	N/A	N/A
V	1/31/01	1429	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.8	1.4	N/A	N/A	N/A	N/A
S	1/31/01	1437	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.7	4.2	N/A	N/A	N/A	N/A
P	1/31/01	1445	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.7	3.2	N/A	N/A	N/A	N/A
Loc # 2	1/31/01	1448	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.7	2.6	N/A	N/A	N/A	N/A
E	1/31/01	1451	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.8	2.8	N/A	N/A	N/A	N/A
F	1/31/01	1456	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	20.9	7.5	N/A	N/A	N/A	N/A
G	1/31/01	1458	cross winds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1	20.9	4.1	N/A	N/A	N/A	N/A

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**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Sunday and Monday  
October 28 & 29, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. (Link to more detailed information on the standards.) EPA is collecting data from 19 fixed monitors in and around ground zero (Link to the map) and is using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 4:00 p.m. 10/28)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 59 samples taken in and around ground zero from October 25 through October 27. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1383, with 28 samples (27 of these were collected prior to September 30 and one on October 9) above the standard. The total number of samples now reflects the results from the supplemental asbestos monitoring stations in lower Manhattan reported in the 10/25 summary.

Four air samples taken in New Jersey on October 24 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 153, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Thirteen samples were collected on October 26. One sample, at Location 14 (barge station) exceeded the school re-entry standard. All of the remaining samples showed results less than the school re-entry standard.

**Particulate Monitoring** - Samples collected on October 26 using portable monitors showed an increase in concentrations along the northeast and eastern edge of the landfill. These concentrations decreased on October 27 and decreased further on October 28.

**Ambient Air Sampling:**



**Dioxin** - Ten samples were collected on October 11 and analyzed for dioxin/furans. Three of the samples (Location 3 - SW of WTC Building #5, Location A - at W. Broadway and Barclay and Location B - Church and Dey St.) showed results above the level at which EPA would take some type of action to reduce people's exposure. This action guideline is based on a 30-year exposure. However, none of the samples were above the EPA action guideline adjusted to a 1-year exposure duration. These levels do not pose a short-term health affect but should be monitored if they persist for a longer period of time.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted October 26 through October 28 in the direct area of the debris pile at ground zero. On each of the three days benzene exceeded the OSHA time-weighted average permissible level at two locations. On October 26 five samples were collected and analyzed for Freon-22 (chlorodifluoromethane), Freon-22 was not detected in these samples. Freon-22 was detected and confirmed in samples collected from within the debris pile of the North Tower and in the debris pile of the South Tower, both at ground level, in samples collected on October 27 and within the debris pile of the North Tower on October 28, also at ground level. Levels detected were well below the NIOSH recommended exposure limit of 1,000 ppm. EPA is working with the local agencies and health and safety officers working at ground zero to closely monitor this situation so that workers can take appropriate precautions.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted October 26 through October 27 at Pace University, the Borough of Manhattan Community College, the U.S. Coast Guard building located in Battery Park and Albany Street at Battery Park City. All 24-hour average values were below the National Ambient Air Quality Standards (65 ug/m<sup>3</sup>) for all stations. These results were also less than 40 ug/m<sup>3</sup>, an EPA air quality index which would indicate the air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**Direct Air Readings** - Using portable monitors, direct air readings were taken in and around ground zero on October 27 and October 28. Several carbon monoxide readings were detected above the National Ambient Air Quality Standard (NAAQS) 8-hour average of 9 ppm during the early afternoon on October 27 and during the late morning on October 28, however the readings were below the NAAQS 1-hour average of 35 ppm and the OSHA permissible level of 50 ppm.

**Silicates** - Ten samples were collected on October 11 and analyzed for silicates. No silicates were detected in these samples. An additional 10 samples were collected on October 18, silicates were either not detected or were detected at levels below the NIOSH Recommended Exposure Limit (REL) time-weighted average of 0.05 mg/m<sup>3</sup>.

**Direct Air Readings** - Using portable monitors, direct air readings were taken in and around ground zero on October 27 and October 28. Several carbon monoxide readings were detected above the National Ambient Air Quality Standard (NAAQS) 8-hour average of 9 ppm, during the early afternoon on October 27 and during the late morning on October 28, however the readings were below the NAAQS 1-hour average of 35 ppm and the OSHA permissible level of 50 ppm.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe/ Water Sampling Situation Report  
Sunday/Monday, October 28-29, 2001 (4 PM)**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 25, 1200 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 26, 0001 - 1200 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 1 sample was not collected (Location D) since the pump was missing.
- NYC / ER (Oct 27, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NJ / ER (Oct 24)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 26, 0630 - 1930) - Asbestos
  - 1 of 13 samples analyzed was above the TEM AHERA standard.
  - Exceedance of the TEM AHERA standard occurred at the "Barge" Location #14 (88.89 S/mm<sup>2</sup>).
  - 6 samples (S Location #9A, S Location #9B, W Location #12A, W Location #12B, T Location #15, and T Location #16) were not analyzed due to overloading of particulates.
- Fresh Kills (Oct 26) - Particulate Monitoring (Dataram)
  - Increased daily average concentrations noted at perimeter locations 1 and 2 along the northeast and eastern edge of the landfill.
  - No readings taken at Location 7.
- Fresh Kills (Oct 27) - Particulate Monitoring (Dataram)
  - Daily average concentrations have decreased from previous day's readings.
- Fresh Kills (Oct 28) - Particulate Monitoring (Dataram)
  - Daily average concentrations have generally decreased from previous day's readings.

Ambient Air Sampling Locations

- NYC / ER (Sep 27-28) - Volatile Organic Compounds
  - Errata: Additional data point (location) previously omitted from Sep 27/28 report.
  - 1 additional (Summa) sample collected over a period of approximately 24 hours at previously established air sampling station (D) near the perimeter of the debris piles.
  - VOCs were either not detected or below the EPA Removal Action guidance levels (based on a 30-year exposure).
- NYC / ER (Oct 11) - Dioxin
  - 3 of the 10 samples (Location A, B, and 3) collected were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - No samples were identified above the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.
  - Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for long-term (chronic exposure).
- NYC / ER (Oct 11) - Silicates
  - All 10 samples did not detect any silicates.
- NYC / ER (Oct 18) - Silicates
  - All 10 samples either did not detect any silicates or were below the NIOSH Recommended Exposure Limit (REL) TWA of 0.05 mg/m<sup>3</sup>.
- NYC / ER (Oct 26) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **18.67 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **8.53 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **6.70 ug/m<sup>3</sup>**.
  - Albany St. at Battery Park City - 24-hour average concentration for this period was **7.71 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 27) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **11.63 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **6.72 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **5.12 ug/m<sup>3</sup>**.
  - Albany St. at Battery Park City - 24-hour average concentration for this period was **6.71 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

- NYC / ER (Oct 26) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations on the debris pile in the plume at ground level.
  - Chlorodifluoromethane (Freon-22) was not detected in any of the 5 samples.
- NYC / ER (Oct 27) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations on the debris pile in the plume at ground level.
  - Chlorodifluoromethane (Freon-22) was detected and confirmed in the North Tower debris pile (240 ppbv) and at the South Tower debris pile (44 ppbv [estimated]), both at ground level.
  - Chlorodifluoromethane levels were well below the NIOSH REL TWA of 1,000 ppm.
- NYC / ER (Oct 28) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations on the debris pile in the plume at ground level.
  - Chlorodifluoromethane (Freon-22) was detected and confirmed in the North Tower debris pile (360 ppbv) at ground level.
  - Chlorodifluoromethane levels were well below the NIOSH REL TWA of 1,000 ppm.

#### Direct Reading Instruments

- NYC / ER (Oct 26)
  - Nothing of significance reported.
- NYC / ER (Oct 27)
  - Several readings noted above the carbon monoxide NAAQS (8 hr. average) of 9 ppm during the early afternoon, but below the NAAQS (1 hr. average) of 35 ppm and the OSHA PEL of 50 ppm.
- NYC / ER (Oct 28)
  - Several readings noted above the carbon monoxide NAAQS (8 hr. average) of 9 ppm during the late morning, but below the NAAQS (1 hr. average) of 35 ppm and the OSHA PEL of 50 ppm.

#### Landfill Operational Data

- Fresh Kills (Oct 6)
  - 6 background sediment samples collected in existing drainage collection ponds/ditches prior to initiation of vehicle wash station did not detect any asbestos.
- Fresh Kills (Oct 22)
  - 1 water sample (accumulated from wetting operations) collected from a barge used to transport steel/debris from the WTC site to landfill did not note any asbestos above detection limit (1.91 million fibers per liter).

NYC Emergency Response  
Air Samples - dioxin and furan results  
Sampling Date: 10/11/01

Sample No.	WS3241-1C Method Blank	0	WS3241-1D Method Blank	0	05041 TAGA	6642 TAGA	05077 A-Bardney & West Broadway 5390	05078 B Church & Day St. 5456	05045 Loc 4-SW Side of WTC 5 5456
Volume (liters)	Result ng	EMPC ng	MDL ng	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>
2374-TCDF	U	0.020	0.020	U	0.020	0.020	U	0.020	0.020
123474-PeCDD	U	0.10	0.10	U	0.10	0.10	U	0.10	0.10
123478-HxCDD	U	0.10	0.10	U	0.10	0.10	U	0.10	0.10
123578-HxCDD	U	0.10	0.10	U	0.10	0.10	U	0.10	0.10
123478-HxCDF	U	0.10	0.10	U	0.10	0.10	U	0.10	0.10
123478-PeCDD	U	0.051	0.20	U	0.043	0.20	U	0.051	0.20
2374-TCDF	U	0.020	0.020	U	0.020	0.020	U	0.020	0.020
123474-PeCDD	U	0.10	0.10	U	0.10	0.10	U	0.10	0.10
123478-HxCDD	U	0.10	0.10	U	0.10	0.10	U	0.10	0.10
123578-HxCDD	U	0.10	0.10	U	0.10	0.10	U	0.10	0.10
234678-HxCDF	U	0.10	0.10	U	0.10	0.10	U	0.10	0.10
123478-HxCDF	U	0.10	0.10	U	0.10	0.10	U	0.10	0.10
123478-HxCDF	U	0.10	0.10	U	0.10	0.10	U	0.10	0.10
OCDF	U	0.20	0.20	U	0.20	0.20	U	0.20	0.20
Total TCDFs	U	0.020	0.020	U	0.020	0.020	U	0.020	0.020
Total PCDDs	U	0.122	0.122	U	0.106	0.122	U	0.106	0.122
Total HCDDs	U	0.122	0.122	U	0.106	0.122	U	0.106	0.122
Total HxCDDs	U	0.122	0.122	U	0.106	0.122	U	0.106	0.122
Total TCDFs	U	0.020	0.020	U	0.020	0.020	U	0.020	0.020
Total PCDFs	U	0.020	0.020	U	0.020	0.020	U	0.020	0.020
Total HCDFs	U	0.020	0.020	U	0.020	0.020	U	0.020	0.020
Total HxCDFs	U	0.020	0.020	U	0.020	0.020	U	0.020	0.020
Total OCDFs	U	0.20	0.20	U	0.20	0.20	U	0.20	0.20
Total Adjusted Conc	U	0.020	0.020	U	0.020	0.020	U	0.020	0.020
TEQ (MD=1/2)	U	0.020	0.020	U	0.020	0.020	U	0.020	0.020

CCCA 10/01

EMPC: Estimated Maximum Possible Concentration  
TEQ: Toxicity Equivalent

The TEQ (MD=1/2) is calculated using 1/2 of the estimated detection limit for U (non detect) values.

ERTC 10/27/01 9:50

NYC Emergency Response  
 All Samples - dioxin and furan results  
 Sampling Date 10/11/01

Sample No.	05046	05047	05048	05049	05050	05051	05052		
Sampling Location	C1-Liberty St. & Broadway	D-Creenwich & Albany St.	P-Albany St. & South End	S-Rector Place & South End Ave.	E-Liberty St. & South End Ave.	Field Blank	Lot Blank		
Volume (Liters)	5478	5434	5412	4719	5379	0	0		
Analyte	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng	EMPC ng	MDL ng
2376-TCDF	U	0.0058	0.0037	U	0.0037	0.0037	U	0.020	0.020
12376-PeCDD	U	0.018	0.018	U	0.018	0.018	U	0.10	0.10
12376-HxCDD	U	0.018	0.018	U	0.021	0.019	U	0.10	0.10
12376-HxCDF	U	0.018	0.018	U	0.021	0.019	U	0.10	0.10
12376-PeCDF	U	0.018	0.018	U	0.021	0.019	U	0.10	0.10
OCDD	U	0.0062	0.0037	U	0.0077	0.037	U	0.20	0.20
2376-TCDF	U	0.0036	0.0037	U	0.0037	0.0037	U	0.020	0.020
12376-PeCDD	U	0.018	0.018	U	0.021	0.019	U	0.10	0.10
12376-HxCDD	U	0.018	0.018	U	0.021	0.019	U	0.10	0.10
12376-HxCDF	U	0.018	0.018	U	0.021	0.019	U	0.10	0.10
12376-PeCDF	U	0.018	0.018	U	0.021	0.019	U	0.10	0.10
OCDF	U	0.0055	0.0037	U	0.0077	0.037	U	0.20	0.20
Total TCDFs	U	0.0183		U		0.0362	U		
Total PeCDDs	U	0.0284		U		0.0171	U		
Total HxCDDs	U	0.0284		U		0.0171	U		
Total HxCDFs	U			U			U		
Total PeCDFs	U			U			U		
Total HxCDFs	U			U			U		
Total HpCDFs	U			U			U		
Total Adjuvased Conc	0.0000	0.0000		0.0000	0.0000				
TEQ (ND=5)	0.0015	0.0019		0.0019	0.0024		0.0000	0.0000	
TEQ (ND=17)							0.0099	0.0102	

CCCR 6681

EMPC - Estimated Maximum Possible Concentration  
 TEQ - Toxicity Equivalent

The TEQ (ND=17) is calculated using 1/2 of the estimated detection limit for U (non detect) values.

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*	
10/24/01	10753	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/24/01	10754	CITGO Terminal	477	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/24/01	10755	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/24/01	10756	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

CCCF 00538

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location  
Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

Sampling Times  
1205 (10/24/01) to 2005 (10/24/01)  
1250 (10/24/01) to 2047 (10/24/01)  
1325 (10/24/01) to 2125 (10/24/01)  
1435 (10/24/01) to 2235 (10/24/01)

ERT: 10/27/01 09:50 AM

NYC Emergency Response  
 Silica- Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/11/01 08:30 to 18:30

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
10/11/01	05065	A	1000	Air	<0.01	<0.01	<0.01
10/11/01	05066	B	1000	Air	<0.01	<0.01	<0.01
10/11/01	05058	C-1	1000	Air	<0.01	<0.01	<0.01
10/11/01	05059	D	1000	Air	<0.01	<0.01	<0.01
10/11/01	05062	E	1000	Air	<0.01	<0.01	<0.01
10/11/01	05060	P	1000	Air	<0.01	<0.01	<0.01
10/11/01	05061	S	1000	Air	<0.01	<0.01	<0.01
10/11/01	05063	TAGA	1000	Air	<0.01	<0.01	<0.01
10/11/01	05054	TAGA	1000	Air	<0.01	<0.01	<0.01
10/11/01	05057	Loc 3 SW side of WTC 5	1000	Air	<0.01	<0.01	<0.01

cont 04072

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (e.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on fire next to volleyball court)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

NS: Not sampled

ERT 10/27/01 9.50 AM

NIOSH 7500: Silica crystalline by XRD



NYC Emergency Response  
 Silica- Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/18/01 0830 to 1630

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
10/18/01	02861	A	1000	Air	<0.01	<0.01	<0.01
10/18/01	02862	B	1000	Air	<0.01	<0.01	<0.01
10/18/01	02864	C1	1000	Air	0.012	<0.01	<0.01
10/18/01	02865	D	1000	Air	<0.01	<0.01	<0.01
10/18/01	02868	E	1000	Air	<0.01	<0.01	<0.01
10/18/01	02866	P	1000	Air	<0.01	<0.01	<0.01
10/18/01	02867	S	1000	Air	<0.01	<0.01	<0.01
10/18/01	02859	TAGA	1000	Air	<0.01	<0.01	<0.01
10/18/01	02860	TAGA	1000	Air	<0.01	<0.01	<0.01
10/18/01	02863	Loc 3A Between WTC 4& 5	1000	Air	<0.01	<0.01	<0.01

conf 03876

Sampling Locations:

- A: NE corner of West Broadway & Barclay
  - B: SE corner of Church & Dey St.
  - C: Trinity (a.k.a. Church) & Liberty
  - C1: SW corner of Broadway & Liberty St.
  - D: East end of Albany St. at Greenwich St.
  - E: Western end of Liberty St. at South End Ave
  - F: Northern median strip of Vesey & West St
  - G: Church and Duane St.
  - H: South side of Chase Manhattan Plaza at Pine St.
  - I: SE corner of Wall St. & Broadway
  - J: NE corner of Warren & West St.
  - K: West St. & Albany in median strip
  - L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area
  - M: Western end of Harrison St. at West St. (on free next to bulkhead)
  - N: South side of Pier 25 (next to volleyball court)
  - P: NE corner of South End Ave. & Albany
  - Q: Barclay & West St. (center island) in proximity to USCG command post
  - R: TAGA Bus Location
  - S: Rector & South End
- ERT 10/27/01 9.50 AM
- NS: Not sampled

NIOSH 7500: Silica crystalline by XRD

NYC Response  
Asbestos Water Sample Analysis Results - Staten Island Landfill  
Sampling Date and Time: 10/22/01

Date Sampled	Sample No.	Location	Matrix	Asbestos Fibers (MFL)	Comments
10/22/01	BW-1	Barge Water	Water	<1.91	

MFL: Millions of fibers per liter  
Method of Sample Analysis: Asbestos structures over 10 µm in length by EPA 100.2 Method

Revised  
ERT: 10/27/01 9:50 AM

NYC Response  
 Asbestos Analysis Results - Sediment  
 Sampling Date: 10/06/01

Date Sampled	Sample No.	Sampling Location	Matrix	% Asbestos	Comments
10/6/01	VWS-1	Vehicle Wash	sediment	ND	
10/6/01	VWS-1	Vehicle Wash	sediment	ND	
10/6/01	VWS-1	Vehicle Wash	sediment	ND	
10/6/01	VWS-1	Vehicle Wash	sediment	ND	
10/6/01	VWS-1	Vehicle Wash	sediment	ND	

code: 05125 (04/24)

EPA Protocol for Screening Soil and Sediment Samples for Asbestos Content  
 Used by USEPA Region 1 Laboratory (rev. May 24, 1994, Modified by EMSL (Sept 1999)

ND: None Detected

NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/25/01 1200 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Structures (f) <sup>1</sup>	S/m <sup>3</sup>
10/25/01	11151	A	720	Air	36.84	0.020	0	<0.0046
10/25/01	11152	B	720	Air	58.86	0.027	0	<0.0046
10/25/01	11153	C	720	Air	27.0	<0.004	0	<0.0046
10/25/01	11156	D	720	Air	16.56	0.004	0	<0.0046
10/25/01	11163	E	720	Air	12.74	0.007	0	<0.0046
10/25/01	11164	F	720	Air	7.64	0.004	0	<0.0046
10/25/01	11154	H	720	Air	10.19	0.005	0	<0.0046
10/25/01	11155	I	720	Air	<7.0	<0.004	0	<0.0046
10/25/01	11166	J	720	Air	8.92	0.005	0	<0.0046
10/25/01	11157	K	720	Air	<7.0	<0.004	0	<0.0046
10/25/01	11169	L	720	Air	<7.0	<0.004	0	<0.0046
10/25/01	11168	M 1	720	Air	7.64	0.004	0	<0.0046
10/25/01	11167	N	720	Air	<7.0	<0.004	0	<0.0046
10/25/01	11162	P	720	Air	<7.0	<0.004	0	<0.0046
10/25/01	11165	Q	720	Air	<7.0	<0.004	0	<0.0046
10/25/01	11170	S DHP	720	Air	17.0	0.004	0	<0.0046
10/25/01	11160	U	720	Air	27.0	<0.004	0	<0.0046
10/25/01	11158	T	720	Air	7.64	0.004	0	<0.0046

ppm 04326 & 04327

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Liberty St. at Greenwich St.
- E: Western median strip of Vesey & West St
- F: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: Corner of Warren & West St.
- K: West St. & Albany in Midship
- L: On walkway toward North Park (cc area north side of Stuyvesant High), access to TAGA bus area
- M1: West St. - 50 yards south of Hanson St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Locallion

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)  
ERT: 10/28/01 09:50 AM  
FL-10-25-01a.xls

NS: Not sampled  
\*Structure (S) roughly equivalent to fiber (f)  
NR: Not requested  
NA: not analyzed due to overloading of particulates

NYC Emergency Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/26/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Structures (#)	S-f/cc*
10/26/01	11171	A	720	Air	21.66	0.012	0	<8.61
10/26/01	11172	B	720	Air	<7.0	<0.004	0	<8.61
10/26/01	11173	C	720	Air	<7.0	<0.004	0	<8.61
10/26/01	11174	D	0	Air	No Sample Pump Messing	NS	NS	NS
10/26/01	11175	E	720	Air	7.64	0.004	0	<8.61
10/26/01	11180	E Dup	720	Air	11.46	0.006	0	<8.61
10/26/01	11184	F	720	Air	<7.0	<0.004	0	<8.61
10/26/01	11174	H	720	Air	<7.0	<0.004	0	<8.61
10/26/01	11175	I	695	Air	8.92	0.005	0	<8.61
10/26/01	11185	J	720	Air	<7.0	<0.004	0	<8.61
10/26/01	11177	K	720	Air	17.83	0.009	0	<8.61
10/26/01	11189	L	720	Air	<7.0	<0.004	0	<8.61
10/26/01	11188	M 1	75	Air	<7.0	<0.036	0	<7.75
10/26/01	11187	N	720	Air	<7.0	<0.004	0	<8.61
10/26/01	11182	P	720	Air	8.92	0.005	0	<8.61
10/26/01	11185	Q	720	Air	<7.0	<0.004	0	<8.61
10/26/01	11181	S	720	Air	<7.0	<0.004	0	<8.61
10/26/01	11186	T	720	Air	<7.0	<0.004	0	<8.61
10/26/01	11180	V	720	Air	14.04	0.007	0	<8.61
10/26/01	11178	T	720	Air	11.46	0.006	0	<8.61

204 0453 & 0454

\*\* Chrysotile. No other asbestos fibers were detected

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Veesev & West St
- G: Church and Duane St.
- H: South side of Chiesa Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broome
- J: SE corner of Wall St. & West St.
- K: West St & Albany
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M1: West St - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location

NS: Not sampled

\*Structure (S) roughly equivalent to fiber (f)

NR: Not requested

NA: not analyzed due to overloading of particulates

ERT: 10/28/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/27/01 00:01 to 1:20

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/ftc	f/cc	Structures (#)	S- /cc*
10/27/01	05581	A	720	Air	22.83	0.012	0	<0.0046
10/27/01	05582	B	720	Air	22.83	0.012	0	<0.0046
10/27/01	05584	C-1	720	Air	<7.0	<0.004	0	<0.0046
10/27/01	05586	D	720	Air	7.64	0.004	0	<0.0046
10/27/01	05603	E	720	Air	<7.0	<0.004	0	<0.0046
10/27/01	05604	F	720	Air	<7.0	<0.004	0	<0.0046
10/27/01	05585	H	720	Air	<7.0	<0.004	0	<0.0046
10/27/01	05583	I	720	Air	11.46	0.006	0	<0.0046
10/27/01	05606	J	720	Air	11.46	0.006	0	<0.0046
10/27/01	05597	K	720	Air	8.92	0.005	0	<0.0046
10/27/01	05510	L	366	Air	<7.0	<0.004	0	<0.0046
10/27/01	05609	M 1	720	Air	<7.0	<0.004	0	<0.0046
10/27/01	05607	N	669	Air	9.55	0.005	0	<0.0046
10/27/01	05608	N Dup	720	Air	<7.0	<0.004	0	<0.0046
10/27/01	05602	P	619	Air	17.83	0.011	0	<0.0046
10/27/01	05593	Q	720	Air	<7.0	<0.004	0	<0.0046
10/27/01	05598	U	408	Air	10.19	0.016	0	<0.0046
10/27/01	05600	V	720	Air	<7.0	<0.004	0	<0.0046
10/27/01	05598	T	720	Air	<7.0	<0.004	0	<0.0046

004 04857 & 04858

\*\* Chrysotile. No other asbestos fibers were found

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C-1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chester Rehabilitation Plaza at Pine St.
- I: SE corner of West St. & Broadway
- J: NE corner of West St. & Broadway
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Locallon

- S: Rector & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

NS: Not sampled

\*Structure (S) roughly equivalent to fiber (f)

NR: Not requested

NA: not analyzed due to overloading of particulates

ERT: 10/28/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/26/01 06:30 to 10/26/01 19:30

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*		
10/26/2001	03733	P Loc # 1	686.4	Air	10.83	0.006	0	32	0.0179	
10/26/2001	03734	P Loc # 2	720	Air	<7.0	<0.004	3**	0	26.7	0.0143
10/26/2001	03735	P Loc # 3	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/26/2001	03736	P Loc # 4	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/26/2001	03737	P Loc # 5	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/26/2001	03738	P Loc # 6	394.4	Air	<7.0	<0.007	0	0	<8.00	<0.0076
10/26/2001	03739	P Loc # 7	686.6	Air	<7.0	<0.004	0	1**	8.0	0.0044
10/26/2001	03740	P Loc # 8	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/26/2001	03741	S Loc # 9A	685	Air	NA	NA	NA	NA	NA	NA
10/26/2001	03742	S Loc # 9B	653	Air	14.01	0.008	NA	NA	NA	NA
10/26/2001	03743	S Loc # 10 A	758	Air	<7.0	<0.004	2**	1**	26.7	0.0135
10/26/2001	03744	S Loc # 10 B	653	Air	<7.0	<0.004	1**	0	8.0	0.0047
10/26/2001	03745	W Loc # 11	737	Air	<7.0	<0.004	0	0	<8.89	<0.0046
10/26/2001	03746	W Loc # 12A	652	Air	7.64	0.004	NA	NA	NA	NA
10/26/2001	03747	W Loc # 12B	696	Air	10.83	0.006	NA	NA	NA	NA
10/26/2001	03748	B Loc # 13	771	Air	12.74	0.006	1**	2**	26.67	0.0133
10/26/2001	03749	B Loc # 14	773	Air	<7.0	<0.003	9**	1**	38.69	0.0443
10/26/2001	03750	T Loc # 15	751	Air	<7.0	<0.004	NA	NA	NA	NA
10/26/2001	03751	T Loc # 16	735	Air	NA	NA	NA	NA	NA	NA

coprjms7 & user8

\*\* Chrysotile, no other types of asbestos detected

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overlapping of particulates  
NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/28/01 9:50 AM

FK-10-26-01a.xls

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 October 28, 2001

Location	Longitude	Latitude	DataRam ID	Tag#	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2480	1	22	05:30:00	10	00:15:00	100	0.0	1.3	57.5	847.1
2	-74.198262	40.566883	2152	1	65	11:55:00	10	00:11:00	100	0.0	0.7	7.4	624.6
3	-74.198685	40.570054	2011	1	48	12:00:00	10	00:15:00	100	0.0	0.0	5.1	2671.3
4	-74.201380	40.569790	2294	1	48	12:00:00	10	00:15:00	100	0.0	0.0	10.0	1134.7
5	-74.205873	40.568892	2295	1	48	12:00:00	10	00:15:00	100	0.0	0.3	2.7	151.3
6	-74.207406	40.563818	2012	1	26	06:30:00	10	00:15:00	100	0.0	2.4	4.3	147.3
7	-74.205414	40.560434	2226	1	0	0	10	00:15:00	100	0.0	0	0	0
8	-74.203019	40.561915	2363	1	48	12:00:00	10	00:15:00	100	0.0	11.4	53.8	2258.6



Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 October 27, 2001

Location	Longitude	Latitude	DataRam ID	Tag#	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min.Conc ug/m3	Avg.Conc ug/m3	Max.Conc ug/m3
1	-74.199795	40.565139	2480	1	35	08:45:00	10	00:15:00	100	0.0	9.0	108.3	1078.6
2	-74.198262	40.566883	2152	1	35	08:45:00	10	00:15:00	100	0.0	0.0	12.6	1032.2
3	-74.198685	40.570054	2011	1	35	08:45:00	10	00:15:00	100	0.0	0.0	7.4	2450.2
4	-74.201380	40.569790	2294	1	35	08:45:00	10	00:15:00	100	0.0	2.3	10.6	1679.2
5	-74.205873	40.568892	2295	1	35	08:45:00	10	00:15:00	100	0.0	0.6	3.6	968.1
6	-74.207406	40.563818	2012	1	11	02:45:00	10	00:15:00	100	0.0	0.9	2.8	53.3
7	-74.205414	40.560434	2226	1	35	08:45:00	10	00:15:00	100	0.0	3.0	8.4	1082.6
8	-74.203019	40.561915	2363	1	35	08:45:00	10	00:15:00	100	0.0	3.2	39.1	1517.0

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 October 26, 2001

Location	Longitude	Latitude	DataRam ID	Tag#	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc ug/m3	Avg Conc ug/m3	Max Conc ug/m3
1	-74.199795	40.565139	2480	1	39	09:45:00	10	00:15:00	100	0.0	19.4	262.6	14902.3
2	-74.198262	40.566883	2152	1	39	09:45:00	10	00:15:00	100	0.0	4.0	117.6	2955.0
3	-74.198685	40.570054	2011	1	40	10:00:00	10	00:15:00	100	0.0	0.0	15.0	556.0
4	-74.201380	40.569790	2294	1	39	09:45:00	10	00:15:00	100	0.0	7.4	34.9	1108.8
5	-74.205873	40.568892	2295	1	39	09:45:00	10	00:15:00	100	0.0	0.0	13.5	572.8
6	-74.207406	40.563818	2012	1	38	09:30:00	10	00:15:00	100	0.0	5.1	17.0	1121.0
7	-74.205414	40.560434											
8	-74.203019	40.561915	2363	1	42	10:30:00	10	00:15:00	100	0.0	8.0	84.9	15024.0

GROUND ZERO TASK FORCE - REAL TIME AIR MONITORING (FIELDS - BEGINNING)

Location	Date	Time	Wind Dir.	Type Meters			Multi-Gas PPM5 Multi Gas								TVA-1000 Multi Gas	
				COCl <sub>2</sub>	H <sub>2</sub> SO <sub>4</sub>	HCN <sub>2</sub>	HCl	H <sub>2</sub> S	SO <sub>2</sub>	LEL	O <sub>2</sub>	CO	NO	NO <sub>2</sub>	FID	PID
				ppbv	ppbv	ppbv	ppbv	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm
A	10/28/94	10:40	W	ND			ND	ND	ND	ND	0	20.9	1.6	ND	ND	
B	10/28/94	10:45	NW	ND			ND	ND	ND	ND	0	20.9	2.9	ND	ND	
C	10/28/94	10:53	NW	ND			ND	ND	ND	ND	0	21.0	2.2	ND	ND	
H	10/28/94	10:56	W	ND			ND	ND	ND	ND	0	21.1	5.4	ND	ND	
I	10/28/94	10:58	W	ND			ND	ND	ND	ND	0	21.1	6.1	ND	ND	
D	10/28/94	10:59	NW	ND			ND	ND	ND	ND	0	20.9	8.1	ND	ND	
K	10/28/94	11:00	NW	ND			ND	ND	ND	ND	0	20.8	7.9	ND	ND	
T	10/28/94	11:00	W	ND			ND	ND	ND	ND	0	20.9	8.2	ND	ND	
U	10/28/94	11:05	W	ND			ND	ND	ND	ND	0	20.9	11	ND	ND	
V	10/28/94	11:10	W	ND			ND	ND	ND	ND	0	20.9	9.7	ND	ND	
S	10/28/94	11:55	W	ND			ND	ND	ND	ND	0	21.0	14	ND	ND	
P	11/03/94	11:03	W	ND			ND	ND	ND	ND	0	20.8	9.3	ND	ND	
E	11/03/94	11:05	W	ND			ND	ND	ND	ND	0	20.8	1.5	ND	ND	
F	11/03/94	11:15	W	ND			ND	ND	ND	ND	0	20.7	3.3	ND	ND	
G	11/03/94	11:20	W	ND			ND	ND	ND	ND	0	20.9	3.6	ND	ND	
J	11/03/94	11:30	W	ND			ND	ND	ND	ND	0	20.9	4.3	ND	ND	

A: GREENWICH + BRUNSWICK  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C1: BRUNSWICK + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOMERSET + LIBERTY  
 F: WEST + VESLEY  
 H: CHARGE PAPER  
 I: BRUNSWICK + LIBERTY + COAL ST.  
 J: WEST + BRUNSWICK  
 K: WEST + BRUNSWICK  
 L: STUDDUS, GREENE  
 M: HARRISBURG (PRE) + N. PARK ZS  
 P: SOMERSET + LIBERTY  
 Q: CO. CAMPBELL TEST  
 R: GREENWICH + LIBERTY  
 S: GREENWICH + LIBERTY  
 T: TULSA DISTRICT FROM DET  
 U: TULSA DISTRICT FROM DET  
 V: TULSA DISTRICT FROM DET

N ND ND ND  
 M ND ND ND  
 L ND ND ND

GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Trace Metals				Multi-Gas PHDS				TVA-1000				
				COCl <sub>2</sub> ppbv	PPM <sub>1</sub> ppbv	PPM <sub>2</sub> ppbv	PPM <sub>3</sub> ppbv	HCl ppbv	H <sub>2</sub> S ppm	CL <sub>2</sub> ppm	LEL %	O <sub>2</sub> %	CO ppm	HCN ppm	FPD ppm	FPD ppm
A	10/27	9:10	6003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B	10/27	9:18	6003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1	10/27	9:26	6003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H	10/27	9:34	6003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	10/27	9:42	6003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D	10/27	9:50	6003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K	10/27	10:00	6003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
T	10/27	10:12	6004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
U	10/27	10:16	6003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
V	10/27	10:20	6003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	10/27	10:32	6006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	10/27	10:39	6003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	10/27	10:52	6003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	10/27	10:52	6008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
G	10/27	10:58	6008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	10/27	11:04	6003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

R: GREENWICH + LIBERTY    E: SOMERSET + LIBERTY    S: WEST + VERDE  
 B: CHURCH + LIBERTY    F: WEST + VERDE    K: WEST + LIBERTY    Q: CG (COMMON) TEST  
 C1: CHURCH + LIBERTY    H: CHURCH + LIBERTY    L: 500Y U.S. (PAC)    T: LIBERTY + OLEF  
 G1: LIBERTY + LIBERTY    T: GREENWICH + LIBERTY    M: HANSCROT (FREE) + N Park 25    2: GREENWICH + LIBERTY  
 D: GREENWICH + LIBERTY    T: GREENWICH + LIBERTY    3: PIZZA FROM FROM DET

GROUND ZERO TASK FORCE  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Notes				Mini-Gas PIDS				IQA-1000		
				COCl <sub>2</sub> ppbv	H <sub>2</sub> S ppbv	HCl ppbv	HCN ppm	H <sub>2</sub> S ppm	LEL %	O <sub>2</sub> %	CO ppm	PID ppm	PID ppm	
A	10/27	9:10	W03	ND	ND	ND	ND	ND	ND	ND	19.6	1.0	ND	ND
B	10/27	9:18	W03	ND	ND	ND	ND	ND	ND	ND	19.6	2.2	ND	ND
C	10/27	9:26	W02	ND	ND	ND	ND	ND	ND	ND	19.6	1.0	ND	ND
D	10/27	9:34	W03	ND	ND	ND	ND	ND	ND	ND	19.7	2.0	ND	ND
E	10/27	9:42	W03	ND	ND	ND	ND	ND	ND	ND	19.7	2.7	ND	ND
F	10/27	9:50	W03	ND	ND	ND	ND	ND	ND	ND	19.6	4.3	ND	ND
G	10/27	10:00	W03	ND	ND	ND	ND	ND	ND	ND	19.7	1.1	ND	ND
H	10/27	10:12	SW04	ND	ND	ND	ND	ND	ND	ND	19.7	2.9	ND	ND
I	10/27	10:16	SW03	ND	ND	ND	ND	ND	ND	ND	19.7	1.0	ND	ND
J	10/27	10:20	SW04	ND	ND	ND	ND	ND	ND	ND	19.7	8.1	ND	ND
K	10/27	10:24	W06	ND	ND	ND	ND	ND	ND	ND	19.8	9.4	ND	ND
L	10/27	10:31	W03	ND	ND	ND	ND	ND	ND	ND	19.9	6.1	ND	ND
M	10/27	10:39	W03	ND	ND	ND	ND	ND	ND	ND	19.9	5.2	ND	ND
N	10/27	10:43	W03	ND	ND	ND	ND	ND	ND	ND	19.9	8.6	ND	ND
O	10/27	10:52	W08	ND	ND	ND	ND	ND	ND	ND	19.9	4.8	ND	ND
P	10/27	10:58	W08	ND	ND	ND	ND	ND	ND	ND	19.9	4.8	ND	ND
Q	10/27	11:04	W04	ND	ND	ND	ND	ND	ND	ND	19.9	—	ND	ND

A: GREENWICH + LIBERTY  
 B: CHURCH + KEY  
 C: CHURCH + LIBERTY  
 C-1: BRIDGEWAY + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: GREENWICH + LIBERTY  
 F: WEST + LIBERTY  
 G: CHURCH + LIBERTY  
 H: CHURCH + LIBERTY  
 I: BRIDGEWAY + LIBERTY  
 J: BRIDGEWAY + LIBERTY  
 K: WEST + LIBERTY  
 L: ST. MARY'S (FREE)  
 M: BRIDGEWAY (FREE) + N. PIER 25  
 N: BRIDGEWAY (FREE) + LIBERTY  
 O: BRIDGEWAY (FREE) + LIBERTY  
 P: BRIDGEWAY (FREE) + LIBERTY  
 Q: CO (GAMMA) TEST  
 R: SCOUTS + LIBERTY  
 S: CO (GAMMA) TEST  
 T: LIBERTY + BRIDGEWAY  
 U: GREENWICH + LIBERTY  
 V: BRIDGEWAY FROM KEY

GROUND ZERO TASK FORCE - AL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PHD-5				TVA-1000	
				COCl <sub>2</sub> ppbv	H <sub>2</sub> S ppbv	HCl ppbv	HCN ppm	CO ppm	O <sub>2</sub> %	LEL %	CO ppm	FID ppm	FID ppm
N	10/27	11:17	W 2/0	N/D	N/D	N/D	N/D	N/D	19.9	—	—	N/D	N/D
M L	10/27	11:25	W 2/10	N/D	N/D	N/D	N/D	N/D	19.9	—	—	N/D	N/D
Z	10/27	11:28	W 2/7	N/D	N/D	N/D	N/D	N/D	19.9	—	—	N/D	N/D

- A: GREENWICH + BRACKLEY  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 CA: BRACKLEY + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOMEHEAD + LIBERTY  
 F: WEST + VESSEY  
 H: CHASE PARK  
 I: BRACKLEY + LIBERTY  
 J: WEST + LIBERTY  
 K: WEST + LIBERTY  
 L: STUY. HS. (GRAVE)  
 M: HANCOCK (RUE) + N PARK 25  
 P: SOMEHEAD + LIBERTY  
 Q: CO CHURCH RD  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: RITA CROSS FROM DEY

GROUND ZERO TASK FORCE (FIELD SCREENING)  
 REAL TIME AIR MONITORING  
 (FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PPD-5										TVA 1000								
				CO <sub>2</sub> ppm	H <sub>2</sub> S ppm	HCl ppbv	PHG ppbv	CO ppm	LEL %	O <sub>2</sub> %	CO ppm	HCN ppm	PHD ppm	PHD ppm												
A	10/22	13:06	E 2-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						
B	10/22	13:10	W 2-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND					
I	10/22	13:15	W 2-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND				
C1	10/22	13:18	W 2-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
H	10/22	13:21	E 1m	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
D	10/22	13:30	S 4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
K	10/22	13:33	S 10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
T	10/22	13:41	E 1m	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
LA																										
L	10/22	13:46	E 1m	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S	10/22	13:53	E 1m	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P	10/22	13:55	E 1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E	10/22	13:58	W 2.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	10/22	14:03	E 2.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q	10/22	14:05	E 2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I	10/22	14:10	W 2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

A: GREENWICH + BRADLEY  
 B: CHURCH + DEY  
 C: CHURCH + LIBERTY  
 C1: BRADLEY + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOMERSET + LIBERTY  
 F: WEST + NESLEY  
 H: CHURCH PARK  
 I: BRADLEY + WALTON ST.  
 J: GREENWICH + LIBERTY  
 K: WEST + BRADLEY  
 L: 500' W. PARCE  
 M: HARRISON (ORCA) + N. PAR 25  
 N: BRADLEY + LIBERTY  
 O: GREENWICH + LIBERTY  
 P: SCOTTSB + BRADLEY  
 Q: CG (BRADLEY) TEST  
 R: LIBERTY + WEST  
 S: GREENWICH + LIBERTY  
 T: DATA FROM DEY

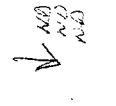




GROUND ZERO TASK FORCE ■■■AL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters						Multi-Gas PHD-5						TVA-1000		
				COCl <sub>2</sub> ppbv	CS <sub>2</sub> ppbv	SO <sub>2</sub> ppbv	H <sub>2</sub> S ppbv	HCl ppbv	HF ppbv	COCl <sub>2</sub> ppm	CS <sub>2</sub> ppm	SO <sub>2</sub> ppm	H <sub>2</sub> S ppm	LEL %	O <sub>2</sub> %	CO ppm	NO ppm	FP- ppm
A	10-30-9	13:05	W	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B		13:15	NW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1		13:35	E2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H		13:31	SW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I		13:20	W2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D		13:45	SW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
V		13:50	SE2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
U		13:55	SE2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
T		14:00	SE2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S		14:03	N3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P		14:05	N3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
E		14:13	S3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K		14:10	W3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F		14:25	S2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Q		14:35	S2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
J		14:45	E4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

A: GREENWICH + BRISLEY  
 B: CHURCH + VEY  
 C1: CHURCH + LIBERTY  
 C2: BRADDOCK + LIBERTY  
 D: GREENWICH + LIBERTY  
 E: SOUTHEND + LIBERTY  
 F: WEST + VEGEY  
 H: CHURCH FLAZA  
 I: BRADDOCK + LIBERTY  
 J: GREENWICH + LIBERTY  
 K: WEST + BRADDOCK  
 L: STUR. W5. (GRBE)  
 M: HARRISON (FREE) + N DEER 25  
 N: GREENWICH + LIBERTY  
 O: CO COMMAND POST  
 P: SOUTHEND + BRADDOCK  
 Q: LIBERTY + WEST  
 R: GREENWICH + LIBERTY  
 S: GREENWICH + LIBERTY  
 T: GREENWICH + LIBERTY  
 U: GREENWICH + LIBERTY  
 V: GREENWICH + LIBERTY  
 W: GREENWICH + LIBERTY  
 X: GREENWICH + LIBERTY  
 Y: GREENWICH + LIBERTY  
 Z: GREENWICH + LIBERTY



GROUND ZERO TASK FORCE REAL TIME AIR MONITORING  
(FIELD SCREENING)

Location	Date	Time	Wind Dir.	Tape Meters				Multi-Gas PFD-5						TVA-100				
				COCl <sub>2</sub> ppbv	HCN ppbv	HCN ppbv	HCN ppbv	HF	CO	NO	FID	FID	ppm	ppm				
A	10-20-01	08:05	WS															
B		09:15	WS															
C		09:20	WS															
H		09:25	WS															
I		09:35	WS															
J		09:45	WS															
K		09:55	WS															
L		10:00	WS															
M		10:05	WS															
N		10:12	WS															
O		10:20	WS															
P		10:25	WS															
Q		10:32	WS															
R		10:40	WS															
S		10:45	WS															
T		10:50	WS															

1: GREENWICH + LIBERTY  
 2: CHURCH + LIBERTY  
 3: BRADDOCK + LIBERTY  
 4: GREENWICH + LIBERTY  
 5: 10:55 E 2  
 6: 11:00 E 3  
 7: 11:10 E 3  
 8: CHURCH + LIBERTY  
 9: BRADDOCK + LIBERTY  
 10: GREENWICH + LIBERTY  
 11: GREENWICH + LIBERTY  
 12: CHURCH + LIBERTY  
 13: BRADDOCK + LIBERTY  
 14: GREENWICH + LIBERTY  
 15: CHURCH + LIBERTY  
 16: BRADDOCK + LIBERTY  
 17: GREENWICH + LIBERTY  
 18: CHURCH + LIBERTY  
 19: BRADDOCK + LIBERTY  
 20: GREENWICH + LIBERTY  
 21: CHURCH + LIBERTY  
 22: BRADDOCK + LIBERTY  
 23: GREENWICH + LIBERTY  
 24: CHURCH + LIBERTY  
 25: BRADDOCK + LIBERTY  
 26: GREENWICH + LIBERTY  
 27: CHURCH + LIBERTY  
 28: BRADDOCK + LIBERTY  
 29: GREENWICH + LIBERTY  
 30: CHURCH + LIBERTY  
 31: BRADDOCK + LIBERTY  
 32: GREENWICH + LIBERTY  
 33: CHURCH + LIBERTY  
 34: BRADDOCK + LIBERTY  
 35: GREENWICH + LIBERTY  
 36: CHURCH + LIBERTY  
 37: BRADDOCK + LIBERTY  
 38: GREENWICH + LIBERTY  
 39: CHURCH + LIBERTY  
 40: BRADDOCK + LIBERTY  
 41: GREENWICH + LIBERTY  
 42: CHURCH + LIBERTY  
 43: BRADDOCK + LIBERTY  
 44: GREENWICH + LIBERTY  
 45: CHURCH + LIBERTY  
 46: BRADDOCK + LIBERTY  
 47: GREENWICH + LIBERTY  
 48: CHURCH + LIBERTY  
 49: BRADDOCK + LIBERTY  
 50: GREENWICH + LIBERTY  
 51: CHURCH + LIBERTY  
 52: BRADDOCK + LIBERTY  
 53: GREENWICH + LIBERTY  
 54: CHURCH + LIBERTY  
 55: BRADDOCK + LIBERTY  
 56: GREENWICH + LIBERTY  
 57: CHURCH + LIBERTY  
 58: BRADDOCK + LIBERTY  
 59: GREENWICH + LIBERTY  
 60: CHURCH + LIBERTY  
 61: BRADDOCK + LIBERTY  
 62: GREENWICH + LIBERTY  
 63: CHURCH + LIBERTY  
 64: BRADDOCK + LIBERTY  
 65: GREENWICH + LIBERTY  
 66: CHURCH + LIBERTY  
 67: BRADDOCK + LIBERTY  
 68: GREENWICH + LIBERTY  
 69: CHURCH + LIBERTY  
 70: BRADDOCK + LIBERTY  
 71: GREENWICH + LIBERTY  
 72: CHURCH + LIBERTY  
 73: BRADDOCK + LIBERTY  
 74: GREENWICH + LIBERTY  
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 79: BRADDOCK + LIBERTY  
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 85: BRADDOCK + LIBERTY  
 86: GREENWICH + LIBERTY  
 87: CHURCH + LIBERTY  
 88: BRADDOCK + LIBERTY  
 89: GREENWICH + LIBERTY  
 90: CHURCH + LIBERTY  
 91: BRADDOCK + LIBERTY  
 92: GREENWICH + LIBERTY  
 93: CHURCH + LIBERTY  
 94: BRADDOCK + LIBERTY  
 95: GREENWICH + LIBERTY  
 96: CHURCH + LIBERTY  
 97: BRADDOCK + LIBERTY  
 98: GREENWICH + LIBERTY  
 99: CHURCH + LIBERTY  
 100: BRADDOCK + LIBERTY

DRAFT GCMS Results for 13/28/01 DRAFT

File name	NYC465	NYC466	NYC467	NYC468	NYC469	NYC470
Sample Location	Instrument Blank	Tedlar Bag Blank	Pier 29 North	North Tower	South Tower	Austin Tobin
Sample Number			10101	10102	10103	10104
Sample Height			Breathing Height	Ground Level	Ground Level	Breathing Height
Volume		250 mL	100 mL	20 mL	20 mL	100 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1700 ppbv	2100 ppbv	RL=20 ppbv
Chloro-fluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	360 ppbv	RL=50 ppbv	RL=20 ppbv
Dichloro-difluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Dichloro-tetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chloro-methane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	860 ppbv	RL=20 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Trichloro-fluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	1170 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	34 ppbv	1700 ppbv	1700 ppbv	61 ppbv
Trichloro-fluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	70 ppbv	62 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	370 ppbv	280 ppbv	RL=20 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	130 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	56 ppbv	54 ppbv	RL=20 ppbv
Carbonyl Sulfide	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2900 ppbv	7500 ppbv	RL=20 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	60 ppbv	RL=20 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
cis-1,2-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1000 ppbv	2100 ppbv	RL=20 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Dichlorodifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	900 ppbv	950 ppbv	RL=20 ppbv
m,p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	37 ppbv	120 ppbv	RL=20 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	50 ppbv	110 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	500 ppbv	450 ppbv	RL=20 ppbv
Bromotoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	61 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

DRAFT GC/MS Results for 10/27/01 DRAFT

File name	NYC433	NYC454	NYC455	NYC456	NYC467	NYC458
Sample Location	Instrument Blank	Tedlar Bag Blank	Pier 26 North	North Tower	South Tower	August Tobin
Sample Number			Ambient	10087	10087	Plaza
Sample Height			100 ft	Ground Level	Ground Level	Breathing Height
Volume	100 ml	100 ml	100 ml	100 ml	20 ml	100 ml
Picoyane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	19,300 ppbv	5,300 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	240 ppbv	44 ppbv (L)	RL=20 ppbv
Dichloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	66 ppbv	RL=50 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	8,800 ppbv	5,200 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	200 ppbv	79 ppbv	RL=20 ppbv
Chloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	380 ppbv	220 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Acetylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	110 ppbv	20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	127 ppbv	11,000 ppbv	7,100 ppbv	360 ppbv
1,1,1-Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	77 ppbv	RL=20 ppbv
MCS	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
trans-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	470 ppbv	320 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
2-Butanol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3,300 ppbv	1,800 ppbv	57 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	99 ppbv	RL=50 ppbv	RL=20 ppbv
Trichloroethylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,100 ppbv	80 ppbv	51 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	56 ppbv	RL=50 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	33,000 ppbv	9,100 ppbv	21 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	330 ppbv	220 ppbv	RL=20 ppbv
Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	150 ppbv	210 ppbv	30 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	180 ppbv	98 ppbv	RL=20 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	6,500 ppbv	4,100 ppbv	RL=20 ppbv
trans-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	190 ppbv	120 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	RL=50 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	640 ppbv	100 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	7,500 ppbv	5,200 ppbv	RL=20 ppbv
m,p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	510 ppbv	290 ppbv	RL=20 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	390 ppbv	250 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3,600 ppbv	1,400 ppbv	RL=20 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2,2-Tetrahydroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	260 ppbv	210 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	180 ppbv	120 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	180 ppbv	120 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	85 ppbv	RL=50 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	68 ppbv	RL=50 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Hexachloro-1,3-Epoxy	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
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DRAFT GC/MS Results for 10/26/01 DRAFT

File name	NYC443	NYC444	NYC445	NYC447	NYC449
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient N. Park Pier 25	Austin Tobin Plaza	South Tower
Sample Number			10077	10081	10082
Sample Height			Breathing	Breathing	Ground
Volume		250 mL	250 mL	20 mL	20 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	23000 ppbv
Chlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	27000 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	350 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	880 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	32000 ppbv
Trichloroethylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
3-Chloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
MIBK	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	1400 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	8700 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	5000 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	37000 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	970 ppbv
Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	300 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	19000 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	490 ppbv
Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	220 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	21000 ppbv
m-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	1200 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	950 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	5000 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	900 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	570 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	500 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv

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DRAFT GCMS Results for 102601 DRAFT

File Name	NYC449	NYC450		
Sample Location	F.D.N.Y. East	North Tower		
	Command Post			
Sample Number	10083	10084		
Sample Height	Breathing	Ground		
Volume	20 mL	20 mL		
Picrylene	RL=50 ppbv	16000 ppbv		
Chlorodifluoromethane	RL=50 ppbv	RL=50 ppbv		
Dichlorodifluoromethane	RL=50 ppbv	RL=50 ppbv		
Dichlorotetrafluoroethane	RL=50 ppbv	RL=50 ppbv		
Ichloromethane	RL=50 ppbv	15000 ppbv		
Vinyl Chloride	RL=50 ppbv	RL=50 ppbv		
1,3-Butadiene	RL=50 ppbv	RL=50 ppbv		
Bromomethane	RL=50 ppbv	300 ppbv		
Chloroethane	RL=50 ppbv	800 ppbv		
Trichlorofluoroethane	RL=50 ppbv	RL=50 ppbv		
Isopropyl Alcohol	RL=50 ppbv	RL=50 ppbv		
Acetone	300 ppbv	16000 ppbv		
Trichlorotrifluoroethane	RL=50 ppbv	RL=50 ppbv		
1,1-Dichloroethene	RL=50 ppbv	RL=50 ppbv		
o-Chlorophenoel	RL=50 ppbv	RL=50 ppbv		
Methylene chloride	RL=50 ppbv	RL=50 ppbv		
MTBS	RL=50 ppbv	RL=50 ppbv		
trans-1,2-Dichloroethene	RL=50 ppbv	RL=50 ppbv		
Hexane	RL=50 ppbv	1000 ppbv		
1,1-Dichloroethane	RL=50 ppbv	RL=50 ppbv		
Vinyl Acetate	RL=50 ppbv	RL=50 ppbv		
2-Butanone	RL=50 ppbv	2800 ppbv		
cis-1,2-Dichloroethane	RL=50 ppbv	RL=50 ppbv		
Ethyl Acetate	RL=50 ppbv	RL=50 ppbv		
Chloroform	RL=50 ppbv	RL=50 ppbv		
Tetrahydrofuran	RL=50 ppbv	800 ppbv		
1,1,1-Trichloroethane	RL=50 ppbv	RL=50 ppbv		
Cyclohexane	RL=50 ppbv	RL=50 ppbv		
Carbon tetrachloride	RL=50 ppbv	RL=50 ppbv		
1,2-Dichloroethane	RL=50 ppbv	RL=50 ppbv		
Benzene	RL=50 ppbv	27000 ppbv		
Heptane	RL=50 ppbv	700 ppbv		
Trichloroethane	RL=50 ppbv	78 ppbv		
1,2-Dichloropropane	RL=50 ppbv	RL=50 ppbv		
1,4-Dioxane	80 ppbv	220 ppbv		
Methyl isobutyl Ketone	RL=50 ppbv	370 ppbv		
cis-1,3-Dichloropropene	RL=50 ppbv	RL=50 ppbv		
Toluene	RL=50 ppbv	11000 ppbv		
trans-1,3-Dichloropropene	RL=50 ppbv	RL=50 ppbv		
1,1,2-Trichloroethane	RL=50 ppbv	RL=50 ppbv		
2-Hexanone	RL=50 ppbv	300 ppbv		
Tetrahydrothiophene	RL=50 ppbv	180 ppbv		
Dibromochloromethane	RL=50 ppbv	RL=50 ppbv		
1,2-Dibromoethane	RL=50 ppbv	RL=50 ppbv		
Chlorobenzene	RL=50 ppbv	190 ppbv		
Ethylbenzene	RL=50 ppbv	16000 ppbv		
m,p-Xylenes	RL=50 ppbv	710 ppbv		
o-Xylene	RL=50 ppbv	490 ppbv		
Styrene	RL=50 ppbv	12000 ppbv		
Bromoforn	RL=50 ppbv	RL=50 ppbv		
1,1,2,2-Tetrachloroethane	RL=50 ppbv	RL=50 ppbv		
4-Ethyltoluene	RL=50 ppbv	410 ppbv		
1,3,5-Trimethylbenzene	RL=50 ppbv	630 ppbv		
1,2,4-Trimethylbenzene	RL=50 ppbv	300 ppbv		
1,3-Dichlorobenzene	RL=50 ppbv	280 ppbv		
1,4-Dichlorobenzene	RL=50 ppbv	290 ppbv		
Benzyl Chloride	RL=50 ppbv	RL=50 ppbv		
1,2-Dichlorobenzene	RL=50 ppbv	250 ppbv		
1,2,4-Trichlorobenzene	RL=50 ppbv	120 ppbv		
Hexachloro-1,3-Butadiene	RL=50 ppbv	RL=50 ppbv		

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Tuesday and Wednesday  
October 30 & 31, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 7:00 p.m. 10/31)**

**Air: Fixed Monitors in New York and New Jersey:**

**Asbestos** - EPA analyzed 102 samples taken in and around ground zero from October 26 through October 29. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1485, with 28 samples (27 of these were collected prior to September 30 and one on October 9) above the standard.

Four air samples taken in New Jersey on October 27 and an additional four air samples collected on October 29 showed results less than the school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 161, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Seventeen samples were collected on October 25. Three samples, one at Location 13 (barge station), one at Location 9A (sift area) and one at Location 12B (wash area) exceeded the school re-entry standard. These incidents are being investigated further. All of the remaining samples showed results less than the school re-entry standard.

An additional 102 samples were collected from October 26 through October 29, all of these samples showed results less than the school re-entry standard.

**Particulate Monitoring** - Samples collected on October 29 using portable monitors showed an increase in concentrations from the previous day's readings.

**Ambient Air Sampling:**

**Dioxin** - Ten samples were collected on October 15 and analyzed for dioxin/furans. Two of the samples (Location 3 - SW of WTC Building #5 and Location B - Church and Dey St.) showed results above the level at which EPA would take some type of action to reduce people's exposure. This action guideline is based on a 30-year exposure. However, none of the samples were above the EPA action guideline adjusted to a one-year exposure. These levels do not pose a short-term health affect but should be monitored if they persist for a longer period of time.

**PCBs** - Sampling for polychlorinated biphenyls (PCBs) was conducted on October 15. PCBs were not detected in nine of the samples. One sample showed trace amounts, below levels of concern.

**Silicates** - Ten samples were collected on October 15 and analyzed for silicates, silicates were either not detected or were detected at levels below the NIOSH Recommended Exposure Limit (REL) time-weighted average of 0.05 mg/m<sup>3</sup>.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on October 29 in the direct area of the debris pile at ground zero. Benzene exceeded the OSHA time-weighted average permissible level at one location (North Tower) at ground level. Benzene levels on the debris pile are significantly reduced from those noted over the past week. Freon-22 (chlorodifluoromethane) was detected and confirmed in samples collected from within the debris pile of the North Tower at ground level. Levels detected were well below the NIOSH recommended exposure limit of 1,000 ppm. EPA is working with the local agencies and health and safety officers working at ground zero to closely monitor this situation so that workers can take appropriate precautions.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted October 28 through October 29 at Pace University, the Borough of Manhattan Community College, and the U.S. Coast Guard building located in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standards (65 ug/m<sup>3</sup>) for all stations. These results were also less than 40 ug/m<sup>3</sup>, an EPA air quality index which would indicate the air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**Direct Air Readings** - Using portable monitors, direct air readings were taken in and around ground zero on October 29, nothing of significance was reported.

**Other Air Samples** - Ten indoor air samples were collected on October 23 and analyzed for asbestos from 100 Church Street, all samples showed results less than the school re-entry standard.

**Bulk/Dust:**

**Asbestos** - Nine samples were collected on October 26 from various steel piles at or near ground zero, 1 sample, collected from a steel pile located on West Street contained chrysotile at greater than 1%.



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**Staten Island Landfill** - Eight samples were collected on October 24 from destroyed vehicles sent to the landfill, 2 samples contained chrysotile at greater than 1%. Six samples were collected from various bulk steel piles. Two samples contained chrysotile at greater than 1%.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Tuesday/Wednesday, October 30 -31, 2001 (1 PM)

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 26, 1200 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 27, 1200 - 2400 hrs)
  - All 21 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 28, 0001 - 1200 hrs)
  - All 21 samples analyzed were below the TEM AHERA standard.
  - 1 sample was not collected (Location F) since pump was missing.
- NYC / ER (Oct 28, 0900 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 29, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NJ / ER (Oct 27)
  - All 4 samples analyzed were below the TEM AHERA standard.
- NJ / ER (Oct 29)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 25, 0600 - 1830) - Asbestos
  - 3 of 17 samples analyzed was above the TEM AHERA standard.
  - Exceedance of the TEM AHERA standard occurred at the "Sift" Location #9A (128 S/mm<sup>2</sup>), perimeter station at "Wash" Location #12B (115.6 S/mm<sup>2</sup>), and "Barge" Location #13 (88.89 S/mm<sup>2</sup>).
  - Preliminary evidence of predominantly large fibers present (awaiting confirmation from lab) throughout most of the samples.
  - Analysis of asbestos type for "Sift" Location #9A reveals 1 of 16 fibers to be amosite. All other fibers identified were chrysotile.
  - Analysis of asbestos type for "Wash" Location #12A reveals 1 of 3 fibers to be actinolite. All other fibers identified were chrysotile.
  - 2 samples (P Location #1, P Location #3) were not analyzed due to pump failures.

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- Fresh Kills (Oct 26, 1830 - Oct 27, 0630) - Asbestos
  - All 17 samples analyzed were below the TEM AHERA standard.
  - 2 samples ("Sift" Location #9B, Supply "Tent" Location #16) were not analyzed for TEM (AHERA) due to overloading of particulates.
- Fresh Kills (Oct 27, 0700 - 1900) - Asbestos
  - All 17 samples analyzed were below the TEM AHERA standard.
  - 2 samples ("Sift" Location #9A, "Sift" Location #10A) were not analyzed for TEM (AHERA) due to overloading of particulates.
- Fresh Kills (Oct 27, 1900 - Oct 28, 0630) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Oct 28, 0630 - 1830) - Asbestos
  - All 14 samples analyzed were below the TEM AHERA standard.
  - 6 samples ("Sift" Location #9A, "Sift" Location #9B, "Wash" Location #11, "Wash" Location #12A, Mess "Tent" Location #15, Supply "Tent" Location #16) were not analyzed for TEM (AHERA) due to overloading of particulates.
- Fresh Kills (Oct 28, 1745 - Oct 29, 0645) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Supply "Tent" Location #16) was not analyzed for TEM (AHERA) due to overloading of particulates.
- Fresh Kills (Oct 29, 0550 - 1820) - Asbestos
  - All 17 samples analyzed were below the TEM AHERA standard.
  - 2 samples ("Perimeter" Location #1 and "Sift" Location 10A) were not sampled.
- Fresh Kills (Oct 29) - Particulate Monitoring (Dataram)
  - Overall increase in daily average concentrations from previous day's readings.

### Ambient Air Sampling Locations

- NYC / ER (Oct 15) - Dioxin
  - 2 of the 10 samples (Locations B and 3) collected were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - No samples were identified above the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.
  - Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for long-term (chronic exposure).

- NYC / ER (Oct 15) - PCBs
  - Trace amounts detected in 1 of 10 samples.
  - 9 samples did not detect any PCBs.
  - All concentrations are below the EPA Removal Action level guidelines.
- NYC / ER (Oct 15) - Silicates
  - All 10 samples either did not detect any silicates or were below the NIOSH Recommended Exposure Limit (REL) TWA of 0.05 mg/m<sup>3</sup>.
- NYC / ER (Oct 28) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **5.82 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **6.49 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **5.96 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 29) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **21.81 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **15.09 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **13.16 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 29) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) on the debris pile in the plume at ground level.
  - Benzene levels on the debris pile are significantly reduced from those noted over the past week.
  - 2 samples (Austin Tobin Plaza and North Park Pier - TAGA Location) did not note any benzene above the detection limit (20 ppbv).
  - Chlorodifluoromethane (Freon-22) was detected and confirmed in the North Tower debris pile (210 ppbv) at ground level.
  - Chlorodifluoromethane levels were well below the NIOSH REL TWA of 1,000 ppm.
- NYC / ER (Oct 14 - Oct 23) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 53 samples were collected from these monitoring sites.

- All of the samples were below the TEM AHERA standard.
- Data not received for Oct 17<sup>th</sup>, 18<sup>th</sup>, and 22<sup>nd</sup>.

#### Other Air Sampling Locations

- NYC / ER (Oct 23) - Asbestos Monitoring (Building at 100 Church St.)
  - All 10 indoor air samples analyzed were below the TEM AHERA standard.

#### Bulk/Dust Samples

- NYC / ER (Oct 26) - Asbestos
  - Asbestos was either not detected or at less than 1% chrysotile in 8 of the 9 samples collected from various steel piles at or near Ground Zero.
  - Asbestos was detected at 22.22% chrysotile in 1 of the samples collected from a steel pile located on West Street near the AMEX building.
- Fresh Kills (Oct 24) - Asbestos
  - Asbestos was detected in 2 of 8 samples collected from vehicles transported from the WTC to the landfill for disposal.
  - One of the samples identified chrysotile at 3.5% and the other sample identified chrysotile at 7.5%.
  - Asbestos was detected in 2 of 6 samples collected from various bulk steel piles at the landfill.
  - One of the samples identified both chrysotile and tremolite at 1.3% and 5% respectively, and the other sample identified chrysotile at 2.5%.

#### Direct Reading Instruments

- NYC / ER (Oct 29)
  - Nothing of significance reported.

#### Landfill Operational Data

- Fresh Kills (Oct 24) Bulk/Dust - Asbestos
  - Asbestos was not detected in 2 samples collected from the sieved material being disposed of in an active bank of the landfill.
  - Note: this data is presented on the data sheet with the bulk sample results presented above for Fresh Kills (Oct 24).
- Fresh Kills (Oct 11) Water - Asbestos
  - 2 water samples collected from the Personal Hygiene Stations reported asbestos below the detection limit for fibers greater than 10 micron length.
  - 1 water sample collected from the Vehicle Wash Station reported asbestos below the detection limit for fibers greater than 10 micron length.
  - Heavy particulate loading of samples limited sensitivity levels for this analysis.

Ambient Water Monitoring

- NYC / ER (Oct 10)
  - Samples collected from PATH dewatering project.
  - Asbestos reported below the detection limit for fibers greater than 10 micron length.
  - Heavy particulate loading of samples limited sensitivity levels for this analysis.
  - The total dioxin/furan TEQ identified in the sample was less than the median TEQs determined in NY Harbor during CARP sampling.

NYC Emergency Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/26/01 1200 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/ftm <sup>3</sup>	f/cc	Structures (f) <sup>1</sup> 0.9µ-5µ	Structures (f) <sup>2</sup> >5µ		
10/26/01	10745	A	720	Air	35.67	0.019	0	0	<-8.61	<-0.0046
10/26/01	10746	B	720	Air	56.05	0.030	0	0	<-8.61	<-0.0046
10/26/01	10747	C.1	720	Air	20.38	0.011	0	0	<-8.61	<-0.0046
10/26/01	10750	D	130	Air	<7.0	<0.021	0	0	<-7.75	<-0.0230
10/26/01	11097	E	708	Air	11.46	0.006	0	0	<-8.61	<-0.0047
10/26/01	11098	F	720	Air	10.83	0.006	0	0	<-8.61	<-0.0046
10/26/01	10748	H	720	Air	13.29	0.008	0	0	<-8.61	<-0.0046
10/26/01	10749	I	720	Air	14.01	0.007	0	0	<-8.61	<-0.0046
10/26/01	11101	J	720	Air	20.38	0.011	0	0	<-8.61	<-0.0046
10/26/01	11100	J Dup	720	Air	10.19	0.005	0	0	<-7.75	<-0.0067
10/26/01	11091	K	443	Air	20.38	0.018	0	0	<-8.61	<-0.0046
10/26/01	11104	L	720	Air	20.38	0.011	0	0	<-8.61	<-0.0046
10/26/01	11103	M.1	720	Air	12.74	0.007	0	0	<-8.61	<-0.0046
10/26/01	11096	N	720	Air	<7.0	<0.004	0	0	<-8.61	<-0.0046
10/26/01	11095	O	720	Air	25.48	0.007	0	0	<-8.61	<-0.0046
10/26/01	11095	S	720	Air	16.58	0.009	0	0	<-8.61	<-0.0046
10/26/01	11093	U	720	Air	8.92	0.005	0	0	<-8.61	<-0.0046
10/26/01	11094	V	720	Air	<7.0	<0.004	0	0	<-8.61	<-0.0046
10/26/01	11092	T	720	Air	<7.0	<0.004	0	0	<-8.61	<-0.0046

2008 04855 & 04856

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C.1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: NE corner of Vesey & West St.
- F: NE corner of Vesey & West St.
- G: Church and Dimes St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M.1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location

NS: Not sampled  
 \*Structure (S) roughly equivalent to fiber (f)  
 NR: Not requested  
 NA: not analyzed due to overloading of particulates

ERT: 10/29/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 Sl/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Air Samples - diesel and furan results  
 Sampling Date 10/15/01

Sample No.	WGR250-1 Method Blank	0831 TAGA	0832 TAGA	0833: A Barclay & West Broadway	0834 B-Church & Day St.	0835 Loc 3A Between WTC 4 & WTC 5			
Volume (Liters)	0	562	670	5290	5290	5290			
Analyte	Result ng	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>
2378-TCDD	U	0.020	0.0034	U	0.0038	0.0038	U	0.0038	0.0038
123478-PeCDF	U	0.10	0.017	U	0.016	0.016	U	0.016	0.016
123478-HxCDD	U	0.10	0.017	U	0.014	0.014	U	0.014	0.014
123478-HxCDF	U	0.10	0.017	U	0.027	0.027	U	0.027	0.027
123478-HxCDF	U	0.10	0.017	U	0.016	0.016	U	0.016	0.016
123478-HxCDF	U	0.10	0.017	U	0.013	0.013	U	0.013	0.013
OCDD	0.0377	0.20	0.034	U	0.039	0.039	U	0.039	0.039
2378-TCDF	U	0.020	0.0034	U	0.0030	0.0030	U	0.0030	0.0030
123478-PeCDF	U	0.10	0.017	U	0.015	0.015	U	0.015	0.015
123478-HxCDD	U	0.10	0.017	U	0.028	0.028	U	0.028	0.028
123478-HxCDF	U	0.10	0.017	U	0.015	0.015	U	0.015	0.015
123478-HxCDF	U	0.10	0.017	U	0.015	0.015	U	0.015	0.015
123478-HxCDF	U	0.10	0.017	U	0.015	0.015	U	0.015	0.015
123478-HxCDF	U	0.10	0.017	U	0.015	0.015	U	0.015	0.015
123478-HxCDF	0.0031	0.10	0.017	U	0.015	0.015	U	0.015	0.015
OCDF	U	0.10	0.0022	U	0.0098	0.0098	U	0.0098	0.0098
OCDF	U	0.0960	0.034	U	0.0087	0.0087	U	0.0087	0.0087
Total TCDDs	U	0.0016		U	0.123	0.123	U	0.944	1.96
Total PeCDDs	U	0.0007		U	0.105	0.105	U	0.713	1.44
Total HxCDDs	U	U		U	0.111	0.111	U	0.648	1.37
Total HpCDDs	U	U		U	0.031	0.031	U	0.163	0.344
Total TCDFs	U	U		U	0.038	0.038	U	0.410	0.728
Total PeCDFs	0.0026	U		U	0.025	0.025	U	0.165	0.2760
Total HxCDFs	U	U		U	0.0112	0.0112	U	0.0664	0.155
Total HpCDFs	0.0031	0.0003		U	0.0063	0.0063	U	0.0280	0.1770
Total Adjusted Conc									
TEQ (ND=0)	0.0002	0.0000		U	0.0000	0.0000	U	0.0175	0.0386
TEQ (ND=12)	0.0020	0.0003		U	0.0038	0.0038	U	0.0202	0.0440

COCH 04/087

EMPC: Estimated Maximum Possible Concentration  
 TEC: Toxicity Equivalent

The TEC (ND=12) is calculated using 1/2 of the estimated detection limit for U (non detect) values.



NYC Emergency Response  
 Air Sampling and Ambient Air Monitoring Results  
 Sampling Date: 08/16/01

Sample No. Sampling Location Volume (L liters) Analyte	08355 C14-Liberty St. & Broadway 5280			08357 D-Greenwich & Albany St. 3374*			08359 F-Albany St. & South End 5082			08359 S-Hecker Place & South End Ave. 5302			08360 E-Liberty St. & South End Ave. 5346			08361 Field Blank			08362 Lot Blank			
	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MCL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MCL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MCL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MCL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MCL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MCL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MCL ng/m <sup>3</sup>	
2378-TCDF	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	
12378-PeCDD	0.0017 J	0.0019	0.019	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	
12378-HxCDD	0.0021 J	0.0019	0.019	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	
12378-HxCDF	0.0021 J	0.0019	0.019	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	
12378-HxCDF	0.0022 J	0.0019	0.019	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	
12378-HxCDF	U	0.0058	0.019	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	
1234678-HxCDF	U	0.0058	0.019	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	
1234678-HxCDF	U	0.0058	0.019	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	
COCP	0.0022 J	0.0058	0.019	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	U	0.0058	0.0038	
Total TCDDs	0.163			0.0117			0.0017			0.0025			0.0154			U			U			
Total PeCDDs	0.110			0.0028			U			0.0068			0.0078			U			U			
Total HxCDDs	0.104			0.0053			U			0.0113			0.0020			U			U			
Total HxCDFs	0.2829			0.2828			0.0043			0.0113			0.0020			U			U			
Total TCDFs	0.0536			0.0085			U			0.0056			0.0056			U			U			
Total PeCDFs	0.093			0.0040			U			0.0003			0.0003			U			U			
Total HxCDFs	0.0014			0.0017			U			0.0003			0.0003			U			U			
Total HxCDFs	0.0014			0.0017			U			0.0003			0.0003			U			U			
Total Adjusted Conc.	0.0029			0.0002			0.0030			0.0000			0.0000			U			U			
TEQ (ND=1)	0.0053			0.0007			0.0014			0.0000			0.0000			U			U			
TEQ (ND=1+2)							0.0024			0.0000			0.0000			U			U			
COCP (ND=1)																U			U			
COCP (ND=1+2)																U			U			

\* Filter overfused caused flow fault, volume is estimated.

EMPC: Estimated Maximum Possible Concentration

TCDF: Toxicity Equivalent

The TEQ (ND=1+2) is calculated using 1/2 of the estimated detection limit for U (non detect) values.

NYC Emergency Response  
 Asbestos Air Sampling Results for 100 Church Street  
 Sampling Date and Time: 10/23/01 1200 to 10/23/01 1600

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/cc	f/mm <sup>2</sup>	Structures (#)	S/mm <sup>2</sup>
10/23/2001	11831	100 Church Front of 1927/1928	2400	Air	9.55	0.002	0	<20.00
10/23/2001	11832	100 Church Lobby	2400	Air	11.46	0.002	0	<20.00
10/23/2001	11833	100 Church 1909/1910	2160	Air	15.92	0.003	0	<20.00
10/23/2001	11834	100 Church 1902/1903	2400	Air	7.64	0.001	0	<20.00
10/23/2001	11835	100 Church Alley 1960	2400	Air	<7.0	<0.001	0	<20.00
10/23/2001	11836	100 Church Alley 1941	2400	Air	<7.0	<0.001	0	<20.00
10/23/2001	11837	100 Church 1935/1937	2400	Air	21.66	0.004	0	<20.00
10/23/2001	11838	100 Church 1855/1837	2400	Air	<7.0	<0.001	0	<20.00
10/23/2001	11839	100 Church 18F-SW Corner	2400	Air	<7.0	<0.001	0	<20.00
10/23/2001	11840	100 Church 18th Main Lobby	2400	Air	30.57	0.005	0	<20.00

cont06177

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/29/01 9:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*
10/27/01	10768	Liberty Park	445	Air	<7.0	<0.006	0	<7.75	<0.0067
10/27/01	10769	CITGO Terminal	480	Air	<7.0	<0.006	0	<7.75	<0.0062
10/27/01	10770	FMC Terminal	353	Air	<7.0	<0.008	0	<7.75	<0.0085
10/27/01	10771	Shell Terminal	380	Air	<7.0	<0.007	0	<7.75	<0.0079

CCCF# 00361

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1240 (10/27/01) to 2005 (10/27/01)
CITGO Terminal	1340 (10/27/01) to 2040 (10/27/01)
FMC Terminal	1515 (10/27/01) to 2108 (10/27/01)
Shell Terminal	1610 (10/27/01) to 2230 (10/27/01)

ERT: 10/29/01 09:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/25/01 0600 to 10/25/01 1830

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		Asbestos		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Type	Structures (#)	S-1/cc <sup>*</sup>	S-f/cc <sup>*</sup>
10/25/2001	03691	P Loc # 1	Pump Failed	Air	NC	NC	NC	NC	NC	NC
10/25/2001	03692	P Loc # 2	715.2	Air	<7.0	<0.004	8.89	0.0048	1**	8.89
10/25/2001	03693	P Loc # 3	Pump Failed	Air	NC	NC	NC	NC	NC	NC
10/25/2001	03694	P Loc # 4	709.2	Air	<7.0	<0.004	<8.89	<0.0048	0	<8.89
10/25/2001	03695	P Loc # 5	707.5	Air	7.64	0.004	8.89	0.0048	1**	8.89
10/25/2001	03696	P Loc # 6	707.4	Air	<7.0	<0.004	<8.89	<0.0048	0	<8.89
10/25/2001	03697	P Loc # 7	720	Air	<7.0	<0.004	<8.89	<0.0048	0	<8.89
10/25/2001	03698	P Loc # 8	704.3	Air	8.92	0.005	8	0.0046	1	8
10/25/2001	03699	S Loc # 9A	665	Air	16.56	0.010	Amosite	1	14	120
							Chrysotile	1	14	120
							Total	2	28	240
10/25/2001	03700	S Loc # 9B	472	Air	11.46	0.009	7**	64	7**	64
10/25/2001	03701	S Loc # 10A	702	Air	13.38	0.007	1**	17.79	1**	17.79
10/25/2001	03702	S Loc # 10B	702	Air	<7.0	<0.004	2**	44.44	3**	44.44
10/25/2001	03703	W Loc # 11	703	Air	8.92	0.005	Actinolite	1	0	8.89
							Chrysotile	1	0	17.79
							Total	2	1	26.68
10/25/2001	03704	W Loc # 12A	701	Air	11.46	0.006	2**	22.22	2**	22.22
10/25/2001	03705	W Loc # 12B	702	Air	17.38	<0.004	3**	18.56	3**	18.56
10/25/2001	03706	B Loc # 13	711	Air	13.38	0.004	1**	88.89	1**	88.89
10/25/2001	03707	P Loc # 14	715	Air	<7.0	<0.004	0	6**	0	6**
10/25/2001	03708	P Loc # 15	701	Air	8.92	0.005	0	35.56	0	35.56
10/25/2001	03709	T Loc # 16	702	Air	<7.0	<0.004	1**	35.56	3**	35.56

000001613 & 04674

\*\*Chrysotile, no other type of asbestos fiber found

NS: Not sampled  
Sample volume is below recommended limit of the method:  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates  
NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/27/01 9:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/27/01 0700 to 10/27/01 1900

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*
10/27/2001	03776	P Loc # 1	508	Air	<7.0	<0.005	0	<8.89
10/27/2001	03777	P Loc # 2	711	Air	<7.0	<0.004	0	<0.0048
10/27/2001	03778	P Loc # 3	715	Air	<7.0	<0.004	0	<0.0048
10/27/2001	03779	P Loc # 4	718	Air	<7.0	<0.004	0	<0.0048
10/27/2001	03780	P Loc # 5	720	Air	<7.0	<0.004	0	<0.0048
10/27/2001	03781	P Loc # 6	720	Air	<7.0	<0.004	0	<0.0048
10/27/2001	03782	P Loc # 7	683	Air	<7.0	<0.004	0	<0.0048
10/27/2001	03783	P Loc # 8	720	Air	<7.0	<0.004	0	<0.0048
10/27/2001	03784	S Loc # 9A	703	Air	7.64	0.004	NA	NA
10/27/2001	03785	S Loc # 9B	723	Air	<7.0	<0.004	0	<8.89
10/27/2001	03786	S Loc # 10 A	721	Air	<7.0	<0.004	NA	NA
10/27/2001	03787	S Loc # 10 B	721	Air	<7.0	<0.004	3**	26.7
10/27/2001	03788	W Loc # 11	724	Air	<7.0	<0.004	0	8.9
10/27/2001	03789	W Loc # 12A	717	Air	8.28	0.004	3**	35.6
10/27/2001	03790	W Loc # 12B	717	Air	<7.0	<0.004	3**	26.7
10/27/2001	03791	B Loc # 13	714	Air	<7.0	<0.004	0	<8.89
10/27/2001	03792	B Loc # 14	721	Air	<7.0	<0.004	0	<8.89
10/27/2001	03793	T Loc # 15	710	Air	<7.0	<0.004	3**	26.7
10/27/2001	03794	T Loc # 15	403	Air	<7.0	<0.007	2**	24.0

ccc#9481 & 0488Z

\*\* Chrysotile, no other types of asbestos detected

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/29/01 9:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/26/01 1830 to 10/27/01 0630

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>2</sup>	f/cc	Structures (#)	S/m <sup>2</sup>
10/26-27/2001	03755	P Loc # 1	717	Air	8.28	0.004	3**	26.67
10/26-27/2001	03756	P Loc # 2	717	Air	<7.0	<0.004	2**	17.78
10/26-27/2001	03757	P Loc # 3	720	Air	<7.0	<0.004	0	<8.89
10/26-27/2001	03758	P Loc # 4	720	Air	<7.0	<0.004	1**	8.69
10/26-27/2001	03759	P Loc # 5	720	Air	<7.0	<0.004	0	<8.89
10/26-27/2001	03760	P Loc # 6	720	Air	<7.0	<0.004	0	<8.89
10/26-27/2001	03761	P Loc # 7	720	Air	<7.0	<0.004	0	<8.89
10/26-27/2001	03762	P Loc # 8	720	Air	<7.0	<0.004	0	<8.89
10/26-27/2001	03763	S Loc # 9A	720	Air	<7.0	<0.004	2**	17.78
10/26-27/2001	03764	S Loc # 9B	718	Air	<7.0	<0.004	NA	NA
10/26-27/2001	03765	S Loc # 10 A	655	Air	8.92	0.005	0	8
10/26-27/2001	03766	S Loc # 10 B	707	Air	<7.0	<0.004	0	<8.89
10/26-27/2001	03767	W Loc # 11	720	Air	<7.0	<0.004	2**	17.78
10/26-27/2001	03768	W Loc # 12A	720	Air	7.64	0.004	6**	53.33
10/26-27/2001	03769	W Loc # 12B	421	Air	<7.0	<0.006	1**	8
10/26-27/2001	03770	B Loc # 13	462	Air	11.46	0.010	1**	16
10/26-27/2001	03771	B Loc # 14	690	Air	<7.0	<0.004	0	<8.00
10/26-27/2001	03772	T Loc # 15	720	Air	<7.0	<0.004	3**	26.67
10/26-27/2001	03773	T Loc # 16	720	Air	<7.0	<0.004	NA	NA

cc:FK04679 & 04680

\*\* Chrysotile, no other types of asbestos detected  
 NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/29/01 9:50 AM

FK-10-27-01a.xls

NYC Emergency Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/27/01 1900 to 10/28/01 06:30

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/ftm <sup>2</sup>	f/cc	Structures (#)	S/ftm <sup>2</sup>
10/28/2001	03797	P Loc # 1	720	Air	<7.0	<0.004	0	<8.89
10/28/2001	03798	P Loc # 2	720	Air	<7.0	<0.004	0	<8.89
10/28/2001	03799	P Loc # 3	720	Air	<7.0	<0.004	0	<8.89
10/28/2001	03800	P Loc # 4	720	Air	<7.0	<0.004	0	<8.89
10/28/2001	03801	P Loc # 5	720	Air	<7.0	<0.004	0	<8.89
10/28/2001	03802	P Loc # 6	720	Air	<7.0	<0.004	0	<8.89
10/28/2001	03803	P Loc # 7	720	Air	<7.0	<0.004	0	<8.89
10/28/2001	03804	P Loc # 8	720	Air	<7.0	<0.004	0	<8.89
10/28/2001	03805	S Loc # 9A	720	Air	<7.0	<0.004	2**	26.67
10/28/2001	03806	S Loc # 9B	720	Air	<7.0	<0.004	1**	0.143
10/28/2001	03807	S Loc # 10 A	720	Air	10.19	0.005	0	<8.89
10/28/2001	03808	S Loc # 10 B	720	Air	7.64	0.004	0	<8.89
10/28/2001	03809	W Loc # 11	720	Air	<7.0	<0.004	0	<8.89
10/28/2001	03810	W Loc # 12A	420	Air	<7.0	<0.006	0	<8.00
10/28/2001	03811	W Loc # 12B	610	Air	8.92	0.005	0	<8.00
10/28/2001	03812	B Loc # 13	720	Air	10.19	0.005	0	<8.89
10/28/2001	03813	B Loc # 14	720	Air	<7.0	<0.004	0	<8.89
10/28/2001	03814	T Loc # 15	720	Air	7.64	0.004	3*	28.57
10/28/2001	03815	T Loc # 16	720	Air	<7.0	<0.004	0	<8.89

ccf04653 & 04684

\*\* Chrysotile, no other types of asbestos detected

NS: Not sampled  
AF/ANF: Asbestos fibers/Non asbestos fibers  
Sample volume is below recommended limit of the method:  
\*Structure (S) roughly equivalent to fiber (f)  
NA: not analyzed due to overloading of particulates  
NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/29/01 9:50 AM

NYC Emergency Response  
Air Samples - Modified Method 680 PCB results  
Sampling Date 10/15/01

Sample No.	WG6250	00831	00832	00833	00834	00835	00836
Sampling Location	Method Blank	R	R	A	B	Loc 3A	C1
Sample Volume (L)	0	5852	6720	5280	5280	5280	5280
Analyte	Result	MDL	Result	MDL	Result	MDL	Result
	ng	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
	MDL	U	MDL	U	MDL	U	MDL
209-DsCB	10.0	1.71	1.49	1.89	1.89	1.89	1.89
Sum of MoCBs	U	10.0	U	1.49	U	10.5	U
Sum of DiCBs	U	10.0	U	1.49	U	1.89	U
Sum of TriCBs	U	10.0	U	1.49	U	5.53	U
Sum of TeCBs	U	10.0	U	1.49	U	1.89	U
Sum of PeCBs	U	10.0	U	1.49	U	1.89	U
Sum of HxCBs	U	10.0	U	1.49	U	1.89	U
Sum of HpCBs	U	10.0	U	1.49	U	1.89	U
Sum of OxCBs	U	10.0	U	1.49	U	1.89	U
Sum of NoCBs	U	10.0	U	1.49	U	1.89	U
Total	0	0	0	0	0	16.0	0
COC# 04087							

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

Loc 3: SW side of WTC5  
Loc 3A: Between WTC4 and WTC5

U: denotes not detected  
MDL: denotes method detection limit

ERT: 10/30/01 9:50 AM



NYC Emergency Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/28/01 09:01 to 12:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		Structures (f) *		TEM (AHERA)	
					f/ft <sup>2</sup>	f/cc	0.3f-5f	>5f	S/mm <sup>2</sup>	\$-f/cc*
10/28/01	11131	A	619	Air	<7.0	<0.004	0	0	<8.00	<0.0050
10/28/01	11132	B	626	Air	<7.0	<0.004	2**	0	16	0.0368
10/28/01	11133	C 1	643	Air	<7.0	<0.004	0	0	<8.00	<0.0046
10/28/01	11136	D	668	Air	<7.0	<0.004	1**	0	8	0.0046
10/28/01	11143	E	678	Air	<7.0	<0.004	0	0	<8.00	<0.0045
10/28/01	11144	F		Pump missing						
10/28/01	11154	H	651	Air	<7.0	<0.004	0	0	<8.00	<0.0047
10/28/01	11155	I	656	Air	<7.0	<0.004	0	0	<8.00	<0.0047
10/28/01	11165	J	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/01	11166	J DUP	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/01	11137	K	673	Air	<7.0	<0.004	0	0	<8.00	<0.0046
10/28/01	11137 Replicate	K	673	Air	Not Analyzed		0	0	<8.00	<0.0046
10/28/01	11149	L	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/01	11148	M 1	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/01	11148 Replicate	M 1	720	Air	Not Analyzed		0	0	<8.89	<0.0048
10/28/01	11147	N	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/01	11142	P	712	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/01	11145	Q	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/01	11146	R	689	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/01	11138	U	689	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/01	11140	V	695	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/01	11138	T	683	Air	<7.0	<0.004	0	0	<8.89	<0.0048

304# 00021 & 00020

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church & Liberty)
- D: East corner of Broadway & Liberty St.
- E: West corner of Broadway & Liberty St.
- F: Western end of Liberty St. at South End Ave
- G: Northern median strip of Vesey & West St
- H: Church and Duane St.
- I: South side of Chase Manhattan Plaza at Pine St.
- J: SE corner of Wall St. & Broadway
- K: NE corner of Warren & West St.
- L: On walkway toward North Park rec area (north side of Sullivan High), access to TACA bus area
- M: West St. - 50 yards south of Harrison St. at bulkhead
- N: NE corner of South End Ave. & Albany
- O: NE corner of South End Ave. & Albany
- P: Barclay & West St. (center island) in proximity to USCG command post
- R: TACA Bus Location

- NS: Not sampled
- \*Structure (S) roughly equivalent to fiber (f)
- NR: Not requested
- NA: not analyzed due to overloading of particulates

\*\* Chrysotile. No other asbestos fibers were found

ERT: 10/30/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Silica- Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/15/01 0830 to 1630

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
10/15/01	00885	A	1000	Air	0.033	<0.01	<0.01
10/15/01	00886	B	1000	Air	<0.01	<0.01	<0.01
10/15/01	00888	C-1	1000	Air	<0.01	<0.01	<0.01
10/15/01	00889	D	1000	Air	<0.01	<0.01	<0.01
10/15/01	00892	E	1000	Air	<0.01	<0.01	<0.01
10/15/01	00890	P	1000	Air	<0.01	<0.01	<0.01
10/15/01	00891	S	1000	Air	<0.01	<0.01	<0.01
10/15/01	00883	TAGA	1000	Air	<0.01	<0.01	<0.01
10/15/01	00884	TAGA	1000	Air	<0.01	<0.01	<0.01
10/15/01	00887	Loc 3A Between WTC 4 & 5	1000	Air	<0.01	<0.01	<0.01

ccw 04801

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St.
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- O: NE corner of South End Ave. & Albany
- P: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

NS: Not sampled

ERT 10/30/01 9.50 AM

NIOSH 7500: Silica crystalline by XRD

NYC Emergency Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/27/01 1200 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/ftc	f/ftc	Structures (#)*	S-fcc*
10/27/01	11111	A	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11112	B	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11113	C-1	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11116	D	720	Air	7.64	0.004	3**	35.56
10/27/01	11123	E	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11124	F	720	Air	<7.0	<0.004	1**	8.89
10/27/01	11114	H	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11115	I	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11196	J	720	Air	<7.0	<0.004	1**	8.89
10/27/01	11117	K	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11129	L	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11128	M-1	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11127	N	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11126	O	720	Air	7.64	0.004	3**	35.56
10/27/01	11125	Replicate	720	Air	7.64	0.004	4**	35.56
10/27/01	11130	O DUP	720	Air	7.64	0.004	1**	8.89
10/27/01	11121	S	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11119	U	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11120	V	720	Air	<7.0	<0.004	0	<8.89
10/27/01	11118	T	720	Air	<7.0	<0.004	0	<8.89

2001 04320 & 04859

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: NW corner of Broadway & Liberty St.
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western median strip of Vesey & West St.
- F: Northern median strip of Duane St.
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Slyvetsant High), access to TAGA bus area
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 29 (next to volleyball court)
- O: NE corner of South End Ave. & Albany
- C: Bay & West (center island) in proximity to USCG command post
- R: TAGA Bus Location

NS: Not sampled  
\*Structure (S) roughly equivalent to fiber (f)  
NR: Not requested  
NK: not analyzed due to overloading of particulates

\*\* Chrysotile No other asbestos fibers were found

ERT: 10/30/01 09:50 AM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/28/01 0630 to 10/28/01 1830

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AIHERA)			
					fmm <sup>2</sup>	f/cc	Structures (#)	S/fcc*		
10/28/2001	03818	P Loc # 1	698	Air	21.02	0.012	5**	1**	53.33	0.0294
10/28/2001	03819	P Loc # 2	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/2001	03820	P Loc # 3	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/2001	03821	P Loc # 4	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/2001	03822	P Loc # 5	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/2001	03823	P Loc # 6	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/2001	03824	P Loc # 7	678	Air	<7.0	<0.004	0	0	<8.00	<0.0045
10/28/2001	03825	P Loc # 8	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/2001	03826	S Loc # 9A	720	Air	11.45	0.005	NA	NA	NA	NA
10/28/2001	03827	S Loc # 9B	614	Air	28.66	0.018	NA	NA	NA	NA
10/28/2001	03828	S Loc # 10 A	720	Air	12.74	0.007	2**	0	17.78	0.0095
10/28/2001	03829	S Loc # 10 B	693	Air	Not Analyzed	Not Analyzed	2**	0	17.78	0.0095
10/28/2001	03830	W Loc # 11	704	Air	14.01	0.008	4**	0	35.56	0.0198
10/28/2001	03831	W Loc # 12A	675	Air	28.75	0.015	NA	NA	NA	NA
10/28/2001	03832	W Loc # 12B	675	Air	30.57	0.017	NA	NA	NA	NA
10/28/2001	03833	B Loc # 13	720	Air	11.46	0.006	1**	0	8	0.0046
10/28/2001	03834	B Loc # 14	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
10/28/2001	03835	T Loc # 15	669	Air	10.19	0.006	NA	NA	NA	NA
10/28/2001	03835	T Loc # 15	690	Air	19.11	0.011	NA	NA	NA	NA

conformis & 04898

\*\* Chrysotile, no other types of asbestos detected

- NS: Not sampled
- AI/ANF: Asbestos fibers/Non asbestos fibers
- Sample volume is below recommended limit of the method:
- Structure (S) roughly equivalent to fiber (f)
- NA: Not analyzed due to overloading of particulates
- NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AIHERA)  
 Standard criteria: EPA 40CFR Part 763 (AIHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/30/01 9:50 AM

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/29/01 1745 to 10/29/01 0645

Sampling Date	Sample No.	Sampling Location	Sample Volume***	Matrix	PCM by NIOSH 7400		TEM (AIHERA)			
					f/mm <sup>3</sup>	f/cc	Structures (#)	S-f/cc <sup>2</sup>		
10/29/01	03839	P Loc # 1	697	Air	<7.0	<0.004	0	0	<8.61	<0.0048
10/29/01	03840	P Loc # 2	696	Air	<7.0	<0.004	0	0	<8.61	<0.0048
10/29/01	03841	P Loc # 3	695	Air	<7.0	<0.004	0	0	<8.61	<0.0048
10/29/01	03842	P Loc # 4	643	Air	<7.0	<0.004	0	0	<7.75	<0.0046
10/29/01	03843	P Loc # 5	695	Air	<7.0	<0.004	0	0	<8.61	<0.0048
10/29/01	03844	P Loc # 6	692	Air	<7.0	<0.004	0	0	<8.61	<0.0048
10/29/01	03845	P Loc # 7	691	Air	<7.0	<0.004	0	0	<8.61	<0.0048
10/29/01	03846	P Loc # 8	689	Air	14.01	0.008	0	0	<8.61	<0.0048
10/29/01	03847	S Loc # 9A	693	Air	20.38	0.011	0	1*	8.61	0.0048
10/29/01	03848	S Loc # 9B	694	Air	8.92	0.005	0	0	<8.61	<0.0048
10/29/01	03849	S Loc # 10A	696	Air	14.01	0.009	0	0	<7.75	<0.0048
10/29/01	03850	S Loc # 10B	698	Air	12.74	0.007	0	0	<8.61	<0.0048
10/29/01	03851	W Loc # 11	429	Air	22.93	0.021	0	0	<7.75	<0.0070
10/29/01	03852	W Loc #12A	720	Air	63.69	0.034	0	0	<8.61	<0.0046
10/29/01	03853	W Loc #12B	415	Air	17.63	0.017	0	0	<7.75	<0.0072
10/29/01	03854	B Loc #13	613	Air	<7.0	<0.004	0	0	<8.61	<0.0048
10/29/01	03855	P Loc #14	696	Air	14.01	0.007	0	0	<8.61	<0.0048
10/29/01	03856	T Loc #16	720	Air	39.49	0.021	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
10/29/01	03857	Trip Blank	0	Air	<7.0	<0.004	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
10/29/01	03858	Lot Blank	0	Air	<7.0	<0.004	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

cc# 04697 and #04698

Notes:

- NS: Not sampled
- \*\*\* Sample volume is below recommended limit for the TEM method; volume is based on pump reading
- \*Structure (S) roughly equivalent to fiber (f)
- NA<sup>(1)</sup>: not analyzed due to overloading of particulates
- NA<sup>(2)</sup>: not analyzed for TEM
- \*\* Chrysotile

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJDEP

Date Sampled	Sample No.	Sampling Location	Sample Volume**	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*
10/29/01	1LIB102901	Liberty Park	480	Air	<7.0	<0.006	0	<7.75	<0.0062
10/29/01	2CIT102901	CITGO Terminal	480	Air	<7.0	<0.006	0	<7.75	<0.0062
10/29/01	3FMC102901	FMC Terminal	480	Air	<7.0	<0.006	0	<7.75	<0.0062
10/29/01	4SHL102901	Shell Terminal	480	Air	<7.0	<0.006	0	<7.75	<0.0062
10/29/01	5FLD102901	Field Blank	0	Air	<7.0	-	0	<7.75	-

COC No. is not available

Key:

\*Structure (S) roughly equivalent to fiber (f)

\*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location

Liberty Park  
CITGO Terminal  
FMC Terminal  
Shell Terminal

Sampling Times

10/29/01 1737  
10/29/01 1827  
10/29/01 1903  
10/29/01 1923

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/28/01 0900 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AIHERA)		S-fibcc**
					f/100ft <sup>3</sup>	f/cc	Structures (#)	5µm	
10/28/01	RST-00007	A	880	Air	<7.0	<0.003	0	0	<11.07
10/28/01	RST-00008	B	851	Air	7.64	0.004	0	0	<9.69
10/28/01	RST-00009	C1	814	Air	8.92	0.004	0	0	<9.69
10/28/01	RST-00010	H	719	Air	<7.0	<0.004	0	0	<9.61
10/28/01	RST-00011	I	835	Air	12.74	0.006	0	0	<9.69
10/28/01	RST-00012	D	830	Air	<7.0	<0.003	0	0	<9.69
10/28/01	RST-00013	K	820	Air	7.64	0.004	0	0	<9.69
10/28/01	RST-00014	T	810	Air	<7.0	<0.003	0	0	<9.69
10/28/01	RST-00015	U	805	Air	<7.0	<0.003	0	0	<9.69
10/28/01	RST-00016	V	800	Air	<7.0	<0.003	0	0	<9.69
10/28/01	RST-00017	S	735	Air	<7.0	<0.004	0	0	<9.69
10/28/01	RST-00018	P	780	Air	<7.0	<0.003	0	0	<9.69
10/28/01	RST-00019	E	775	Air	70.05	0.035	0	0	<8.61
10/28/01	RST-00020	F	770	Air	<7.0	<0.003	0	0	<9.69
10/28/01	RST-00021	Q	760	Air	<7.0	<0.004	0	0	<9.69
10/28/01	RST-00022	J	750	Air	7.64	0.004	0	0	<9.69
10/28/01	RST-00023	N	745	Air	<7.0	<0.004	0	0	<9.69
10/28/01	RST-00024	M1	735	Air	6.92	0.005	0	0	<8.61
10/28/01	RST-00025	L	730	Air	<7.0	<0.004	0	0	<9.69
10/28/01	RST-00026	N2dup	745	Air	<7.0	<0.004	0	0	<8.61

ceaf 00001 and 00022

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St
- C: Trinity (a.k.a. Church) & Liberty St
- C1: SW corner of Broadway & Liberty St
- D: East end of Albany St. at Greenwich St
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- na - Not applicable
- NR - Not requested
- NS - Not sampled

- M: Western end of Harrison St. at West St. (on West St. to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 26 (next to volleyball Ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCGs command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 Simm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/29/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (A-HERA)	
					f/ftm <sup>3</sup>	f/cc	Structures (#)	S/ftm <sup>3</sup>
10/29/01	RST-00027	A	420	Air	<7.0	<0.006	0	<7.75
10/29/01	RST-00028	B	720	Air	<7.0	<0.004	0	<8.61
10/29/01	RST-00032	C1	587	Air	7.64	0.005	0	<7.75
10/29/01	RST-00029	H	720	Air	<7.0	<0.004	0	<8.61
10/29/01	RST-00030	I	720	Air	16.56	0.009	0	<8.61
10/29/01	RST-00031	D	345	Air	7.64	0.009	0	<7.75
10/29/01	RST-00033	K	720	Air	<7.0	<0.004	1***	8.61
10/29/01	RST-00034	T	720	Air	<7.0	<0.004	0	<8.61
10/29/01	RST-00035	U	720	Air	<7.0	<0.005	0	<7.75
10/29/01	RST-00037	V	521	Air	<7.0	<0.004	0	<8.61
10/29/01	RST-00038	S	720	Air	<7.0	<0.007	0	<7.75
10/29/01	RST-00039	P	403	Air	<7.0	<0.004	0	<8.61
10/29/01	RST-00040	E	720	Air	<7.0	<0.004	0	<8.61
10/29/01	RST-00021	Q	713	Air	16.56	0.009	0	<8.61
10/29/01	RST-00022	J	720	Air	<7.0	<0.004	0	<8.61
10/29/01	RST-00026	N	720	Air	<7.0	<0.004	0	<8.61
10/29/01	RST-00024	M1	720	Air	<7.0	<0.004	0	<8.61
10/29/01	RST-00023	L	720	Air	<7.0	<0.004	0	<8.61
10/29/01	RST-00025	MT-Dup	720	Air	<7.0	<0.004	0	<8.61
10/29/01	Blank	Field Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>

total 00003 and 00004

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty St.
- D: SW corner of Broadway & Liberty St.
- E: East end of Albany St. at Greenwich St.
- F: Western end of Liberty St. at South End Ave
- G: Northern median strip of Vesey & West St
- H: Church and Duane St.
- I: South side of Chase Manhattan Plaza at Pine St.
- J: SE corner of Wall St. & Broadway
- K: NE corner of Warren & West St.
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 2B (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-29-01am.xls

RST: 11/1/01

Key:  
\* Sample volume (fters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysolite  
NA<sup>(a)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(b)</sup> - Not analyzed for TEM  
n/a - Not applicable  
NR - Not requested  
NS - Not sampled



NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Time: 10/29/2001 05:50 to 10/29/2001 18:20

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>
10/29/01	03860	P Loc # 1	NS	Air	-	-	-	-
10/29/01	03861	P Loc # 2	720	Air	28.03	0.015	0	<8.61
10/29/01	03862	P Loc # 3	720	Air	<7.0	<0.004	0	<0.0046
10/29/01	03863	P Loc # 4	720	Air	<7.0	<0.004	0	<0.0046
10/29/01	03864	P Loc # 5	720	Air	<7.0	<0.004	0	<0.0046
10/29/01	03865	P Loc # 6	700	Air	8.92	0.005	0	<8.61
10/29/01	03866	P Loc # 7	720	Air	<7.0	<0.004	0	<0.0046
10/29/01	03867	P Loc # 8	720	Air	17.83	0.0095	0	<8.61
10/29/01	03868	S Loc # 9A	614	Air	38.49	0.025	0	<7.75
10/29/01	03869	S Loc # 9B	671	Air	24.20	0.014	0	<8.61
10/29/01	03870	S Loc # 10A	NS	Air	-	-	-	-
10/29/01	03871	S Loc # 10B	720	Air	10.19	0.005	0	<8.61
10/29/01	03872	W Loc # 11	720	Air	98.36	0.053	0	<0.0046
10/29/01	03873	W Loc # 12A	690	Air	64.97	0.039	0	<8.61
10/29/01	03874	W Loc # 12B	665	Air	36.94	0.021	0	<8.61
10/29/01	03875	B Loc # 13	720	Air	15.29	0.009	0	<8.61
10/29/01	03876	B Loc # 14	720	Air	17.83	0.0095	0	<8.61
10/29/01	03877	T Loc # 15	668	Air	56.05	0.031	0	<0.0046
10/29/01	03878	T Loc # 16	700	Air	56.60	0.032	0	<8.61
10/29/01	03879	Lot Blank	0	Air	<7.0	-	NA <sup>(1)</sup>	NA <sup>(1)</sup>
10/29/01	03880	Trip Blank	0	Air	<7.0	-	NA <sup>(1)</sup>	NA <sup>(1)</sup>

cccf 04689 and 04689

Keys:  
 NS: Not sampled  
 \* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading  
 \* Structure (S) roughly equivalent to fiber (f)  
 NA<sup>(1)</sup>: not analyzed for TEM

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 October 29, 2001

Location	Longitude	Latitude	DataRam ID	Tag#	Logged Points	Elapsed Time	Avg Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min.Conc ug/m3	AvgConc ug/m3	MaxConc ug/m3
1	-74.199795	40.565139	2480	1	46	11:30:00	10	00:15:00	100	0.0	4.4	63.5	1219.4
2	-74.198262	40.566883	2152	1	18	04:30:00	10	00:11:00	100	0.0	0.0	26.5	600.2
3	-74.198685	40.570054	2011	1	46	11:30:00	10	00:15:00	100	0.0	0.1	27.5	24017.0
4	-74.201380	40.569790	2294	1	45	11:15:00	10	00:15:00	100	0.0	0.0	17.3	827.6
5	-74.205873	40.568892	2295	1	45	11:15:00	10	00:15:00	100	0.0	0.0	10.4	1583.4
6	-74.207406	40.563818	2012	1	30	07:30:00	10	00:15:00	100	0.0	2.4	11.6	1771.6
7	-74.205414	40.560434	2226	1	45	11:15:00	10	00:15:00	100	0.0	1.5	4.3	189.5
8	-74.203019	40.561915	2363	1	45	11:15:00	10	00:15:00	100	0.0	6.7	54.8	18853.3

NYC Response  
 Asbestos Water Sample Analysis Results - Asbestos Structures Over 10µm by EPA 100.2 Method  
 Sampling Date: 10/10-11/01

Date Sampled	Sample No.	Location	Matrix	Concentration of Asbestos Fibers		# of Asbestos Fibers	
				MFL	> 10µm	> 10µm	< 10µm
10/11/01	MPHS-BW	Main PHS	Water	<783.37	0	0	7**
10/11/01	B7PHSBW	BLDG 7PHS	Water	<261.12	0	0	7**
10/11/01	VWS-VW	VWS	Water	<78336.89	0	0	3**
10/10/01	DSN 002	Port Authority	Water	<39.17	0	0	0

COC 04227, 101101A transferred to 05125

MFL Millions of fibers per liter

\*\* Chrysotile, no other types of asbestos detected

Heavy particulate loading of samples has limited sensitivity levels for this analysis

ERT: 10/28/01 9:50 AM

New York Lab

107 West 36th Street, New York, NY 10018  
 Phone: 212-250-0051 Fax: 212-250-0058 Email:



Attn: John Johnson  
 Lockheed Martin  
 2890 Woodbridge Building 18  
 Edison, NJ 08857-3879  
 Fax: (732) 454-4020 Phone: 732-221-4200  
 Project: WTC  
 Customer ID: LOCK55  
 Customer PO:  
 Received: 10/27/01 4:00 PM  
 EMSL Order: 030107052  
 EMSL Project ID:  
 Analysis Date: 10/28/01

Asbestos Analysis of Bulk Materials by PLM via the NY State ELAP 100.1 Method

Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos
				% Fibrous	% Non-Fibrous	% Type
05890 030107052-0001	N TOWER WEST	Gray Fibrous Heterogeneous	Teased Dissolved	1.00% Glass 4.00% Cellulose	95.00% Non-fibrous (other)	None Detected
05891 030107052-0002	N TOWER WEST	Gray Fibrous Heterogeneous	Teased Dissolved	2.00% Cellulose	98.00% Non-fibrous (other)	None Detected
05892 030107052-0003	N TOWER NORTH	Gray Non-Fibrous Heterogeneous	Teased Dissolved	2.00% Cellulose	98.00% Non-fibrous (other)	<1% Chrysotile
05893 030107052-0004	WEST ST AMEX	Gray Fibrous Heterogeneous	Teased Dissolved	40.00% Min Wool 5.00% Cellulose	32.78% Non-fibrous (other)	22.82% Chrysotile
05894 030107052-0005	N TOWER SE	Gray Fibrous Heterogeneous	Teased Dissolved	1.00% Min Wool 2.00% Cellulose	97.00% Non-fibrous (other)	<1% Chrysotile
05895 030107052-0006	S TOWER E EDGE	Gray Fibrous Heterogeneous	Teased Dissolved	2.00% Min Wool 3.00% Cellulose	95.00% Non-fibrous (other)	None Detected
05896 030107052-0007	S TOWER NE	Gray Fibrous Heterogeneous	Teased Dissolved	2.00% Min Wool 5.00% Cellulose	93.00% Non-fibrous (other)	None Detected
05897 030107052-0008	S TOWER NE	Gray Fibrous Heterogeneous	Teased Dissolved	2.00% Min Wool 5.00% Cellulose	93.00% Non-fibrous (other)	None Detected
05898 030107052-0009	AUSTIN ROBIN PLAZA	Gray Fibrous Heterogeneous	Teased Dissolved	50.00% Min Wool	50.00% Non-fibrous (other)	None Detected

Dan Osborne

Analyst:

Laboratory Manager  
 or other approved signatory

EMSL has been approved by the State of New York as a laboratory for asbestos analysis under the provisions of the Environmental Conservation Law (ECL) 26-100.1. This approval is contingent upon the laboratory's compliance with the requirements of the ECL 26-100.1. The State of New York is not responsible for the accuracy of the results reported by this laboratory. The State of New York is not responsible for the accuracy of the results reported by this laboratory. The State of New York is not responsible for the accuracy of the results reported by this laboratory.



**EMSL Analytical, Inc.**

197 Haddon Ave., Westmont, NJ 08108  
 Phone: (856) 858-4800 Fax: (856) 858-4860 Email: [ssiegel@EMSL.com](mailto:ssiegel@EMSL.com)

Attn: John Johnson  
 Lockheed Martin  
 2890 Woodbridge Building 1B  
 Edison, NJ 08837-3679  
 Fax: (732) 494-4020 Phone: 732-321-4200  
 Project: RIA00236

Customer ID: LOCK55  
 Customer PO:  
 Received: 10/24/01 5:04 PM  
 EMSL Order: 040116578  
 EMSL Project ID:  
 Analysis Date: 10/25/2001

**Asbestos Analysis of Bulk Materials by PLM via the NY State ELAP 198.1 Method**

Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos
				% Fibrous	% Non-Fibrous	% Type
05874 040116176-0001	L.F. MAINTENANCE #1	Tan Fibrous Heterogeneous	Teased	15.00% Cellulose 65.00% Min. Wool	20.00% Non-fibrous (other)	<1% Chrysotile
05875 040116176-0002	L.F. MAINTENANCE #1	Tan Fibrous Heterogeneous	Teased	10.00% Cellulose 57.00% Min. Wool	25.50% Non-fibrous (other)	7.50% Chrysotile
05876 040116176-0003	L.F. MAINTENANCE #1	Tan Fibrous Heterogeneous	Teased	10.00% Cellulose 50.00% Min. Wool	36.50% Non-fibrous (other)	3.50% Chrysotile
05877 040116176-0004	L.F. MAINTENANCE #2	Tan Fibrous Homogeneous	Teased	35.00% Cellulose 5.00% Glass 40.00% Min. Wool	20.00% Non-fibrous (other)	None Detected
05878 040116176-0005	L.F. MAINTENANCE #2	Tan Fibrous Heterogeneous	Teased	25.00% Cellulose 5.00% Glass 45.00% Min. Wool	25.00% Non-fibrous (other)	<1% Chrysotile
05879 040116176-0006	L.F. MAINTENANCE #2	Tan Fibrous Heterogeneous	Teased	10.00% Cellulose 5.00% Glass 60.00% Min. Wool	25.00% Non-fibrous (other)	None Detected
05880 040116176-0007	L.F. MAINTENANCE #3	Tan Fibrous Heterogeneous	Teased	20.00% Cellulose 40.00% Min. Wool	40.00% Non-fibrous (other)	None Detected
05881 040116176-0008	L.F. MAINTENANCE #3	Brown/Tan Fibrous Heterogeneous	Teased	20.00% Cellulose 45.00% Min. Wool	35.00% Non-fibrous (other)	None Detected
05882 040116176-0009	L.F. BULK STEEL EAST	Tan Fibrous Heterogeneous	Teased	5.00% Cellulose 70.00% Min. Wool	25.00% Non-fibrous (other)	None Detected
05883 040116176-0010	L.F. BULK STEEL EAST	Tan Fibrous Heterogeneous	Teased	5.00% Cellulose 75.00% Min. Wool	20.00% Non-fibrous (other)	None Detected

AJ Oswald

Analyst

Stephan Siegel, CIH  
 or other approved signatory

EMSL has been granted access to the NY State ELAP 198.1 Method for Asbestos Analysis. Negative PLM results cannot be guaranteed. Sample results may vary from those reported. This document is the property of EMSL Analytical, Inc. and is not to be used by the client for any other purpose. This document is the property of EMSL Analytical, Inc. and is not to be used by the client for any other purpose. This document is the property of EMSL Analytical, Inc. and is not to be used by the client for any other purpose. This document is the property of EMSL Analytical, Inc. and is not to be used by the client for any other purpose.

PLM-PowerCurve

This FAX was sent by EMSL Analytical, Inc. For more information, please visit <http://www.emsl.com>

**EMSL Analytical, Inc.**

107 Hudson Ave., Westmont, NJ 08108

Phone: (858) 858-4300 Fax: (858) 858-4360 Email: ssi@emsl.com

Attn: John Johnson	Customer ID: LOCK55
Lockheed Martin	Customer PO:
2830 Woodbridge Building 18	Received: 10/24/01 5:04 PM
Edison, NJ 08817-3879	EMSL Order: 040116576
Fax: (732) 494-4020 Phone: 732-321-4200	EMSL Project ID:
Project: RIA00236	Analysis Date: 10/25/2001

**Asbestos Analysis of Bulk Materials by PLM via the NY State ELAP 198.1 Method**

Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos
				% Fibrous	% Non-Fibrous	% Type
05884 04114576-011	L.F. BULK STEEL SE	Tan Fibrous Heterogeneous	Teased	2.50% Cellulose 85.00% Min. Wool	30.00% Non-Fibrous (other)	2.50% Chrysotile
05885 04114576-012	L.F. BULK STEEL SE	Tan Fibrous Heterogeneous	Teased	85.00% Min. Wool	28.70% Non-Fibrous (other)	1.30% Chrysotile 5.00% Tremolite
05886 04114576-013	L.F. BULK STEEL W	Brown/Tan Fibrous Heterogeneous	Teased	25.00% Cellulose 15.00% Glass	60.00% Non-Fibrous (other)	None Detected
05887 04114576-014	L.F. BULK STEEL W	Brown/Tan Fibrous Heterogeneous	Teased	30.00% Cellulose 15.00% Glass	55.00% Non-Fibrous (other)	None Detected
05888 04114576-015	L.F. W. SIDE ACTIVE BANK	Brown Fibrous Heterogeneous	Teased	25.00% Cellulose	75.00% Non-Fibrous (other)	None Detected
05889 04114576-016	L.F. W. SIDE ACTIVE BANK	Brown Fibrous Heterogeneous	Teased	20.00% Cellulose	80.00% Non-Fibrous (other)	None Detected

AJ Oswald

Analysis:

Stephen Siegel, CIH  
or other approved signatory

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PLMPointCount-1

2

**NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION**

DRAFT GC/MS Results for 10/29/01 DRAFT

File name	NYC473	NYC474	NYC475	NYC476	NYC477	NYC478
Sample Location	Instrument Blank	Vendor Bag Blank	Amber No. Park Pier	North Tower Plume	South Tower Plume	Austin Train Plaza
Sample Number						
Sample Height			breathing	ground	ground	ground
Volume		100 mL	100 mL	25 mL	25 mL	100 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,500 ppbv	230 ppbv	RL=20 ppbv
Chlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	RL=40 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	520 ppbv	48 ppbv	RL=20 ppbv
Nitryl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv
Isobutylene Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,400 ppbv	330 ppbv	51 ppbv
Trichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
3-Chloroaniline	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
MIBK	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	164 ppbv	RL=40 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
2-Ethanol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	320 ppbv	40 ppbv	RL=20 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	170 ppbv	RL=40 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Oxobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2,000 ppbv	700 ppbv	RL=20 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	790 ppbv	180 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
2-Methoxy	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Tetrahydroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	890 ppbv	150 ppbv	RL=20 ppbv
m,p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	44 ppbv	RL=40 ppbv	RL=20 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	490 ppbv	50 ppbv	RL=20 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=40 ppbv	RL=40 ppbv	RL=20 ppbv

October 30, 2001 (9:48am)

Final Preliminary Data

New York City/ World Trade Center Sampling Activities  
Exchange Place PATH Dewatering 2 (10/10/01 Sample)

**Preliminary Results Summary:**

**Dioxins and Furans:** One dioxin and one furan were detected at very low concentrations. The total TEQ for the sample was 0.1 pico grams per liter (pg/L), which is less than the median TEQs determined in NY Harbor during CARP sampling.

*(Previously Reported 10/29/01)* **Asbestos:** Asbestos was reported as less than 39.17 million fibers per liter (MFL) greater than 10 microns in length. The federal drinking water MCL, the only federal standard for asbestos in water, is 7 MFL.

*(Previously Reported 10/18/01)* **Biochemical Oxygen Demand (BOD5):** The 5 day BOD was reported as 160 mg/L. This is more than double the 69 mg/L BOD5 detected in the 10/03/01 sample collected at the same location. The value reported is less than the 09/15-16/01 Newtown Creek STP influent of 210 mg/L, and about four (4) times greater than the Newtown Creek STP effluent of 38 mg/L.

*(Previously Reported 10/15/01)* **Toxicity:** Toxicity was measured in water samples, and samples of solids clarified from the sample and added to seawater. The response can be characterized as low-level toxicity. Following 48 hours of testing, the median lethal concentration (LC50) predicted was 83.5 percent tunnel water. Survival in the undiluted and untreated tunnel water was 32.5 percent. Survival was 97.5 percent or higher in all of the dilutions of the effluent (50, 25, 12.5, and 6.25 percent tunnel water). Toxicity was reduced in the tunnel water that was centrifuged. Survival in this sample was 82.5 percent. However, toxicity was not reintroduced with the solids from the centrifuged sample placed in clean seawater. Survival in this treatment was 97.5 percent. The dilution capacity of the receiving stream and any chemical measurements should be taken into account when evaluating management actions.

*(Previously Reported 10/13/01)* Available results are similar to the sample collected on 10/03/01. No PCBs were detected. Several VOCs were detected including MTBE, but all concentrations of detected VOCs were less than 100 ug/L. Fourteen NVOAs were detected, primarily phenol and substituted phenols and benzoic acid. Detected PAHs were all at trace concentrations (<10ug/L). Phenol is the only non-PAH NVOA with marine FWQC. The detected concentration is less than the acute marine criteria; chronic criteria does not exist for phenol. Zinc was detected at more than double the marine acute and chronic FWQC. Sulfate and chloride were elevated, but TSS was significantly less than that detected in the 10/03/01 sample. Oil and Grease and TPH were detected at low concentrations.

**EPA Personnel:** Robert Morrell  
Richard Coleates



**Sampling Date:** October 10, 2001

**Location:** Grab samples from direct discharge to the Hudson River.

**Sample Matrix:** Aqueous

**Analytes (Laboratory):**

- VOCs (Region 2)
- PCB Congeners (Region 2)
- NVOAs (Region 2)
- Metals + mercury (Region 2)
- BOD5 (Region 2)
- COD (Region 2)
- Aquatic Toxicity (marine Mysids and Minnows) (Region 2)
- TSS (Region 2)
- Total Petroleum Hydrocarbons (Region 2)
- Oil and Grease (Region 2)
- Sulfate (Region 2)
- Chloride (Region 2)
- Salinity (Region 2)
- Dissolved Oxygen (Region 2)
- Residual Chlorine (Region 2)
- Alkalinity (Region 2)
- Ammonia (Region 2)
- Dioxins/Furans (contract lab - Paradigm Analytical)
- Asbestos (contract lab)

**Dewatering Activity:** The Port Authority of New York and New Jersey (PANYNJ) initiated pumping from the PATH tunnels at Exchange Place under an existing permit (NJ0076988) on September 11, 2001. PANYNJ estimates that discharge averages 2600 GPM. The F tunnel has been plugged since the WTC disaster, and no dewatering is occurring from that tunnel. Dewatering continues from the E tunnel. Pumps are activated by a manual "float switch", and operate between 8 and 12 hours per day. The tunnel is estimated to fill at between 800 - 1200 gpm. NJDEP had been notified of the enhanced discharge, but neither performed sampling or required additional sampling by PANYNJ. EPA learned of the enhanced discharge on October 01, 2001, performed reconnaissance on October 02, and sampled the discharge on October 03. There were no significant contaminant concentrations detected in that sample.

Plugging the PATH tunnel F near Exchange Place will necessitate pumping the tunnel from Manhattan. The plug is expected to be in place by 10/10/01. PANYNJ has suggested that they would prefer to discharge directly to the Hudson River. There does not appear to be an existing NPDES permit for the proposed discharge. EPA was informed on 10/09/01 that the characteristics of the discharge at Exchange Place had changed, and was now "black and smelly". To address this, and to characterize the discharge more fully to assess the expected quality of the proposed discharge from the Manhattan side, EPA re-sampled the discharge at Exchange Place on 10/10/01.

**Preliminary Results:**

**General Characteristics:** The samples were brown in color with a strong acrid odor. Some, but not all of the color, was removed through centrifugation. Total ammonia was elevated with a concentration of approximately 8.7 mg/L. Ammonia is not typically encountered at this concentration in marine surface samples. Salinity in the sample was 12 parts per thousand (path., g/L) which is less than the average of 35 g/L salinity of seawater. There was no residual chlorine present. Dissolved oxygen, determined in the laboratory, was 2.5 mg/L, lower than saturation indicating an oxygen demand from the sample. The alkalinity of the sample was approximately 140 mg/L. This concentration is slightly higher than would be predicted for a sample with a balanced salinity of 12 path.

**Dioxins/Furans:** One dioxin and one furan were detected. OCD was reported at a concentration of 53.2 J pg/L, and 1234678-HpCDF was reported at a concentration of 9.2 pg/L. The Toxic Equivalency (TEQ) for the compounds detected in the sample is 0.1 pg/L. This value is less than median TEQs determined over the last three years by NYSDEC in samples collected during NYNJ Harbor Estuary Contaminant Assessment and Reduction Program (CARP). The median TEQ (n=16) for the eastern NYNJ Harbor is 0.13 pg/L; the TEQ (n = 20) for the western NYNJ Harbor is 1.3 pg/L.

**Metals:** Several metals were detected that had not been detected in the Hudson River samples or the 10/03/01 PATH Exchange Place sample. Results for these metals is tabulated below. Results for zinc exceed both the marine acute and chronic Federal Water Quality Criteria for this metal. Chromium and nickel were detected at concentrations slightly greater than the detection limit. Concentrations of other metals detected in the sample are similar to those detected in the 10/03/01 PATH tunnel discharge sample. Table 1 at the end of this report provides metals data for all non-drinking water WTC disaster samples collected by EPA.

Metal	Concentration (ug/l)	Marine Acute FWQC (ug/l)	Marine Chronic FWQC (ug/l)
Chromium	8.4	1100*	50*
Nickel	6.8	75	8.3
Zinc	210	95	86

\* FWQC for Chromium VI, most stringent chromium criteria.

**PCB Congeners:** The sample was analyzed for 71 PCB congeners. No PCBs were detected in the sample (DL 0.0054 ug/L).

**NVOAs:** Seven (7) non-PAH NVOAs were detected in the sample. Seven PAHs, most substituted naphthalenes, were also detected, but all at trace concentrations (< 10ug/L). Results are tabulated below. Benzoic acid was detected at the highest concentration (580 ug/L), followed by phenol and several substituted phenols.

Phenol is the only detected NVOA having established marine acute FWQC. Marine chronic criteria has not been established for phenol. The concentration detected in the PATH tunnel effluent is more than 10 times less than the marine acute FWQC. Proposed acute and chronic FWQC for 2,4,5-trichlorophenol were also not exceeded in the sample.

Compound	Concentration (ug/l)	Marine Acute FWQC (ug/l)	Marine Chronic FWQC (ug/l)
Benzoic Acid	580	NA	NA
Phenol	450	5,800	NA
4-Methyl Phenol	110	NA	NA
2 - Methyl Phenol	67	NA	NA
Benzyl Alcohol	53	NA	NA
2, 4- Dimethyl Phenol	53	NA	NA
2,4,5-Trichlorophenol	5.2	240 p	11 p

NA: No marine FWQC  
p: Proposed Criteria

**VOCs:** The sample was analyzed for VOCs including MTBE and trichlorofluoromethane (freon-11). Acetone (90 ug/L), methylene chloride (17 ug/L), 2-butanone (21ug/L), toluene (18 ug/L), meta and para xylenes (10 ug/L), MTBE (65 ug/L), and total xylenes (10 ug/L) were detected. No VOCs were detected in the trip blank. Results are similar to those in the 10/03/01 sample, except for the detection of MTBE which is generally associated with oxygenated fuels.

**Toxicity:** Toxicity testing was performed by the USEPA Region II laboratory on the Tunnel Water Discharge to the Hudson River using a small marine crustacean, *Mysidopsis bahia* (Mysid) and a juvenile/larval fish species, *Menidia beryllina* (Inland Silversides Minnow). The tests were 48- Hour exposures and the test endpoint was mortality.

Mysids were more sensitive to the tunnel water than the fish. Following 48 hours of testing, the median lethal concentration (LC50) predicted was 83.5 percent tunnel water. Basically, if 83.5 percent tunnel water was mixed with 16.5 percent clean seawater, then 50 percent of the organisms would not survive. Survival was 97.5 percent or higher in all of the dilutions of the effluent (50, 25, 12.5, and 6.25 percent tunnel water).

Toxicity was reduced in the tunnel water that was centrifuged. Survival in this sample was 82.5 percent. Survival in the undiluted and untreated tunnel water was 32.5 percent. However, toxicity was not reintroduced with the solids from the centrifuged sample placed in clean seawater. Survival in this treatment was 97.5 percent.

All of the mortality occurred during the initial 24 hours and none during the final 24 hours of the tests.

While there was toxicity measured, the response can be characterized as low-level toxicity. The dilution capacity of the receiving stream and any chemical measurements should be taken into account when determining appropriate management actions

Survival was relatively high in the *Menidia beryllina* tests. Survival in the 100 percent tunnel water was 85 percent and increased according in all of the test dilutions.

All QC for the test including control survival and reference toxicant testing were acceptable. A report will be prepared and be available sometime this coming week (week of October 15).

**Other Parameters:**

Parameter	Concentration 10/10/01	Concentration 10/03/01	Other Comparative Data
Asbestos (MFL)	< 39.17	< 2.61	Drinking Water MCL = 7 MFL
Total Petroleum Hydrocarbons (mg/L)	5.4	ND (DL 5 mg/L)	Low
Oil and Grease (mg/L)	8.9	Not Analyzed	Low
Non-Filterable Residue (TSS) (mg/L)	12	26	18 mg/L in Hudson River 10/14/01 samples
COD (mg/L)	880	Not Analyzed	250 Weak 500 Medium 1000 Strong <sup>1</sup>
Sulfate	950	Not Analyzed	2,710 mg/L in Seawater <sup>2</sup>
Chloride (mg/L)	5700	Not Analyzed	19,350 mg/L in Seawater <sup>2</sup>
Alkalinity (mg/L)	140	Not Analyzed	50 Weak 100 Medium 200 Strong <sup>1</sup>

Total Ammonia (mg/L)	8.7	Not Analyzed	12 Weak 25 Medium 50 Strong <sup>1</sup>
Salinity (g/L (path.))	12	Not Analyzed	34.92 path. in Seawater <sup>1</sup>
DO (Lab) (mg/L)	2.5	Not Analyzed	Low
BOD5 (mg/L)	160	69	Newtown Creek Influent 210 mg/L, Newtown Creek Effluent 38 mg/L
pH	7.23	7.75	Neutral

1. Metcalf and Eddy, 1991, *Wastewater Engineering: Treatment, Disposal, and Reuse*, Table 3-16 Composition of untreated domestic wastewater.

2. Florida Oceanographic Society, 2001, [www.fosusa.org/parameters.htm](http://www.fosusa.org/parameters.htm).

Exchange Place PATH Tunnel Discharge 09/10/01 Sampling Parameters			
Parameter	Container	Preservation	Laboratory
Metals incl Mercury	2 L glass	pH < 2 w/ HNO <sub>3</sub> / 4°C	EPA Region 2
NVOAs	3 L amber glass	4°C	
PCB Congeners (71)	3 L amber glass		
VOCs + Freon + MTBE	6 x 40 ml sample 3 x 40 ml trip blank	pH < 2 w/ HCL/ 4°C	
Petroleum Hydrocarbons/ Oil and Grease	3 L clear wide mouth glass	pH < 2 w/ H <sub>2</sub> SO <sub>4</sub> / 4°C	
Sulfate/Chloride	500 ml Cubitaner	4°C	
BOD5	1 Gallon Cubitaner	4°C	
COD	250 ml Cubitaner	pH < 2 w/ H <sub>2</sub> SO <sub>4</sub> / 4°C	
Toxicity/Salinity/DO/Residual Chlorine/Ammonia, Alkalinity	3.5 Gallon total (Cubitaners)	4°C	

1080

TSS	250 ml Cubitaner		
Dioxins/Furans	2 L amber glass		REAC
Asbestos	2 L polyethylene		Contract

Table 1: Metals Results from WTC Disaster Non-Drinking Water Sampling

Metal	Hudson River Background (GW Bridge)		Hudson River North WTC		Hudson River West WTC		Hudson River South WTC		East River (South St)		Runoff (Reactor St)		Runoff (Reactor St)		Midtown Pumping Station		Newtown Creek STP Effluent		Exchange Place Tunnel		Exchange Place Tunnel		PATH Tunnel	
	Background	North WTC	West WTC	South WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC	WTC
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	30	ND	ND	ND	7.2	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aluminum	410	240	ND	ND	ND	ND	ND	ND	ND	420	640,000	1,500	ND	ND	300	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	140	19	19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium	23	18	17	17	17	17	17	17	17	8,600	60	38	27	150	160	652	696	696	696	696	696	696	696	696
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	78	78	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	260,000	290,000	280,000	290,000	290,000	290,000	290,000	290,000	290,000	5,500,000	240,000	64,000	35,000	450,000	490,000	176	180	180	180	180	180	180	180	180
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt	ND	ND	ND	ND	ND	ND	ND	ND	ND	160	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,000	23	ND	ND	ND	8.4	280*	280*	280*	280*	280*	280*	280*	280*	280*
Copper	ND	ND	ND	ND	ND	ND	ND	ND	ND	4,000	29	46	41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron	390	230	200	200	200	200	200	200	200	320,000	1,500	730	540	1,900	1,300	333	333	333	333	333	333	333	333	333
Potassium	260,000	300,000	300,000	310,000	310,000	310,000	310,000	310,000	310,000	100,000	6,200	47,000	25,000	200,000	210,000	81	81	81	81	81	81	81	81	81
Magnesium	860,000	820,000	960,000	990,000	990,000	990,000	990,000	990,000	990,000	990,000	8,400	130,000	61,000	260,000	240,000	28	28	28	28	28	28	28	28	28
Manganese	56	40	40	32	32	32	32	32	32	32,000	53	100	74	380	230	410	410	410	410	410	410	410	410	410
Sodium	7,200,000	8,300,000	8,300,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	100,000	9,500	1,100,000	530,000	3,500,000	3,100,000	43	43	43	43	43	43	43	43	43
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	910	8	8	ND	ND	6.8	272.0*	272.0*	272.0*	272.0*	272.0*	272.0*	272.0*	272.0*	272.0*
Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	5,200	31	8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	56	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	470	34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	ND	ND	ND	ND	ND	ND	ND	ND	ND	790	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	ND	ND	ND	ND	ND	ND	ND	ND	ND	49,000	150	94	80	ND	210	1,050*	1,050*	1,050*	1,050*	1,050*	1,050*	1,050*	1,050*	1,050*
MERCURY	ND	ND	ND	ND	ND	ND	ND	ND	ND	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

\* Not detected in HR background. 1/2 HR Background detection limit (DLs: Cr 6.0 ug/L, Ni 5 ug/L, Zn 40 ug/L) used for calculation.

**Table 2: Volatile Organic Compounds Detected in Exchange Place PATH Tunnel effluent**

<b>Compound</b>	<b>Concentration (ug/L)</b>	<b>Concentration (ug/L)</b>
Chloromethane	10 QE	ND
Acetone	80 QE	90 QR
Methylene Chloride	12	17
2-Butanone	21 QE	21
Toluene	13	18
m & p - Xylenes	ND	10
2-Hexanone	10	ND
Methyl Tert-Butyl ether	68	65
Total Xylenes	ND	10

QE - Accuracy check sample below lower acceptance limit  
 QR - Spike Recoveries below lower acceptance limit



NJPDES Permit NJ0076988 parameters.

DSN	Monthly Average Flow, GPD (Appl)	Long Term Average Flow, GPD (DMR)	Description of Treatment
001	7200	480	None
002	32000	480	None
003	NA	NA	None

Parameter	Non-numeric Effluent Limit	Monitoring Requirements Frequency	Type
Flow (GPD)	BMP	Semi-Annually	Calculated
pH	BMP	Semi-Annually	Grab
TSS, mg/L			
TOC, mg/L			
Petroleum Hydrocarbons, mg/L			

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Thursday and Friday**  
**November 1 and 2, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 1:00 p.m. 11/2)**

**Air: Fixed Monitors in New Jersey:**

**Asbestos** - Twelve air samples were taken in New Jersey on October 25, 26 and 28 (4 each day). All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of samples collected and analyzed in New Jersey to 173, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Nineteen samples were collected from October 29 through October 30. All the samples showed results less than the school re-entry standard.

**Ambient Air Sampling:**

**VOCs** - One grab sample collected on September 19 from the center of the debris pile at the World Trade Center was analyzed for volatile organic compounds (VOCs). To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. The results showed benzene levels of 4.6 parts per million (ppm), which exceeds the OSHA PEL of 1 ppm.

Sampling for VOCs was also conducted on October 30 in the direct area of the debris pile at ground zero. Benzene exceeded the OSHA permissible exposure limit at one location (North Tower) at ground level on the debris pile in the plume. Two of the three samples (Austin Tobin Plaza and North Park Pier) did not detect any benzene levels above the detection limit of 20 parts per billion by volume (ppbv). Chlorodifluoromethane (Freon-22) was detected and confirmed in the North Tower debris pile (660 ppbv) at ground level, but was well below the National Institute of Occupational Safety and Health (NIOSH) recommended exposure level of 1000 ppm.

VOC samples collected on October 31 from the debris pile of the South Tower at ground level showed benzene levels that exceeded 1 ppm. Samples collected at Austin Tobin Plaza and North Park Pier did not detect levels of benzene above the detection limit of 20 ppbv. Freon-22 was detected and confirmed in the North Tower debris pile (39 ppbv) at ground level, which is well below the NIOSH recommended exposure limit of 1000 ppm.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted October 30 at Pace University, the Borough of Manhattan Community College, and the U.S. Coast Guard building located in Battery Park. All 24-hour averages were below the National Ambient Air Quality Standards (NAAQS) of 65 micrograms per cubic meters ( $\mu\text{g}/\text{m}^3$ ) for all stations. These results were also less than 40  $\mu\text{g}/\text{m}^3$ , a level on the EPA Air Quality Index, which would indicate the air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**Direct Air Readings** - Using portable monitors, direct air readings were taken in and around ground zero on October 30. Results showed several readings above the carbon monoxide NAAQS (8-hour average) of 9 parts per million (ppm), but was below the NAAQS (1-hour average) of 35 ppm and the OSHA PEL of 50 ppm. Direct readings taken on October 31 showed nothing of significance.

**Wipe Samples:**

**Metals** - Ten wipe samples were collected on September 29 at Public School 234 and analyzed for metals. Lead results were all below EPA's Title X criteria of 40 micrograms per square foot ( $\mu\text{g}/\text{ft}^2$ ). While no specific standards are available, all other metals were either not detected or present at low levels.

**Bulk/Dust:**

**PCBs** - The recent analysis of four dust samples, which were originally collected from the streets around ground zero on September 11, showed results below the EPA residential cleanup guideline level of 1 ppm for PCBs.

**Semi-Volatile Organic Compounds** - The recent analysis of dust samples, which were originally collected from the streets around ground zero on September 11, showed results for benzo(a)pyrene below EPA removal action guidance levels, which are based on a 30-year exposure.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Thursday, November 1, 2001 (4 PM)

Fixed Ambient Air Sampling Locations (Asbestos)

- NJ / ER (Oct 25)
  - All 4 samples analyzed were below the TEM AHERA standard.
- NJ / ER (Oct 26)
  - All 4 samples analyzed were below the TEM AHERA standard.
- NJ / ER (Oct 28)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 21, 0600 - 1830) - Asbestos
  - Resubmittal of results from October 25 Sampling Situation Report with additional data for one station (P Location #2) previously not reported.
  - Additional 1 sample analyzed was below the TEM AHERA standard.
- Fresh Kills (Oct 29, 1810 - Oct 30, 0715) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.

Ambient Air Sampling Locations

- NYC / ER (Sep 19) - Volatile Organic Compounds
  - 1 (Summa) grab sample collected over the center of the debris pile at the WTC.
  - Benzene was present at 4.6 ppm, exceeding the OSHA TWA PEL (1 ppm).
- NYC / ER (Oct 30) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **14.20 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **16.69 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **13.95 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 30) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) on the debris pile in the plume at ground level.
  - 2 of 3 other samples (Austin Tobin Plaza and North Park Pier - TAGA Location) did not note any benzene above the detection limit (20 ppbv).

- Chlorodifluoromethane (Freon-22) was detected and confirmed in the North Tower debris pile (660 ppbv) at ground level.
- Chlorodifluoromethane levels were well below the NIOSH REL TWA of 1,000 ppm.
- NYC / ER (Oct 31) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location (South Tower) on the debris pile in the plume at ground level.
  - 2 of 3 other samples (Austin Tobin Plaza and North Park Pier - TAGA Location) did not note any benzene above the detection limit (20 ppbv).
  - Chlorodifluoromethane (Freon-22) was detected and confirmed in the North Tower debris pile (39 ppbv) at ground level.
  - Chlorodifluoromethane levels were well below the NIOSH REL TWA of 1,000 ppm.

#### Wipe Samples

- P.S. 234 (September 29) - Metals
  - 10 samples collected indoors.
  - Lead results are below EPA's Title X criteria (40 ug/ft<sup>2</sup>).
  - While no specific standards are available, all other metals were either not detected or present at low levels.

#### Bulk/Dust Samples

- NYC / ER (Sep 11) - Pesticides/PCBs
  - Recent analysis of 4 dust samples originally collected from streets on Sep 11<sup>th</sup>.
  - All samples below the EPA residential cleanup guideline of 1 ppm for PCBs.
- NYC / ER (Sep 11) - Semi-volatile organic compounds (base neutral acid extractable)
  - Recent analysis of 4 dust samples originally collected from streets on Sep 11<sup>th</sup>.
  - All samples were below the EPA Removal Action guidance levels (based on a 30-year exposure) represented as Toxic Equivalency Factors (TEFs) for benzo(a)pyrene.

#### Direct Reading Instruments

- NYC / ER (Oct 30)
  - Several readings noted above the carbon monoxide NAAQS (8 hr. average) of 9 ppm, but below the NAAQS (1 hr. average) of 35 ppm and the OSHA PEL of 50 ppm.
- NYC / ER (Oct 31)
  - Nothing of significance reported.

#### Ambient Water Monitoring

- NYC / ER (Oct 26)
  - Samples collected from PATH dewatering project.

- Total and fecal coliforms were both detected at 3,000 MPN/100ml, an order of magnitude less than the level in typical untreated domestic wastewater.

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM ( AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
10/28/01	10773	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/28/01	10774	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/28/01	10775	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/28/01	10776	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049

COC# 04847

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1240 (10/28/01) to 2040 (10/28/01)
CITGO Terminal	1336 (10/28/01) to 2136 (10/28/01)
FMC Terminal	1415 (10/28/01) to 2215 (10/28/01)
Shell Terminal	1435 (10/28/01) to 2235 (10/28/01)

ERT: 10/31/01 09:50 AM

Table 1.1 Results of the Analysis for BNA in Dust  
 WA # 0-0236 WTC - NYC ER Site  
 (Results are Based on Dry Weight)

Sample No. Sample Location	SBLK10401		111981		111980		111979		111978	
	Lab Blank		Corner of Greenwich and Warren St.		Corner of Reade and Hudson St.		Corner of Murry and West Side		Corner of West Broadway and Warren St.	
	% Solid		96		97		94		96	
Compound Name	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL
	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Phenol	U	500	5000 J	520	1700 J	510	2200 J	2700	5600 J	520
bis-(2-Chloroethyl)Ether	U	500	U J	520	U J	510	U J	2700	U J	520
2-Chlorophenol	U	500	U J	520	U J	510	U J	2700	U J	520
1,3-Dichlorobenzene	U	500	U J	520	U J	510	U J	2700	U J	520
1,4-Dichlorobenzene	U	500	U J	520	U J	510	U J	2700	U J	520
Benzyl alcohol	U	500	370 J	520	470 J	510	620 J	2700	560 J	520
1,2-Dichlorobenzene	U	500	U J	520	U J	510	U J	2700	U J	520
2-Methylphenol	U	500	570 J	520	U J	510	U J	2700	540 J	520
bis(2-Chloroisopropyl)ether	U	500	U J	520	U J	510	U J	2700	U J	520
4-Methylphenol	U	500	870 J	520	210 J	510	U J	2700	930 J	520
N-Nitroso-Di-n-propylamine	U	500	U J	520	U J	510	U J	2700	U J	520
Hexachloroethane	U	500	U J	520	U J	510	U J	2700	U J	520
Nitrobenzene	U	500	U J	520	U J	510	U J	2700	U J	520
Isophorone	U	500	U J	520	U J	510	U J	2700	U J	520
2-Nitrophenol	U	500	U J	520	U J	510	U J	2700	U J	520
2,4-Dimethylphenol	U	500	U J	520	U J	510	U J	2700	U J	520
bis(2-Chloroethoxy)methane	U	500	U J	520	U J	510	U J	2700	U J	520
2,4-Dichlorophenol	U	500	U J	520	U J	510	U J	2700	U J	520
1,2,4-Trichlorobenzene	U	500	U J	520	U J	510	U J	2700	U J	520
Naphthalene	U	500	2000 J	520	590 J	510	850 J	2700	1400 J	520
4-Chloroaniline	U	500	U J	520	U J	510	U J	2700	U J	520
Hexachlorobutadiene	U	500	U J	520	U J	510	U J	2700	U J	520
4-Chloro-3-methylphenol	U	500	U J	520	U J	510	U J	2700	U J	520
2-Methylnaphthalene	U	500	540 J	520	480 J	510	U J	2700	450 J	520
Hexachlorocyclopentadiene	U	500	U J	520	U J	510	U J	2700	U J	520
2,4,6-Trichlorophenol	U	500	U J	520	U J	510	U J	2700	U J	520
2,4,5-Trichlorophenol	U	500	U J	520	U J	510	U J	2700	U J	520
2-Chloronaphthalene	U	500	U J	520	U J	510	U J	2700	U J	520
2-Nitroaniline	U	500	U J	520	U J	510	U J	2700	U J	520
Dimethylphthalate	U	500	140 J	520	U J	510	U J	2700	U J	520
Acanaphthylene	U	500	660 J	520	160 J	510	U J	2700	540 J	520
2,6-Dinitrotoluene	U	500	U J	520	U J	510	U J	2700	U J	520
3-Nitroaniline	U	500	U J	520	U J	510	U J	2700	U J	520
Acenaphthene	U	500	U J	520	690 J	510	U J	2700	270 J	520
2,4-Dinitrophenol	U	500	U J	520	U J	510	U J	2700	U J	520
4-Nitrophenol	U	500	230 J	520	510 J	510	U J	2700	180 J	520
Dibenzofuran	U	500	860 J	520	590 J	510	U J	2700	560 J	520
2,4-Dinitrotoluene	U	500	U J	520	U J	510	U J	2700	U J	520
Diethylphthalate	U	500	1000 J	520	870 J	510	U J	2700	560 J	520
4-Chlorophenyl-phenylether	U	500	U J	520	U J	510	U J	2700	U J	520
Fluorene	U	500	650 J	520	850 J	510	1000 J	2700	530 J	520
4-Nitroaniline	U	500	U J	520	U J	510	U J	2700	U J	520
4,6-Dinitro-2-methylphenol	U	500	U J	520	U J	510	U J	2700	U J	520
N-Nitrosodiphenylamine	U	500	U J	520	U J	510	U J	2700	U J	520
4-Bromophenyl-phenylether	U	500	U J	520	U J	510	U J	2700	U J	520
Hexachlorobenzene	U	500	U J	520	U J	510	U J	2700	U J	520
Pentachlorophenol	U	500	U J	520	U J	510	U J	2700	U J	520
Phenanthrene	U	500	4900 J	520	7800 J	510	7700 J	2700	4900 J	520
Anthracene	U	500	950 J	520	2000 J	510	1800 J	2700	1000 J	520
Carbazole	U	500	470 J	520	1200 J	510	1100 J	2700	520 J	520
Di-n-butylphthalate	U	500	5600 J	520	6200 J	510	5800 J	2700	4400 J	520
Fluoranthene	U	500	4100 J	520	5400 J	510	7700 J	2700	4100 J	520
Pyrene	U	500	3400 J	520	3800 J	510	6300 J	2700	3200 J	520
Butylbenzylphthalate	U	500	4900 J	520	9500 J	510	13000 J	2700	4300 J	520
Benzo(a)anthracene	U	500	1300 J	520	3200 J	510	2500 J	2700	1400 J	520
3,3'-Dichlorobenzidine	U	500	U J	520	U J	510	U J	2700	U J	520
Chrysene	U	500	1400 J	520	3400 J	510	2600 J	2700	1600 J	520
Bis(2-Ethylhexyl)phthalate	U	500	20000 J	520	9800 J	510	8700 J	2700	15000 J	520
Di-n-octylphthalate	U	500	2800 J	520	2500 J	510	3500 J	2700	3400 J	520
Benzo(b)fluoranthene	U	500	1300 J	520	3200 J	510	2500 J	2700	1600 J	520
Benzo(k)fluoranthene	U	500	1400 J	520	3200 J	510	2700 J	2700	1600 J	520
Benzo(a)pyrene	U	500	1500 J	520	3500 J	510	2900 J	2700	1700 J	520
Indeno(1,2,3-cd)pyrene	U	500	690 J	520	1800 J	510	1300 J	2700	800 J	520
Dibenzo(a,h)anthracene	U	500	U J	520	U J	510	U J	2700	U J	520
Benzo(g,h,i)perylene	U	500	780 J	520	2100 J	510	1400 J	2700	900 J	520

U: values not detected, J: detected, estimate result  
 ER: 0.31, 0.9, 0

-11-01 Bulk BNA



Table 1.1 Results of the Analysis for Pesticide/PCB in Dust  
WAF 0-236 WTC NYC ER Site

Client ID Location Percent Solid Percent Solid Analyte	Method Blank Lab 100		111981 Corner of Greenwich and Warren St. 95.7		111980 Corner of Reade and Hudson St. 97.4		111979 Corner of Murry and West Side 94		111978 Corner of West Broadway and Warren St. 96	
	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg
a-BHC	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
g-BHC	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
b-BHC	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
Heptachlor	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
d-BHC	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
Aldrin	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
Heptachlor Epoxide	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
g-Chlordane	U	5.0	8.1	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
a-Chlordane	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
Endosulfan (I)	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
p,p'-D D E	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
Dieldrin	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
Endrin	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
p,p'-D D D	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
Endosulfan (II)	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
p,p'-D D T	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
Endrin Aldehyde	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
Endosulfan Sulfate	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
Metoxychlor	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
Endrin Ketone	U	5.0	U	J 5.2	U	J 5.1	U	J 5.3	U	J 5.2
Toxaphene	U	130	U	J 130	U	J 130	U	J 130	U	J 130
Aroclor 1016	U	63	U	J 65	U	J 64	U	J 66	U	J 65
Aroclor 1221	U	130	U	J 130	U	J 130	U	J 130	U	J 130
Aroclor 1232	U	63	U	J 65	U	J 64	U	J 66	U	J 65
Aroclor 1242	U	63	U	J 65	U	J 64	U	J 66	U	J 65
Aroclor 1248	U	63	U	J 65	U	J 64	U	J 66	U	J 65
Aroclor 1254	U	63	U	J 65	440	J 64	590	J 66	190	W 65
Aroclor 1260	U	63	340	J 65	1100	J 64	910	J 66	420	J 65
Aroclor 1268	U	63	U	J 65	U	J 64	U	J 66	U	J 65

W denotes weathered aroclor. Results are estimated.  
ERT: 10/00/01 9:50 AM

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/21/01 0600 to 10/21/01 1830

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>
10/21/2001	03515	P Loc # 1	445.7	Air	<7.0	<0.0068	0	<7.87
10/21/2001	03516	P Loc # 2	523.7	Air	<7.0	<0.005	1**	6.67
10/21/2001	03517	P Loc # 3	482	Air	<7.0	<0.006	1**	6.06
10/21/2001	03518	P Loc # 4	720	Air	<7.0	<0.004	0	8.75
10/21/2001	03534	P Loc # 5	720	Air	<7.0	<0.004	0	<8.75
10/21/2001	03520	P Loc # 6	720	Air	<7.0	<0.004	0	<8.75
10/21/2001	03521	P Loc # 7	720	Air	<7.0	<0.004	0	<8.75
10/21/2001	03522	P Loc # 8	720	Air	<7.0	<0.004	0	<8.75
10/21/2001	03523	S Loc # 9A	716	Air	<7.0	<0.004	0	8.75
10/21/2001	03524	S Loc # 9B	747	Air	<7.0	<0.004	0	8.75
10/21/2001	03525	S Loc # 10 A	720	Air	13.38	0.007	0	<8.75
10/21/2001	03526	S Loc # 10 B	720	Air	<7.0	<0.004	1**	<8.75
10/21/2001	03527	W Loc # 11	689	Air	<7.0	<0.004	0	8.75
10/21/2001	03528	W Loc # 12A	171.6	Air	<7.0	<0.016	0	<7.87
10/21/2001	03529	W Loc # 12B	171	Air	<7.0	<0.016	0	<7.87
10/21/2001	03530	B Loc # 13	720	Air	<7.0	<0.004	2**	<0.0177
10/21/2001	03531	B Loc # 14	720	Air	<7.0	<0.004	0	17.50
10/21/2001	03532	T Loc # 15	720	Air	<7.0	<0.004	0	<8.75
10/21/2001	03533	T Loc # 16	320	Air	<7.0	<0.008	0	8.75

cc:03/04/08 8:57

\*\* Chrysotile; no other types of asbestos were detected.

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f)  
 NA: not analyzed due to overloading of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 10/24/01 9:50 AM  
 ERT: 10/30/01 9:50 AM Revised  
 (data for sample # 03516 added)

**Table 1 - Air Toxic Target Compound Results for Summa Canister Samples  
New York City Emergency Response Site, New York City, NY WA # 0-236  
( concentrations in ppbv )**

Sample Number	Method	00481	01581
Sample Location	Blank	Blank	Center of Pile
Date Sampled	N/A	9/19/01 0:00	9/19/01 0:00
Date Analyzed	09/24/01	09/24/01	09/24/01
Chloromethane	4 U	4 U	4800 *
Vinyl Chloride	4 U	4 U	24
Chloroethane	4 U	4 U	190 **
Trichlorofluoromethane	4 U	4 U	48
1,1-Dichloroethene	4 U	4 U	4 U
Methylene Chloride	4 U	4 U	2 J
trans-1,2-Dichloroethylene	4 U	4 U	4 U
1,1-Dichloroethane	4 U	4 U	4 U
Trichloromethane	4 U	4 U	4 U
1,1,1-Trichloroethane	4 U	4 U	4 U
Carbon Tetrachloride	4 U	4 U	4 U
1,2-Dichloroethane	4 U	4 U	76
Benzene	4 U	4 U	4600 *
Trichloroethylene	4 U	4 U	4 U
Bromodichloromethane	4 U	4 U	4 U
Dibromomethane	4 U	4 U	4 U
Toluene	4 U	4 U	1400 *
1,1,2-Trichloroethane	4 U	4 U	4 U
Tetrachloroethylene	4 U	4 U	7
Ethylbenzene	4 U	4 U	920 **
m & p-Xylenes	4 U	4 U	190 **
o-Xylene	4 U	4 U	56
Styrene	4 U	4 U	1700 *
1,1,2,2-Tetrachloroethane	4 U	4 U	4 U
1,3,5-Trimethylbenzene	4 U	4 U	47
Quantitation Limit (ppbv)	4	4	4

J - Below Quantitation Limit

U - Not Detected

N/A - Not Applicable

\* - Concentration from a 200X dilution run.

\*\* - Concentration from 40X dilution run.

ERT: 10/30/01 3:00

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*	
10/26/01	10763	Liberty Park	422	Air	<7.0	<0.006	0	0	<8.00	<0.0073
10/26/01	10764	CITGO Terminal	444	Air	<7.0	<0.006	0	0	<8.00	<0.0069
10/26/01	10765	FMC Terminal	266	Air	<7.0	<0.010	0	0	<8.00	<0.0116
10/26/01	10766	Shell Terminal	376	Air	<7.0	<0.007	0	0	<8.00	<0.0082

COC# 00360

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1414 (10/26/01) to 2116 (10/26/01)
CITGO Terminal	1500 (10/26/01) to 2224 (10/26/01)
FMC Terminal	1630 (10/26/01) to 2056 (10/26/01)
Shell Terminal	1720 (10/26/01) to 2336 (10/26/01)

ERT: 10/31/01 09:50 AM

NYC Emergency Response  
Asbestos Air Sampling Results NYC ER/NJ DEP

Date Sampled	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM ( AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
10/25/01	10758	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/25/01	10759	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/25/01	10760	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
10/25/01	10761	Shell Terminal	305	Air	<7.0	<0.009	0	0	<8.00	<0.0101

COC# 00359

PCM: Phase Contrast Microscopy by NIOSH 7400

TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.

\*Structure (S) roughly equivalent to Fiber (f)

Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Period in which samples were collected and retrieved

Sampling Location	Sampling Times
Liberty Park	1122 (10/25/01) to 1922 (10/25/01)
CITGO Terminal	1208 (10/25/01) to 2008 (10/25/01)
FMC Terminal	1242 (10/25/01) to 2042 (10/25/01)
Shell Terminal	1315 (10/25/01) to 1820 (10/25/01)

ERT: 10/31/01 09:50 AM

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 10/29/01 1810 to 10/30/01 0715

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					fmm <sup>2</sup>	f/cc	Structures (#)	fmm <sup>2</sup>	S-f/cc**	S/mm <sup>2</sup>
10/30/01	LF00001	P-1	720	Air	12.74	0.007	0	<8.61	<0.0046	<8.61
10/30/01	LF00002	P-2	720	Air	11.46	0.006	0	<8.61	<0.0046	<8.61
10/30/01	LF00003	P-3	720	Air	11.46	0.006	0	<8.61	<0.0046	<8.61
10/30/01	LF00004	P-4	720	Air	64.97	0.035	0	<8.61	<0.0046	<8.61
10/30/01	LF00005	P-5	720	Air	59.87	0.032	0	<8.61	<0.0046	<8.61
10/30/01	LF00006	P-6	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<8.61
10/30/01	LF00007	P-7	719	Air	8.82	0.005	0	<8.61	<0.0046	<8.61
10/30/01	LF00008	P-8	719	Air	10.19	0.005	0	<8.61	<0.0046	<8.61
10/30/01	LF00009	S-9A	720	Air	11.46	0.006	0	<8.61	<0.0046	<8.61
10/30/01	LF00010	S-9B	320	Air	22.93	0.028	0	<7.75	<0.0093	<7.75
10/30/01	LF00011	S-10A	717.9	Air	<7.0	<0.004	0	<8.61	<0.0046	<8.61
10/30/01	LF00012	S-10B	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<8.61
10/30/01	LF00013	W-11	675.1	Air	<7.0	<0.004	0	<8.61	<0.0046	<8.61
10/30/01	LF00014	W-12A	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<8.61
10/30/01	LF00015	W-12B	200.1	Air	<7.0	<0.013	0	<8.61	<0.0046	<8.61
10/30/01	LF00016	B-13	580.4	Air	<7.0	<0.005	0	<7.75	<0.0054	<7.75
10/30/01	LF00017	B-14	720	Air	12.74	0.007	0	<8.61	<0.0046	<8.61
10/30/01	LF00018	T-1	720	Air	12.74	0.007	0	<8.61	<0.0046	<8.61
10/30/01	LF00019	T-1B	720	Air	8.82	0.005	1***	8.61	0.0046	8.61
10/30/01	LF00020	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
10/30/01	LF00021	Trp. Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key: \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not applicable  
 n/a - Not requested  
 NS: Not sampled

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/16/94  
 Asbestos Fiber Analysis By Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Table 1 Results of the Analysis for Metals in Wipes  
WTC New York ER

Client ID Location	Media Blank #1 Lab	Media Blank#2 Lab	Media Blank#3 Lab	A.B04601 PS-234-1-1	A.B04602 PS-234-1-2	A.B04603 PS-234-1-3W	
Parameter	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe	
	Analysis Method	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	MDL µg/wipe	Conc µg/wipe	
Aluminum	ICAP	10	2.5	11	2.5	83	2.5
Antimony	AA-Fur	U	0.10	U	0.10	0.15	0.10
Arsenic	AA-Fur	U	0.10	U	0.10	U	0.10
Barium	ICAP	1.1	0.25	1.2	0.25	2.1	0.25
Beryllium	ICAP	U	0.10	U	0.10	U	0.10
Cadmium	ICAP	U	0.25	U	0.25	U	0.25
Calcium	ICAP	89	5.0	110	5.0	1400	5.0
Chromium	ICAP	U	0.25	U	0.25	0.51	0.25
Cobalt	ICAP	U	0.50	U	0.50	U	0.50
Copper	ICAP	U	0.50	U	0.50	6.1	0.50
Iron	ICAP	15	1.3	14	1.3	200	1.3
Lead	AA-Fur	0.11	0.10	0.12	0.10	1.5	0.10
Magnesium	ICAP	U	25	U	25	160	25
Manganese	ICAP	1.9	0.25	1.6	0.25	3.9	0.25
Mercury	AA-cold vapor	U	0.01	U	0.01	U	0.01
Nickel	ICAP	U	0.50	U	0.50	U	0.50
Potassium	ICAP	U	100	U	100	U	100
Selenium	AA-Fur	U	0.10	U	0.10	U	0.10
Silver	ICAP	U	0.25	U	0.25	U	0.25
Sodium	ICAP	350	25	270	25	50	25
Thallium	AA-Fur	U	0.10	U	0.10	U	0.10
Vanadium	ICAP	U	0.50	U	0.50	0.81	0.50
Zinc	ICAP	2.7	0.50	2.8	0.50	30	0.50

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average media blank (>= MDL) subtracted from all sample results

DRAFT GC/MS Results for 10/31/01 DRAFT

File name	NYC489	NYC482	NYC491	NYC494	NYC495	NYC497	NYC499
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient No. Park Plaz. 26	South Tower	Austin Tobin Plaza	North Tower	North Tower
Sample Number			10096	10097	10098	10096	10099
Sample Height			Breathing	Ground	Breathing	Ground	Ground
Volume		250 mL	250 mL	20 mL	100 mL	100 mL	50 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2100 ppbv	RL=20 ppbv	37 ppbv	460 ppbv
Chlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	39 ppbv
Chlorotrifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Perchloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1600 ppbv	RL=20 ppbv	RL=20 ppbv	530 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	78 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	46 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	23 ppbv	1270 ppbv	1160 ppbv	140 ppbv	1700 ppbv
Trichlorofluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
trans-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	130 ppbv	PL=20 ppbv	RL=20 ppbv	271 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	700 ppbv	26 ppbv	20 ppbv	350 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	430 ppbv	RL=20 ppbv	RL=20 ppbv	170 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	180 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3500 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
m-xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	71 ppbv	21 ppbv	RL=20 ppbv	25 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	21 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1190 ppbv	RL=20 ppbv	23 ppbv	410 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	26 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	97 ppbv	RL=20 ppbv	RL=20 ppbv	560 ppbv
m,p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	87 ppbv	RL=20 ppbv	RL=20 ppbv	25 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	72 ppbv	RL=20 ppbv	RL=20 ppbv	23 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	320 ppbv	RL=20 ppbv	RL=20 ppbv	350 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	71 ppbv	RL=20 ppbv	RL=20 ppbv	21 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv

**NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION**



**NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION**

DRAFT GC/MS Results for 10/30/01 DRAFT

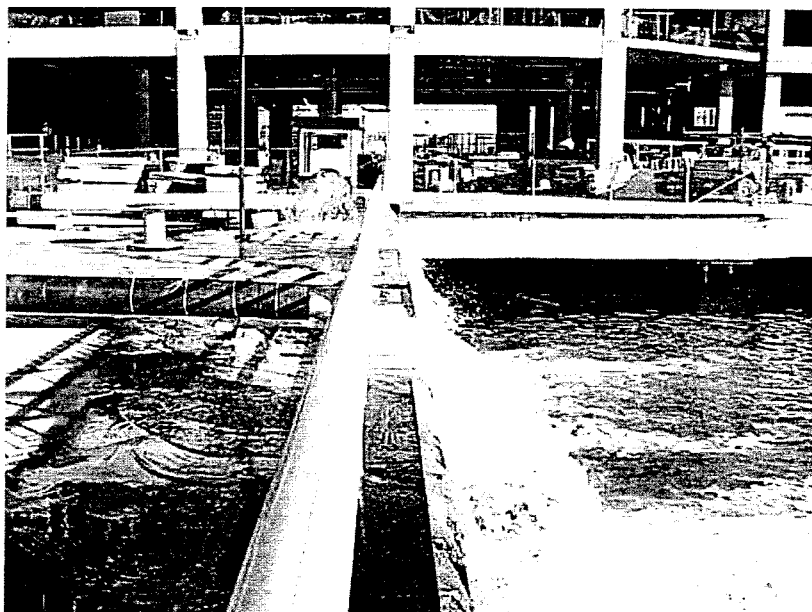
File name	NYC481	NYC482	NYC483	NYC484	NYC485	NYC486
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient	South Tower	Austin Tobin Plaza	North Tower
Sample Number						
Sample Height			Breathing	Ground	Breathing	Ground
Volume		250 mL	250 mL	20 mL	100 mL	20 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	360 ppbv	RL=20 ppbv	3000 ppbv
Chlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	650 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	31 ppbv	RL=20 ppbv	2200 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	21 ppbv	230 ppbv	26 ppbv	2800 ppbv
Trichlorofluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
trans-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	160 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	28 ppbv	RL=20 ppbv	RL=50 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	410 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	380 ppbv	RL=20 ppbv	4900 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	110 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	63 ppbv
Methyl isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Gas-1,3-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	230 ppbv	RL=20 ppbv	1400 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	97 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	180 ppbv	RL=20 ppbv	1200 ppbv
m&o-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	RL=20 ppbv	93 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	65 ppbv	RL=20 ppbv	89 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	56 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	72 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	42 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv	RL=50 ppbv

1100

November 1, 2001 (10:14am)

Preliminary Data

New York City/ World Trade Center Sampling Activities  
Exchange Place PATH Dewatering 3 (10/26/01 Sample)



**EPA Personnel:** Robert Morrell  
Richard Coleates

**Sampling Date:** October 26, 2001

**Location:** Grab samples from direct discharge to the Hudson River.

**Sample Matrix:** Aqueous

**Analytes (Laboratory):** VOCs + Freon + MTBE (EPA Region 2)  
Microbiology (EPA Region 2)

**Objective:** The sampling was conducted primarily to evaluate whether PATH tunnel discharge

water contains fluorodichloromethane (Freon 22) which has been detected at increasing concentrations in air at Ground Zero. Total and fecal coliforms and heterotrophic plate count was included in the sampling regime to address NYSDOH concerns regarding pathogens in WTC basement and PATH tunnel water. The discharge at Exchange Place was discontinued on October 31, and PATH tunnel/basement effluent is currently routed to the Newtown Creek POTW.

**Preliminary Results Summary:**

**General Characteristics:** Sample was a light amber color and had a "sewage-like" odor.

**Microbiology:** Total and fecal coliforms were both detected at 3000 MPN/100 ml. This is an order of magnitude or more less than the level ( $10^4$  -  $10^6$ /100 ml) in "typical" untreated domestic wastewater (Metcalf and Eddy, 1991). The heterotrophic plate count (HPC) result was to numerous to count (TNTC/1 ml).

**VOCs:** Sample being analyzed for VOCs + freons + MTBE. Instrument problem has delayed analysis.

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Saturday**  
**November 3, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 12:00 p.m. 11/3)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 120 samples taken in and around ground zero from October 29 through November 1. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1605, with 28 samples above the standard (27 of these were collected prior to September 30 and one on October 9).

**Staten Island Landfill:**

**Air (Asbestos)** - Twenty-nine samples were collected on October 30 and October 31. All the samples showed results less than the school re-entry standard. Seven samples collected on October 30 were not analyzed due to filter overloading; these samplers were located around the sifting and wash operations areas. One location on October 31 experienced sampler pump failure deeming the results invalid. Eighteen additional samples were collected from October 31 through November 1. All samples showed results less than the school re-entry standard. One location again experienced sampler pump failure deeming the results invalid.

**Ambient Air Sampling:**

**Asbestos** - Additional asbestos monitors have been placed at the eight particulate matter monitoring stations located at Pace University, Borough of Manhattan Community College, the Coast Guard building in Battery Park, Public School (P.S.) 154 (33 East 135<sup>th</sup> St., Bronx), Intermediate School 143 (511 W. 182<sup>nd</sup> St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island), and P.S.199 (3290 48<sup>th</sup> St., Queens). On October 29, seven asbestos samples were collected and analyzed from these locations; no samples were collected from Intermediate School 143. All the results showed no exceedances of the AHERA re-entry standard.

**VOCs** - Sampling for VOCs was conducted on November 1 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene exceeded the OSHA PEL of 1 part per million (ppm) at one location (South Tower) at ground level on the debris pile in the plume. One of the two samples (North Park Pier) did not detect any benzene levels above the detection limit of 20 parts per billion by volume (ppbv). Chlorodifluoromethane (Freon-22) was detected and confirmed in the North Tower debris pile (960 ppbv) at ground level, but was well below the NIOSH recommended exposure limit of 1000 ppm.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted October 31 and November 1 at Pace University, Borough of Manhattan Community College, and the U.S. Coast Guard building located in Battery Park. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 microgram per cubic meter ( $\mu\text{g}/\text{m}^3$ ) for all stations. These results were also less than 40  $\mu\text{g}/\text{m}^3$ , a level on the EPA Air Quality Index, which would indicate that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**Particulate Monitoring** - EPA used portable monitors to collect samples on November 1 in the following areas, which are also the locations of fixed air monitors: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**Direct Air Readings** - Direct readings taken on November 1 showed nothing of significance. No readings were noted above the NAAQS (8-hour average) of 9 ppm for carbon monoxide.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Friday/Saturday, November 2 - 3, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Oct 29, 1201 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 30, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 30, 1201 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Oct 31, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
  - Note: Low sample volumes recorded.
- NYC / ER (Oct 31, 1201 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 1, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
  - Location D not included in the chart.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Oct 30, 0615 - 1920) - Asbestos
  - All 11 samples analyzed were below the TEM AHERA standard.
  - 7 sample (ST Location #17, "Sift" Location #9A, "Sift" Location #10A, "Wash" Location #11 "Wash" Location #12A, Mess "Tent" Location #15 and Supply "Tent" Location #16) were not analyzed for TEM due to filter overloading.
  - 1 location ("Perimeter" Location #1) was not sampled.
- Fresh Kills (Oct 30, 1805 - Oct 31, 0736) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 sample ("Sift" Location #9A) had a pump failure (results deemed invalid).
  - Note: Low sample volumes recorded.

- Fresh Kills (Oct 31, 1800 - Nov 1, 0806) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 sample ("Sift" Location #9A) was not analyzed due to pump failure (results deemed invalid).
  - Note: Low sample volumes recorded.

#### Ambient Air Sampling Locations

- NYC / ER (Nov 1) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 8 hours.
  - Station L values ranged from 0.0 to 62.5  $\mu\text{g}/\text{m}^3$  with an average of 37.5  $\mu\text{g}/\text{m}^3$ .
  - Station N values ranged from 0.0 to 56.0  $\mu\text{g}/\text{m}^3$  with an average of 39.2  $\mu\text{g}/\text{m}^3$ .
  - Station R values ranged from 56.5 to 72.1  $\mu\text{g}/\text{m}^3$  with an average of 58.0  $\mu\text{g}/\text{m}^3$ .
  - Dataram readings for the period Oct 26<sup>th</sup> through Oct 31<sup>st</sup> were determined to be unuseable.
- NYC / ER (Oct 31) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was 8.93  $\mu\text{g}/\text{m}^3$ .
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was 10.27  $\mu\text{g}/\text{m}^3$ .
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was 11.74  $\mu\text{g}/\text{m}^3$ .
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65  $\mu\text{g}/\text{m}^3$ ).
- NYC / ER (Nov 1) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was 22.35  $\mu\text{g}/\text{m}^3$ .
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was 26.57  $\mu\text{g}/\text{m}^3$ .
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was 21.31  $\mu\text{g}/\text{m}^3$ .
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65  $\mu\text{g}/\text{m}^3$ ).
- NYC / ER (Nov 1) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location (South Tower) on the debris pile in the plume at ground level.
  - 1 of 3 other samples (North Park Pier) did not note any benzene above the detection limit (20 ppbv).
  - Chlorodifluoromethane (Freon-22) was detected and confirmed in the North Tower debris pile (960 ppbv) at ground level.
  - Chlorodifluoromethane levels were well below the NIOSH REL TWA of 1,000 ppm.

- NYC / ER (Oct 29) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 7 samples were collected from these monitoring sites (all except for Site 6).
  - All of the samples were below the TEM AHERA standard.
  - Data not received for Oct 17<sup>th</sup>, 18<sup>th</sup>, 22<sup>nd</sup>, and Oct 24<sup>th</sup> through 28<sup>th</sup>.

#### Direct Reading Instruments

- NYC / ER (Nov 1)
  - Nothing of significance reported.
  - No readings noted above the carbon monoxide NAAQS (8 hr. average) of 9 ppm.

#### Landfill Operational Data

- Fresh Kills (Oct 22) - Barge Water
  - Samples of barge water were collected and analyzed for metals, mercury and VOCs in order to assess and evaluate appropriate disposal alternatives.
- Fresh Kills (Oct 6) - Vehicle Wash Solids
  - Samples of accumulated solids were collected from 6 vehicle wash areas and analyzed for metals, mercury and VOCs in order to assess and evaluate appropriate disposal alternatives.



NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/29/01 1201 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/min <sup>2</sup>	f/cc	Structures (#)	S-fiber**
10/29/01	RST-00043	O	720	Air	7.01	0.005	3***	26.67
10/29/01	RST-00044	J	647	Air	7.01	0.004	1***	0
10/29/01	RST-00043	L	720	Air	<7.0	<0.004	0	0
10/29/01	RST-00042	M1	720	Air	<7.0	<0.004	0	0
10/29/01	RST-00041	N	720	Air	<7.0	<0.004	0	0
10/29/01	RST-00046	A	720	Air	15.29	0.008	0	8.89
10/29/01	RST-00047	B	720	Air	19.11	0.010	1***	8.89
10/29/01	RST-00048	C1	720	Air	<7.0	<0.004	0	<8.89
10/29/01	RST-00049	H	720	Air	10.19	0.005	0	<8.89
10/29/01	RST-00050	I	720	Air	8.28	0.004	1***	17.78
10/29/01	RST-00051	D-Duplicate	720	Air	8.92	0.005	0	<8.89
10/29/01	RST-00052	K	720	Air	<7.0	<0.004	0	<8.89
10/29/01	RST-00053	T	720	Air	<7.0	<0.004	1***	26.67
10/29/01	RST-00054	U	720	Air	7.64	0.004	2***	0.0143
10/29/01	RST-00055	V	720	Air	<7.0	<0.004	1***	0.0095
10/29/01	RST-00056	S	720	Air	7.01	0.004	1***	0
10/29/01	RST-00058	E	720	Air	8.92	0.005	2***	0
10/29/01	RST-00059	F	720	Air	50.96	0.027	5***	53.33
10/29/01	RST-00060	F	720	Air	9.55	0.005	3***	26.67
10/29/01	Blank	Trip Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(1)</sup>
10/29/01	Blank	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>
10/29/01	Blank	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>

ccsf 00005 and 00006

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (ITEM)

FL-10-29-01pm\_.xls

RST: 11/5/01

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup>: Not analyzed due to overloading of particulates
- NA<sup>(2)</sup>: Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Not sampled

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/30/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	S-f/cc**	
10/30/01	RST-00065	Q	720	Air	10.19	0.005	2***	17.78	0.0096
10/30/01	RST-00064	J	720	Air	7.01	0.004	0	<8.89	<0.0048
10/30/01	RST-00063	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/30/01	RST-00062	M1	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/30/01	RST-00061	N	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/30/01	RST-00060	A	720	Air	8.92	0.005	0	<8.89	<0.0048
10/30/01	RST-00059	B	720	Air	12.74	0.007	1***	8.89	0.0048
10/30/01	RST-00058	C1	720	Air	16.56	0.009	0	<8.89	<0.0048
10/30/01	RST-00070	H	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/30/01	RST-00071	I	720	Air	12.74	0.007	1***	8.89	0.0048
10/30/01	RST-00072	D	720	Air	28.03	0.015	5***	8.89	0.0048
10/30/01	RST-00073	K	720	Air	27.39	0.015	5***	44.44	0.0238
10/30/01	RST-00078	T	720	Air	10.63	0.006	0	8.89	0.0048
10/30/01	RST-00079	U	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/30/01	RST-00080	V	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/30/01	RST-00076	S	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/30/01	RST-00077	S-Dup	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/30/01	RST-00075	P	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/30/01	RST-00074	E	720	Air	4.01	0.007	1***	0.89	0.0048
10/30/01	RST-00066	F	720	Air	<7.0	<0.004	0	<8.89	<0.0048
10/30/01	Blank	Thp Blank	0	Air	<7.0	na	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
10/30/01	Blank	Field Blank	0	Air	<7.0	na	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
10/30/01	Blank	Lot Blank	0	Air	<7.0	na	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

ccaf 00007 and 00008

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St.
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysolite particulates
- NA<sup>(1)</sup> - Not analyzed due to overloading of
- NA<sup>(2)</sup> - Not analyzed for TEM
- na - Not applicable
- NR - Not requested
- NS - Not sampled

M: Western end of Harrison St. at West St. (on tree next to bulkhead)

M1: West St. - 50 yards south of Harrison St. at bulkhead

N: South side of Pier 25 (next to volleyball ct)

P: NE corner of South End Ave. & Albany

Q: Barclay & West St. (center island) in proximity to USCG command post

R: TAGA Bus Location

S: Rector & South End

T: Pier 6 Heliport

U: Pier 6 Exit 2

V: Pier 6 Bus Sign

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 10/29/2001 12:00 to 10/29/2001 24:00

Sampling Date	Sample No.	Sampling Location	Sample Volume (L) <sup>***</sup>	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
10/29/01	7093-18-0027	Pace U.	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/29/01	7093-19-0027	MBCC	1246	Air	11.46	0.004	0	0	<15.50	<0.0048
10/29/01	7093-20-0027	Coast Guard	1144 <sup>***</sup>	Air	<7.0	<0.002	0	0	<12.92	<0.0043
10/29/01	7094-09-0022	PS #154	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/29/01	7095-98-0024	PS #274	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/29/01	7096-12-0023	PS #199	1206	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/29/01	7097-18-0022	PS #44	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041

cccf# is not available

Key:

\*Structure (S) roughly equivalent to fiber (f)

\*\* Sample volume is based on pump reading

\*\*\* Sample volume is below recommended limit for method

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/30/2001 1805 to 10/31/2001 0736

Sampling Date	Sample No.	Sampling Location	Sample Volume**	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>
10/30/01	LF-00043	P Loc # 1	720	Air	<7.0	<0.004	0	<8.75
10/30/01	LF-00044	P Loc # 2	734	Air	<7.0	<0.004	0	<8.75
10/30/01	LF-00045	P Loc # 3	720	Air	<7.0	<0.004	0	<8.75
10/30/01	LF-00046	P Loc # 4	720	Air	<7.0	<0.004	1***	0.0047
10/30/01	LF-00047	P Loc # 5	720	Air	<7.0	<0.004	0	<8.75
10/30/01	LF-00048	P Loc # 6	720	Air	<7.0	<0.004	1***	0.0047
10/30/01	LF-00049	P Loc # 7	720	Air	<7.0	<0.004	0	8.75
10/30/01	LF-00050	P Loc # 8	720	Air	<7.0	<0.004	0	17.5
10/30/01	LF-00051	S Loc # 9A	0	Air	<7.0	<0.004	0	<8.75
10/30/01	LF-00052	S Loc # 9B	0	Air	<7.0	<0.004	0	<8.75
10/30/01	LF-00053	S Loc # 10A	720	Air	<7.0	<0.004	0	<8.75
10/30/01	LF-00054	S Loc # 10B	720	Air	<7.0	<0.004	1***	35
10/30/01	LF-00055	W Loc # 11	637.6	Air	<7.0	<0.004	0	8.75
10/30/01	LF-00056	W Loc # 12A	720	Air	61.15	0.033	0	8.75
10/30/01	LF-00057	W Loc # 12B	442	Air	<7.0	<0.006	1	35
10/30/01	LF-00058	B Loc # 13	650.6	Air	<7.0	<0.004	0	<8.75
10/30/01	LF-00059	B Loc # 14	720	Air	<7.0	<0.004	0	<8.75
10/30/01	LF-00060	T Loc # 15	717	Air	39.49	0.021	0	35
10/30/01	LF-00061	T Loc # 16	710	Air	14.01	0.008	0	<8.75
10/30/01	LF-00062	Lot Blank	0	Air	<7.0	<7.0	NA <sup>(1)</sup>	NA <sup>(1)</sup>
10/30/01	LF-00063	Trip Blank	0	Air	<7.0	<7.0	NA <sup>(1)</sup>	NA <sup>(1)</sup>

COC # is not available

Key:

NA<sup>(1)</sup>: not analyzed for TEM

\*Structure (S) roughly equivalent to fiber (f)

\*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading

\*\*\* Chrysotile

R - Sample rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 10/30/01 0615 to 10/30/01 1920

Sampling Date	Sample No.	Sampling Location	Sample Volume*	PCM by NIOSH 7400			TEM (AHERA)		
				f/m <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**	
10/30/01	LF00022	P-1	0	NS	NS	NS	NS	NS	
10/30/01	LF00023	P-2	720	<7.0	<0.004	0	<0.00	<0.0043	
10/30/01	LF00024	P-3	614	<7.0	<0.004	2***	14.55	0.0091	
10/30/01	LF00025	P-4	720	<7.0	<0.004	2***	16	0.0098	
10/30/01	LF00026	P-5	720	<7.0	<0.004	0	<8.00	<0.0043	
10/30/01	LF00027	P-6	720	<7.0	<0.004	0	<8.00	<0.0043	
10/30/01	LF00028	P-7	713	<7.0	<0.004	0	<8.00	<0.0043	
10/30/01	LF00029	P-8	720	<7.0	<0.004	0	6	0.0043	
10/30/01	LF00030	S-9A	665	<7.0	<0.004	1***	NA <sup>(1)</sup>	NA <sup>(1)</sup>	
10/30/01	LF00031	ST-17	584	<7.0	<0.005	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	
10/30/01	LF00032	S-10A	720	11.46	0.006	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	
10/30/01	LF00033	S-10B	560	<7.0	<0.005	1***	0	7.27	
10/30/01	LF00034	W-11	720	<7.0	<0.004	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	
10/30/01	LF00035	W-12A	661	9.65	0.006	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	
10/30/01	LF00036	W-12B	660	<7.0	<0.004	0	<7.37	<0.0043	
10/30/01	LF00037	B-13	720	<7.0	<0.004	0	<8.00	<0.0043	
10/30/01	LF00038	B-14	720	<7.0	<0.004	0	<8.00	<0.0043	
10/30/01	LF00039	T-15	654	<7.0	<0.004	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	
10/30/01	LF00040	T-16	670	<7.0	<0.004	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	
10/30/01	LF00041	Lot Blank	0	n/a	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	
10/30/01	LF00042	Tip Blank	0	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	

COC No. n/a

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS: Not submitted

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/11/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 10/31/01 1800 to 11/01/01 0806

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					fmm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**	R
10/31/01	LF00085	P-1	200	Air	<7.0	<0.013	0	<7.87	<0.0152	
10/31/01	LF00086	P-2	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
10/31/01	LF00087	P-3	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
10/31/01	LF00088	P-4	511	Air	<7.0	<0.005	0	<7.87	<0.0059	
10/31/01	LF00089	P-5	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
10/31/01	LF00090	P-6	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
10/31/01	LF00091	P-7	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
10/31/01	LF00092	P-8	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
10/31/01	LF00093	S-9A	0	Air	R	R	R	R	R	
10/31/01	LF00094	S-9B	320	Air	<7.0	<0.003	0	<7.87	<0.0095	
10/31/01	LF00095	S-10A	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
10/31/01	LF00096	S-10B	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
10/31/01	LF00097	W-11	587.3	Air	13.38	0.009	1***	7.87	0.0051	
10/31/01	LF00098	W-12A	317.9	Air	31.65	0.039	1***	7.87	0.0095	
10/31/01	LF00099	W-12B	86.9	Air	<7.0	<0.031	0	<7.87	<0.0349	
10/31/01	LF00100	B-13	610.3	Air	<7.0	<0.004	0	<7.87	<0.0050	
10/31/01	LF00101	B-14	720	Air	<7.0	<0.004	0	<7.87	<0.0047	
10/31/01	LF00102	T-15	720	Air	7.84	0.004	0	<8.75	<0.0047	
10/31/01	LF00103	T-16	720	Air	26.75	0.014	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	
10/31/01	LF00104	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	
10/31/01	LF00105	Trp Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	

COC No. n/a

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- R - Sample rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 nm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/30/01 1201 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>2</sup>	f/cc	Structures (#)	S-f/cc**
10/30/01	RST-00084	Q	720	Air	<7.0	<0.004	0	<0.61
10/30/01	RST-00084	J	720	Air	10.19	0.005	0	<0.0046
10/30/01	RST-00083	L	720	Air	<7.0	<0.004	0	<0.0046
10/30/01	RST-00082	M1	720	Air	<7.0	<0.004	0	<0.0046
10/30/01	RST-00081	N	720	Air	<7.0	<0.004	0	<0.0046
10/30/01	RST-00087	A	720	Air	<7.0	<0.004	0	<0.0046
10/30/01	RST-00088	B	720	Air	11.46	0.005	0	<0.61
10/30/01	RST-00089	C1	720	Air	16.56	0.009	0	<0.61
10/30/01	RST-00090	H	720	Air	20.38	0.011	0	<0.61
10/30/01	RST-00091	I	720	Air	17.83	0.009	0	<0.61
10/30/01	RST-00092	D	720	Air	31.85	0.017	0	<0.0046
10/30/01	RST-00093	K	720	Air	22.93	0.012	0	<0.61
10/30/01	RST-00094	T	720	Air	<7.0	<0.004	0	<0.61
10/30/01	RST-00095	T-Dup	720	Air	<7.0	<0.004	0	<0.61
10/30/01	RST-00096	U	720	Air	<7.0	<0.004	0	<0.61
10/30/01	RST-00097	V	720	Air	7.94	0.004	0	<0.61
10/30/01	RST-00098	S	720	Air	<7.0	<0.004	0	<0.0046
10/30/01	RST-00099	P	720	Air	7.83	0.009	4	34.45
10/30/01	RST-00100	E	720	Air	7.84	0.004	3	23.84
10/30/01	RST-00098	F	720	Air	<7.0	<0.004	0	<0.61
10/30/01	Blank	Trip Blank	0	Air	36.94 (RE <7.0****)	--	NA(2)	NA(2)
10/30/01	Blank	Field Blank	0	Air	<7.0 (RE <7.0****)	n/a	NA(2)	NA(2)
10/30/01	Blank	Lot Blank	0	Air	<7.0 (RE <7.0****)	n/a	NA(2)	NA(2)

ccaf 0009 and 0010

- Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Day St.  
 C: Trinity (a.k.a. Church) & Liberty St.  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park ruc area (north side of Suyvesant High), access to TAGA bus area

- Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysole  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 \*\*\*\* Reanalysis result for blank
- M: Western end of Harrison St. at West St. (on fire next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pine St. (next to waystation c)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Reactor & South End  
 T: Pier 6 Exit 2  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign
- NIOSH 7400: Filter Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/30/01 1201 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S-fiber**	S/mm <sup>2</sup>
10/30/01	RST-00085	Q	720	Air	<7.0	<-0.004	0	0	<-8.61	<-0.0046
10/30/01	RST-00084	J	720	Air	10.19	0.005	0	0	<-8.61	<-0.0046
10/30/01	RST-00083	L	720	Air	<7.0	<-0.004	0	0	<-8.61	<-0.0046
10/30/01	RST-00082	M1	720	Air	<7.0	<-0.004	0	0	<-8.61	<-0.0046
10/30/01	RST-00081	N	720	Air	<7.0	<-0.004	0	0	<-8.61	<-0.0046
10/30/01	RST-00087	A	720	Air	<7.0	<-0.004	0	0	<-8.61	<-0.0046
10/30/01	RST-00088	B	720	Air	11.46	0.006	0	0	<-8.61	<-0.0046
10/30/01	RST-00089	C1	720	Air	16.56	0.009	0	0	<-8.61	<-0.0046
10/30/01	RST-00090	H	720	Air	20.38	0.011	0	0	<-8.61	<-0.0046
10/30/01	RST-00091	I	720	Air	17.83	0.009	0	0	<-8.61	<-0.0046
10/30/01	RST-00092	D	720	Air	31.85	0.017	0	0	<-8.61	<-0.0046
10/30/01	RST-00093	K	720	Air	22.93	0.012	0	0	<-8.61	<-0.0046
10/30/01	RST-00094	T	720	Air	<7.0	<-0.004	0	0	<-8.61	<-0.0046
10/30/01	RST-00095	T-Dup	720	Air	<7.0	<-0.004	0	0	<-8.61	<-0.0046
10/30/01	RST-00096	U	720	Air	<7.0	<-0.004	0	0	<-8.61	<-0.0046
10/30/01	RST-00097	V	720	Air	7.64	0.004	0	0	<-8.61	<-0.0046
10/30/01	RST-00098	S	720	Air	<7.0	<-0.004	0	0	<-8.61	<-0.0046
10/30/01	RST-00099	P	720	Air	17.83	0.009	0	0	34.45	0.0184
10/30/01	RST-00100	E	720	Air	7.64	0.004	0	0	25.84	0.0138
10/30/01	RST-00086	F	720	Air	<7.0	<-0.004	0	0	<-8.61	<-0.0046
10/30/01	Blank	Trip Blank	0	Air	36.94 (RE <7.0****)	-	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
10/30/01	Blank	Field Blank	0	Air	<7.0 (RE <7.0****)	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
10/30/01	Blank	Lct Blank	0	Air	<7.0 (RE <7.0****)	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

coef 00089 and 00010

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

PCM by NIOSH 7400:

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball c)
- P: NE corner of South End Ave. & Albany
- C: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rectory & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Citysource
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(3)</sup> - Not analyzed for TEM
- n/a - Not applicable
- \*\*\*\* Reanalysis result for blank

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-10-30-01pm.xls

RST: 11/5/01



NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/31/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	5µm	5µm	8-fiber**
10/31/01	RST-00103	Q	24	Air	<7.0	<0.112	0	0	7.75	0.1244
10/31/01	RST-00104	J	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
10/31/01	RST-00105	K	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
10/31/01	RST-00106	M	720	Air	19.19	0.004	0	0	<8.61	<0.0046
10/31/01	RST-00107	N	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
10/31/01	RST-00108	A	720	Air	15.29	0.008	0	0	<8.61	<0.0046
10/31/01	RST-00109	B	720	Air	11.46	0.005	0	0	<8.61	<0.0046
10/31/01	RST-00110	C1	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
10/31/01	RST-00111	H	720	Air	8.92	0.005	0	0	<8.61	<0.0046
10/31/01	RST-00112	I	547	Air	<7.0	<0.005	0	0	<8.61	<0.0046
10/31/01	RST-00113	D	720	Air	45.86	0.025	0	0	<8.61	<0.0046
10/31/01	RST-00114	K	720	Air	12.74	0.007	0	0	<8.61	<0.0046
10/31/01	RST-00115	T	720	Air	7.64	0.004	0	0	<8.61	<0.0046
10/31/01	RST-00116	U	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
10/31/01	RST-00117	V	720	Air	20.38	0.011	0	0	<8.61	<0.0046
10/31/01	RST-00118	S	689	Air	<7.0	<0.004	0	0	<8.61	<0.0046
10/31/01	RST-00119	E	720	Air	66.24	0.035	0	0	<8.61	<0.0046
10/31/01	RST-00120	F	720	Air	16.56	0.009	0	0	<8.61	<0.0046
10/31/01	Blank	Tip Blank	0	Air	36.94 (RE <7.0****)	--	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
10/31/01	Blank	Field Blank	0	Air	<7.0 (RE <7.0****)	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
10/31/01	Blank	Lot Blank	0	Air	<7.0 (RE <7.0****)	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

Key:

- \* Sample volume (filters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Not sampled
- \*\*\*\* Reanalysis result for blank

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 9/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 10/31/01 1201 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>2</sup>	f/cc	Structures (#)	S/m <sup>2</sup>
10/31/01	RST-00125	J	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00124	Q	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00121	L	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00122	M1	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00123	N	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00127	A	720	Air	10.19	0.005	0	<8.61
10/31/01	RST-00128	B	720	Air	7.64	0.004	0	<8.61
10/31/01	RST-00129	C1	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00130	H	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00131	I	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00132	D	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00133	K	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00134	T	720	Air	8.82	0.005	0	<8.61
10/31/01	RST-00135	U	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00136	V	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00138	S	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00140	E	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00126	F	720	Air	<7.0	<0.004	0	<8.61
10/31/01	RST-00137	V-DUP	720	Air	<7.0	<0.004	0	<8.61
10/31/01	Blank	Trip Blank	0	Air	n/a	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>
10/31/01	Blank	Field Blank	0	Air	<7.0	<0.004	NA <sup>(2)</sup>	NA <sup>(2)</sup>
10/31/01	Blank	Lot Blank	0	Air	<7.0	<0.004	NA <sup>(2)</sup>	NA <sup>(2)</sup>

0001 00013 and 00014

- Sampling Locations:**
- A: NE corner of Church & Day St.
  - B: SE corner of Church & Day St.
  - C: SW corner of Broadway & Liberty St.
  - D: SE corner of Broadway & Liberty St.
  - E: East end of Albany St. at Church St.
  - F: Western end of Liberty St. at South End Ave
  - G: Northern end of Liberty St. at South End Ave
  - H: Church and Duane St.
  - I: SE corner of Wall St. & Broadway
  - J: SE corner of Warren & West St.
  - K: West St. & Albany in median strip
  - L: On walkway toward North Park rec area (north side of Suyvesant Hlph), access to TAGA bus area

- Key:**
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
  - M1: West St. - 30 yards south of Harrison St. at bulkhead
  - P: NE corner of South End Pkwy. & Albany
  - Q: Barclay & West St. (Center Island) in
  - R: TAGA Bus location
  - S: Reelox & South End
  - T: Pier 6 Helipad
  - U: Pier 6 Exit 2
  - V: Pier 6 Bus Sign

- Key:**
- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
  - \*\* Structure (S) is roughly equivalent to fiber (f)
  - \*\*\* Chrysothile
  - NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
  - NA<sup>(2)</sup> - Not analyzed for TEM
  - n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/01/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/ftm <sup>2</sup>	f/cc	Structures (f)	Structures (f)	S-fiber**	
11/01/01	RST-00146	Q	720	Air	<7.0	<0.004	0	0	<8.61	
11/01/01	RST-00144	J	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	RST-00141	L	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	RST-00142	M1	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	RST-00143	N	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	RST-00147	A	720	Air	8.92	0.005	0	0	<0.0046	
11/01/01	RST-00148	B	720	Air	16.56	0.009	0	0	<0.0046	
11/01/01	RST-00150	C1	720	Air	7.64	0.004	0	0	<0.0046	
11/01/01	RST-00151	I	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	RST-00152	K	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	RST-00153	T	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	RST-00154	U	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	RST-00155	V	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	RST-00156	S	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	RST-00158	P	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	RST-00145	E	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	RST-00157	F	720	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	Blank	S-DUP	0	Air	<7.0	<0.004	0	0	<0.0046	
11/01/01	Blank	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	
11/01/01	Blank	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	
11/01/01	Blank	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	

ccaf 60011 and 60012

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (e.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

Key:

- \* Sample volume (fters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- O: Barclay & West St. (center island) in proximity to USOC command post
- R: TAGA Bus Location
- S: Rector. & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: BRENNAN

U.S. EPA: Norrell

Date: 11-1-01

RST Site Project Manager Brennan

Location	L	R	N			
DataRAM ID No.	2643	2648	2646			
Flow Rate (Liters / Minute)	2 L/min	2 L/min	2 L/min			
Start Time	0720	0730	0745			
Stop Time	1430	1432	1436			
Run Time (Minutes)	430	422	411			
Minimum Concentration (ug/m3)	0.0	0.0	56.5			
Maximum Concentration (ug/m3)	62.5	56.0	72.1			
Average Concentration (TWA) (ug/m3)	37.5	39.2	58.0			

Nov 1, 2001

File name	NYC502	NYC503	NYC504	NYC505	NYC506	NYC507
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient	North Tower	South Tower	Austin Tobin Plaza
Sample Number			No. Park Pier 25	10112	10113	10114
Sample Height			Breathing	Ground	Ground	Breathing
Volume		250 mL		20 mL	20 mL	100 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	5000 ppbv	RL=20 ppbv
Chlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	960 ppbv	RL=50 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	89 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	530 ppbv	530 ppbv	RL=20 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	24 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	340 ppbv	3600 ppbv	192 ppbv
Trichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
MIBK	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	250 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	150 ppbv	380 ppbv	RL=20 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	400 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	9500 ppbv	33 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	220 ppbv	RL=20 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	64 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	94 ppbv	RL=20 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	71 ppbv	RL=20 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110 ppbv	2600 ppbv	17 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	71 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	340 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	130 ppbv	1900 ppbv	RL=20 ppbv
m,p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	130 ppbv	RL=20 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	130 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	773 ppbv	580 ppbv	RL=20 ppbv
Bromocloro	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	71 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	94 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	62 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	87 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED  
 WITH DISCRETION

1120



U.S. Environmental Protection Agency  
Region 2 Laboratory

**Data Report: WTC - Staten Island Landfill**  
**Project Number: 01100025**

Program: B304  
Project Leader: A. CONFORTINI

CodesExplanation

BRESULTS BASED UPON COLONY COUNTS OUTSIDE ACCEPTABLE RANGE

JESTIMATED VALUE

KACTUAL VALUE KNOWN TO BE LESS THAN VALUE GIVEN

LACTUAL VALUE KNOWN TO BE GREATER THAN VALUE GIVEN

NSEE NARRATIVE COMMENTS

VSAMPLE RECEIVED BUT NOT ANALYZED DUE TO LAB ACCIDENT

UREPORTING LIMIT

QDACCURACY CHECK SAMPLE ABOVE UPPER ACCEPTANCE LIMIT

QEACCURACY CHECK SAMPLE BELOW LOWER ACCEPTANCE LIMIT

QFPRECISION OF CALIBRATION CURVE LESS THAN ACCEPTANCE CRITERIA

QJREPORTING LIMIT ESTIMATED DUE TO INTERFERENCE

QGCONTINUING CALIBRATION CHECK DOES NOT MEET ACCEPTANCE CRITERIA

QSSPIKE RECOVERIES ABOVE UPPER ACCEPTANCE LIMIT

QRSPIKE RECOVERIES BELOW LOWER ACCEPTANCE LIMIT

QPSAMPLE REPLICATE PRECISION DOES NOT MEET ACCEPTANCE CRITERIA

QHRECOMMENDED HOLDING TIME EXCEEDED

QTTENTATIVELY IDENTIFIED COMPOUND

QMPRESENCE OF MATERIAL VERIFIED BUT NOT QUANTIFIED

QBBLANK CONTAMINATED WITH ANALYTE IN EXCESS OF ACCEPTANCE CRITERIA

QQSAMPLE IMPROPERLY MAINTAINED



4294967295 of 1  
U.S. EPA Region 2 Laboratory  
Data Report

Survey Name: WTC - Staten Island Landfill  
Project Number: 01100025

AC03636 Field/Station ID: BW-1  
Matrix: Aqueous  
Sample Description: Barge Water  
Analysis Type: METALS TAL ICP AQUEOUS

Coll. Ending Date/Time: 10/22/01 14:10

CAS Number	Analyte Name
007440224	SILVER
007429905	ALUMINUM
007440382	ARSENIC
007440393	BARIUM
007440417	BERYLLIUM
007440702	CALCIUM
007440439	CADMIUM
007440484	COBALT
007440473	CHROMIUM
007440508	COPPER
007439896	IRON
007440097	POTASSIUM
007439954	MAGNESIUM(2852)
007439965	MANGANESE
007440235	SODIUM
007440020	NICKEL
007439921	LEAD
007782492	SELENIUM
007440360	ANTIMONY
007440280	THALLIUM
007440622	VANADIUM
007440666	ZINC

Single Component Analyses

CAS Number	Analyte Name
007439976	MERCURY

Analysis Type: NVOA GCMS AQUEOUS

CAS Number	Analyte Name
000108952	PHENOL
000111444	BIS-2CHLOROETHYL ETHER
000095578	2-CHLOROPHENOL
000541731	1,3-DICHLOROBENZENE
000106467	1,4-DICHLOROBENZENE
000095501	1,2-DICHLOROBENZENE
000100516	BENZYL ALCOHOL
000095487	2-METHYLPHENOL
000108601	BIS-2(CHLOROISOPROPYL)ETHER
000106445	4-METHYLPHENOL
000621647	N-NITROSO-DI-N-PROPYLAMINE
000067721	HEXACHLOROETHANE
000098953	NITROBENZENE
000078591	ISOPHORONE
000088755	2-NITROPHENOL
000105679	2,4-DIMETHYLPHENOL
000111911	BIS(-2-CHLOROETHOXY)METHANE

000120832	2,4-DICHLOROPHENOL
000120821	1,2,4-TRICHLOROBENZENE
000065850	BENZOIC ACID
000106478	4-CHLOROANILINE
000087683	HEXACHLOROBUTADIENE
000059507	4-CHLORO-3-METHYLPHENOL
000077474	HEXACHLOROCYCLOPENTADIENE
000088062	2,4,6-TRICHLOROPHENOL
000095954	2,4,5-TRICHLOROPHENOL
000091587	2-CHLORONAPHTHALENE
000088744	2-NITROANILINE
000131113	DIMETHYL PHTHALATE
000606202	2,6-DINITROTOLUENE
000099092	3-NITROANILINE
000051285	2,4-DINITROPHENOL
000100027	4-NITROPHENOL
000132649	DIBENZOFURAN
000121142	2,4-DINITROTOLUENE
000084662	DIETHYLPHTHALATE
007005723	4-CHLOROPHENYL-PHENYLETHER
000100016	4-NITROANILINE
000534521	4,6-DINITRO-2-METHYLPHENOL
000086306	N-NITROSODIPHENYLAMINE
000103333	DIAZENE,DIPHENYL
000101553	4-BROMOPHENYL-PHENYLETHER
000118741	HEXACHLOROBENZENE
000087865	PENTACHLOROPHENOL
000084742	DI-N-BUTYLPHTHALATE
000085687	BUTYLBENZYLPHTHALATE
000117817	BIS(2-ETHYLHEXYL)PHTHALATE
000117840	DI-N-OCTYL PHTHALATE

## Single Component Analyses

CAS Number	Analyte Name
E-10139	PH

## Analysis Type: PAH GCMS AQUEOUS

CAS Number	Analyte Name
000091203	NAPHTHALENE
000091576	2-METHYLNAPHTHALENE
000090120	1-METHYLNAPHTHALENE
000092524	BIPHENYL
000581420	2,6-DIMETHYLNAPHTHALENE
028652779	2,3,5-TRIMETHYLNAPHTHALENE
000208968	ACENAPHTHYLENE
000083329	ACENAPHTHENE
000086737	FLUORENE
000085018	PHENANTHRENE
000120127	ANTHRACENE
000832699	1-METHYLPHENANTHRENE
000206440	FLUORANTHENE
000129000	PYRENE
000056553	BENZO(A)ANTHRACENE
000218019	CHRYSENE
000205992	BENZO(B)FLUORANTHENE
000207089	BENZO(K)FLUORANTHENE
000198550	PERYLENE
000050328	BENZO(A)PYRENE
000192972	BENZO(E)PYRENE
000193395	INDENO(1,2,3-CD)PYRENE



1123

000053703 DIBENZO(A,H)ANTHRACENE  
000191242 BENZO(G,H,I)PERYLENE

**Project Approval:** \_\_\_\_\_ **Date:** \_\_\_\_\_

4294967295 of 1

NV = Not Validated; Inc = Result not entered

1124

Report Date: 10/31/01 1:33PM

\*Sorted By Sample ID

<u>Result</u>	<u>Units</u>	<u>Remark</u>
6.0	ug/L	U
200	ug/L	U
8.0	ug/L	U
120	ug/L	
5.0	ug/L	U
960,000	ug/L	
4.0	ug/L	U
8.0	ug/L	U
23	ug/L	
720	ug/L	
200	ug/L	U
270,000	ug/L	
1,000	ug/L	U
5.0	ug/L	U
540,000	ug/L	
20	ug/L	
33	ug/L	
17	ug/L	
14	ug/L	U
20	ug/L	U
10	ug/L	U
36	ug/L	QD
		<u>Remark</u>
<u>Result</u>	<u>Units</u>	<u>Codes</u>
0.30	ug/L	U
		<u>Remark</u>
<u>Result</u>	<u>Units</u>	<u>Codes</u>
1,600	ug/L	
63	ug/L	U QR
63	ug/L	U
63	ug/L	U QR
63	ug/L	U QR
63	ug/L	U QR
580	ug/L	
120	ug/L	
63	ug/L	U QR
310	ug/L	QD
63	ug/L	U QR
63	ug/L	U QR
63	ug/L	U QR
63	ug/L	U QR
63	ug/L	U
63	ug/L	U
63	ug/L	U QR



1126

3.8  
3.8

ug/L  
ug/L

U  
U

Report Date: 10/31/01 1:33PM

1127



U.S. Environmental Protection Agency  
Region 2 Laboratory

**Data Report: WTC - Staten Island Landfill**  
**Project Number: 01100011**

Program: B304  
Project Leader: A. CONFORTINI

CodesExplanation

BRESULTS BASED UPON COLONY COUNTS OUTSIDE ACCEPTABLE RANGE  
JESTIMATED VALUE  
KACTUAL VALUE KNOWN TO BE LESS THAN VALUE GIVEN  
LACTUAL VALUE KNOWN TO BE GREATER THAN VALUE GIVEN  
NSEE NARRATIVE COMMENTS  
VSAMPLE RECEIVED BUT NOT ANALYZED DUE TO LAB ACCIDENT  
UREPORTING LIMIT  
  
QDACCURACY CHECK SAMPLE ABOVE UPPER ACCEPTANCE LIMIT  
QEACCURACY CHECK SAMPLE BELOW LOWER ACCEPTANCE LIMIT  
QFPRECISION OF CALIBRATION CURVE LESS THAN ACCEPTANCE CRITERIA  
QJREPORTING LIMIT ESTIMATED DUE TO INTERFERENCE  
QGCONTINUING CALIBRATION CHECK DOES NOT MEET ACCEPTANCE CRITERIA  
QSSPIKE RECOVERIES ABOVE UPPER ACCEPTANCE LIMIT  
QRSPIKE RECOVERIES BELOW LOWER ACCEPTANCE LIMIT  
  
QPSAMPLE REPLICATE PRECISION DOES NOT MEET ACCEPTANCE CRITERIA  
QHRECOMMENDED HOLDING TIME EXCEEDED  
QTTENTATIVELY IDENTIFIED COMPOUND  
QMPRESENCE OF MATERIAL VERIFIED BUT NOT QUANTIFIED  
QBBLANK CONTAMINATED WITH ANALYTE IN EXCESS OF ACCEPTANCE CRITERIA  
QOSAMPLE IMPROPERLY MAINTAINED

1128



4294967295 of 1  
U.S. EPA Region 2 Laboratory  
Data Report

Survey Name: WTC - Staten Island Landfill  
Project Number: 01100011

AC03536 Field/Station ID: VWS - 1  
Matrix: solid  
Sample Description: Vehicle Wash St.  
Analysis Type: NYOA GCMS SOLID

Coll. Ending Date/Time: 10/6/01 11:20

CAS Number	Analyte Name
000108952	PHENOL
000111444	BIS-2CHLOROETHYL ETHER
000095578	2-CHLOROPHENOL
000541731	1,3-DICHLOROBENZENE
000106467	1,4-DICHLOROBENZENE
000095501	1,2-DICHLOROBENZENE
000100516	BENZYL ALCOHOL
000095487	2-METHYLPHENOL
000108601	BIS-2(CHLOROISOPROPYL)ETHER
000106445	4-METHYLPHENOL
000621647	N-NITROSO-DI-N-PROPYLAMINE
000067721	HEXACHLOROETHANE
000098953	NITROBENZENE
000078591	ISOPHORONE
000088755	2-NITROPHENOL
000105679	2,4-DIMETHYLPHENOL
000111911	BIS(-2-CHLOROETHOXY)METHANE
000120832	2,4-DICHLOROPHENOL
000120821	1,2,4-TRICHLOROBENZENE
000065850	BENZOIC ACID
000106478	4-CHLOROANILINE
000087683	HEXACHLOROBUTADIENE
000059507	4-CHLORO-3-METHYLPHENOL
000077474	HEXACHLOROCYCLOPENTADIENE
000088062	2,4,6-TRICHLOROPHENOL
000095954	2,4,5-TRICHLOROPHENOL
000091587	2-CHLORONAPHTHALENE
000088744	2-NITROANILINE
000131113	DIMETHYL PHTHALATE
000606202	2,6-DINITROTOLUENE
000099092	3-NITROANILINE
000051285	2,4-DINITROPHENOL
000100027	4-NITROPHENOL
000132649	DIBENZOFURAN
000121142	2,4-DINITROTOLUENE
000084662	DIETHYLPHTHALATE
007005723	4-CHLOROPHENYL-PHENYLEETHER
000100016	4-NITROANILINE
000534521	4,6-DINITRO-2-METHYLPHENOL
000086306	N-NITROSODIPHENYLAMINE
000103333	DIAZENE,DIPHENYL
000101553	4-BROMOPHENYL-PHENYLEETHER
000118741	HEXACHLOROBENZENE
000087865	PENTACHLOROPHENOL

00084742 DI-N-BUTYLPHTHALATE  
 00085687 BUTYLBENZYLPHTHALATE  
 000117817 BIS(2-ETHYLHEXYL)PHTHALATE  
 000117840 DI-N-OCTYL PHTHALATE

## Analysis Type: METALS TAL ICP SOLID

CAS Number	Analyte Name
007440224	SILVER
007429905	ALUMINUM
007440382	ARSENIC
007440393	BARIUM
007440417	BERYLLIUM
007440702	CALCIUM
007440439	CADMIUM
007440484	COBALT
007440473	CHROMIUM
007440508	COPPER
007439896	IRON(2714)
007440097	POTASSIUM
007439954	MAGNESIUM
007439965	MANGANESE
007440235	SODIUM
007440020	NICKEL
007439921	LEAD
007782492	SELENIUM
007440360	ANTIMONY
007440280	THALLIUM
007440622	VANADIUM
007440666	ZINC

## Single Component Analyses

CAS Number	Analyte Name
007439976	MERCURY

## Analysis Type: PAH GCMS SOLID

CAS Number	Analyte Name
000091203	NAPHTHALENE
000091576	2-METHYLNAPHTHALENE
000090120	1-METHYLNAPHTHALENE
000092524	BIPHENYL
000581420	2,6-DIMETHYLNAPHTHALENE
028652779	2,3,5-TRIMETHYLNAPHTHALENE
000208968	ACENAPHTHYLENE
000083329	ACENAPHTHENE
000086737	FLUORENE
000085018	PHENANTHRENE
000120127	ANTHRACENE
000832699	1-METHYLPHENANTHRENE
000206440	FLUORANTHENE
000129000	PYRENE
000056553	BENZO(A)ANTHRACENE
000218019	CHRYSENE
000205992	BENZO(B)FLUORANTHENE
000207089	BENZO(K)FLUORANTHENE
000198550	PERYLENE
000050328	BENZO(A)PYRENE
000192972	BENZO(E)PYRENE
000193395	INDENO(1,2,3-CD)PYRENE
000053703	DIBENZO(A,H)ANTHRACENE
000191242	BENZO(G,H,I)PERYLENE

AC03537 Field/Station ID: VWS - 2

Coll. Ending Date/Time: 10/6/01 11:30

Matrix: solid

Sample Description: Vehicle Wash St.

Analysis Type: NVOA GCMS SOLID

CAS Number	Analyte Name
000108952	PHENOL
000111444	BIS-2CHLOROETHYL ETHER
000095578	2-CHLOROPHENOL
000541731	1,3-DICHLOROBENZENE
000106467	1,4-DICHLOROBENZENE
000095501	1,2-DICHLOROBENZENE
000100516	BENZYL ALCOHOL
000095487	2-METHYLPHENOL
000108601	BIS-(2-CHLOROISOPROPYL)ETHER
000106445	4-METHYLPHENOL
000621647	N-NITROSO-DI-N-PROPYLAMINE
000067721	HEXACHLOROETHANE
000098953	NITROBENZENE
000078591	ISOPHORONE
000088755	2-NITROPHENOL
000105679	2,4-DIMETHYLPHENOL
000111911	BIS-(2-CHLOROETHOXY)METHANE
000120832	2,4-DICHLOROPHENOL
000120821	1,2,4-TRICHLOROBENZENE
000065850	BENZOIC ACID
000106478	4-CHLOROANILINE
000087683	HEXACHLOROBUTADIENE
000059507	4-CHLORO-3-METHYLPHENOL
000077474	HEXACHLOROCYCLOPENTADIENE
000088062	2,4,6-TRICHLOROPHENOL
000095954	2,4,5-TRICHLOROPHENOL
000091587	2-CHLORONAPHTHALENE
000088744	2-NITROANILINE
000131113	DIMETHYL PHTHALATE
000606202	2,6-DINITROTOLUENE
000099092	3-NITROANILINE
000051285	2,4-DINITROPHENOL
000100027	4-NITROPHENOL
000132649	DIBENZOFURAN
000121142	2,4-DINITROTOLUENE
000084662	DIETHYLPHTHALATE
007005723	4-CHLOROPHENYL-PHENYLEETHER
000100016	4-NITROANILINE
000534521	4,6-DINITRO-2-METHYLPHENOL
000086306	N-NITROSODIPHENYLAMINE
000103333	DIAZENE, DIPHENYL
000101553	4-BROMOPHENYL-PHENYLEETHER
000118741	HEXACHLOROBENZENE
000087865	PENTACHLOROPHENOL
000084742	DI-N-BUTYLPHTHALATE
000085687	BUTYLBENZYLPHTHALATE
000117817	BIS(2-ETHYLHEXYL)PHTHALATE
000117840	DI-N-OCTYL PHTHALATE

Analysis Type: METALS TAL ICP SOLID

CAS Number	Analyte Name
007440224	SILVER
007429905	ALUMINUM
007440382	ARSENIC
007440393	BARIUM



007440417	BERYLLIUM
007440702	CALCIUM
007440439	CADMIUM
007440484	COBALT
007440473	CHROMIUM
007440508	COPPER
007439896	IRON(2714)
007440097	POTASSIUM
007439954	MAGNESIUM
007439965	MANGANESE
007440235	SODIUM
007440020	NICKEL
007439921	LEAD
007782492	SELENIUM
007440360	ANTIMONY
007440280	THALLIUM
007440622	VANADIUM
007440666	ZINC

## Single Component Analyses

CAS Number	Analyte Name
007439976	MERCURY

## Analysis Type: PAH GCMS SOLID

CAS Number	Analyte Name
000091203	NAPHTHALENE
000091576	2-METHYLNAPHTHALENE
000090120	1-METHYLNAPHTHALENE
000092524	BIPHENYL
000581420	2,6-DIMETHYLNAPHTHALENE
028652779	2,3,5-TRIMETHYLNAPHTHALENE
000208968	ACENAPHTHYLENE
000083329	ACENAPHTHENE
000086737	FLUORENE
000085018	PHENANTHRENE
000120127	ANTHRACENE
000832699	1-METHYLPHENANTHRENE
000206440	FLUORANTHENE
000129000	PYRENE
000056553	BENZO(A)ANTHRACENE
000218019	CHRYSENE
000205992	BENZO(B)FLUORANTHENE
000207089	BENZO(K)FLUORANTHENE
000198550	PERYLENE
000050328	BENZO(A)PYRENE
000192972	BENZO(E)PYRENE
000193395	INDENO(1,2,3-CD)PYRENE
000053703	DIBENZO(A,H)ANTHRACENE
000191242	BENZO(G,H,I)PERYLENE

AC03538 Field/Station ID: VWS - 3

Coll. Ending Date/Time: 10/6/01 12:00

Matrix: solid

Sample Description: Vehicle Wash St.

## Analysis Type: NVOA GCMS SOLID

CAS Number	Analyte Name
000108952	PHENOL
000111444	BIS-2CHLOROETHYL ETHER
000095578	2-CHLOROPHENOL
000541731	1,3-DICHLOROBENZENE
000106467	1,4-DICHLOROBENZENE
000095501	1,2-DICHLOROBENZENE

000100516	BENZYL ALCOHOL
000095487	2-METHYLPHENOL
000108601	BIS-(2-CHLOROISOPROPYL)ETHER
000106445	4-METHYLPHENOL
000621647	N-NITROSO-DI-N-PROPYLAMINE
000067721	HEXACHLOROETHANE
000098953	NITROBENZENE
000078591	ISOPHORONE
000088755	2-NITROPHENOL
000105679	2,4-DIMETHYLPHENOL
000111911	BIS-(2-CHLOROETHOXY)METHANE
000120832	2,4-DICHLOROPHENOL
000120821	1,2,4-TRICHLOROBENZENE
000065850	BENZOIC ACID
000106478	4-CHLOROANILINE
000087683	HEXACHLOROBUTADIENE
000059507	4-CHLORO-3-METHYLPHENOL
000077474	HEXACHLOROCYCLOPENTADIENE
000088062	2,4,6-TRICHLOROPHENOL
000095954	2,4,5-TRICHLOROPHENOL
000091587	2-CHLORONAPHTHALENE
000088744	2-NITROANILINE
000131113	DIMETHYL PHTHALATE
000606202	2,6-DINITROTOLUENE
000099092	3-NITROANILINE
000051285	2,4-DINITROPHENOL
000100027	4-NITROPHENOL
000132649	DIBENZOFURAN
000121142	2,4-DINITROTOLUENE
000084662	DIETHYLPHTHALATE
007005723	4-CHLOROPHENYL-PHENYLEETHER
000100016	4-NITROANILINE
000534521	4,6-DINITRO-2-METHYLPHENOL
000086306	N-NITROSODIPHENYLAMINE
000103333	DIAZENE,DIPHENYL
000101553	4-BROMOPHENYL-PHENYLEETHER
000118741	HEXACHLOROBENZENE
000087865	PENTACHLOROPHENOL
000084742	DI-N-BUTYLPHTHALATE
000085687	BÜTYLBENZYLPHTHALATE
000117817	BIS(2-ETHYLHEXYL)PHTHALATE
000117840	DI-N-OCTYL PHTHALATE

## Analysis Type: METALS TAL ICP SOLID

CAS Number	Analyte Name
007440224	SILVER
007429905	ALUMINUM
007440382	ARSENIC
007440393	BARIUM
007440417	BERYLLIUM
007440702	CALCIUM
007440439	CADMIUM
007440484	COBALT
007440473	CHROMIUM
007440508	COPPER
007439896	IRON(2714)
007440097	POTASSIUM
007439954	MAGNESIUM
007439965	MANGANESE

007440235	SODIUM
007440020	NICKEL
007439921	LEAD
007782492	SELENIUM
007440360	ANTIMONY
007440280	THALLIUM
007440622	VANADIUM
007440666	ZINC

## Single Component Analyses

CAS Number	Analyte Name
007439976	MERCURY

## Analysis Type: PAH GCMS SOLID

CAS Number	Analyte Name
000091203	NAPHTHALENE
000091576	2-METHYLNAPHTHALENE
000090120	1-METHYLNAPHTHALENE
000092524	BIPHENYL
000581420	2,6-DIMETHYLNAPHTHALENE
028652779	2,3,5-TRIMETHYLNAPHTHALENE
000208968	ACENAPHTHYLENE
000083329	ACENAPHTHENE
000086737	FLUORENE
006085018	PHENANTHRENE
000120127	ANTHRACENE
000832699	1-METHYLPHENANTHRENE
000206440	FLUORANTHENE
000129000	PYRENE
000056553	BENZO(A)ANTHRACENE
000218019	CHRYSENE
000205992	BENZO(B)FLUORANTHENE
000207089	BENZO(K)FLUORANTHENE
000198550	PERYLENE
000050328	BENZO(A)PYRENE
000192972	BENZO(E)PYRENE
000193395	INDENO(1,2,3-CD)PYRENE
000053703	DIBENZO(A,H)ANTHRACENE
000191242	BENZO(G,H,I)PERYLENE

Field/Station ID: VWS - 4

Coll. Ending Date/Time: 10/6/01 12:30

Matrix: solid

Sample Description: Vehicle Wash St.

## Analysis Type: NVOA GCMS SOLID

CAS Number	Analyte Name
000108952	PHENOL
000111444	BIS-2CHLOROETHYL ETHER
000095578	2-CHLOROPHENOL
000541731	1,3-DICHLOROBENZENE
000106467	1,4-DICHLOROBENZENE
000095501	1,2-DICHLOROBENZENE
000100516	BENZYL ALCOHOL
000095487	2-METHYLPHENOL
000108601	BIS-2(CHLOROISOPROPYL)ETHER
000106445	4-METHYLPHENOL
000621647	N-NITROSO-DI-N-PROPYLAMINE
000067721	HEXACHLOROETHANE
000098953	NITROBENZENE
000078591	ISOPHORONE
000088755	2-NITROPHENOL
000105679	2,4-DIMETHYLPHENOL

00011911	BIS(-2-CHLOROETHOXY)METHANE
000120821	2,4-DICHLOROPHENOL
000065850	1,2,4-TRICHLOROBENZENE
000106478	BENZOIC ACID
000087683	4-CHLOROANILINE
000059507	HEXACHLOROBUTADIENE
000077474	4-CHLORO-3-METHYLPHENOL
000088062	HEXACHLOROCYCLOPENTADIENE
000095954	2,4,6-TRICHLOROPHENOL
000091587	2,4,5-TRICHLOROPHENOL
000088744	2-CHLORONAPHTHALENE
000131113	2-NITROANILINE
000606202	DIMETHYL PHTHALATE
000099092	2,6-DINITROTOLUENE
000051285	3-NITROANILINE
000100027	2,4-DINITROPHENOL
000132649	4-NITROPHENOL
000121142	DIBENZOFURAN
000084662	2,4-DINITROTOLUENE
007005723	DIETHYLPHTHALATE
000100016	4-CHLOROPHENYL-PHENYLETHER
000534521	4-NITROANILINE
000086306	4,6-DINITRO-2-METHYLPHENOL
000103333	N-NITROSODIPHENYLAMINE
000101553	DIAZENE,DIPHENYL
000118741	4-BROMOPHENYL-PHENYLETHER
000087865	HEXACHLOROBENZENE
000084742	PENTACHLOROPHENOL
000085687	DI-N-BUTYLPHTHALATE
000117817	BUTYLBENZYLPHTHALATE
000117840	BIS(2-ETHYLHEXYL)PHTHALATE
	DI-N-OCTYL PHTHALATE

## Analysis Type: METALS TAL ICP SOLID

CAS Number	Analyte Name
007440224	SILVER
007429905	ALUMINUM
007440382	ARSENIC
007440393	BARIUM
007440417	BERYLLIUM
007440702	CALCIUM
007440439	CADMIUM
007440484	COBALT
007440473	CHROMIUM
007440508	COPPER
007439896	IRON(2714)
007440097	POTASSIUM
007439954	MAGNESIUM
007439965	MANGANESE
007440235	SODIUM
007440020	NICKEL
007439921	LEAD
007782492	SELENIUM
007440360	ANTIMONY
007440280	THALLIUM
007440622	VANADIUM
007440666	ZINC

## Single Component Analyses

CAS Number	Analyte Name
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007439976 MERCURY	
<b>Analysis Type: PAH GCMS SOLID</b>	
CAS Number	Analyte Name
000091203	NAPHTHALENE
000091576	2-METHYLNAPHTHALENE
000090120	1-METHYLNAPHTHALENE
000092524	BIPHENYL
000581420	2,6-DIMETHYLNAPHTHALENE
028652779	2,3,5-TRIMETHYLNAPHTHALENE
000208968	ACENAPHTHYLENE
000083329	ACENAPHTHENE
000086737	FLUORENE
000085018	PHENANTHRENE
000120127	ANTHRACENE
000832699	1-METHYLPHENANTHRENE
000206440	FLUORANTHENE
000129000	PYRENE
000056553	BENZO(A)ANTHRACENE
000218019	CHRYSENE
000205992	BENZO(B)FLUORANTHENE
000207089	BENZO(K)FLUORANTHENE
000198550	PERYLENE
000050328	BENZO(A)PYRENE
000192972	BENZO(E)PYRENE
000193395	INDENO(1,2,3-CD)PYRENE
000053703	DIBENZO(A,H)ANTHRACENE
000191242	BENZO(G,H,I)PERYLENE
AC03540	Field/Station ID: VWS - 5
	Matrix: solid
	Sample Description: Vehicle Wash St.
<b>Analysis Type: NVOA GCMS SOLID</b>	
CAS Number	Analyte Name
000108952	PHENOL
000111444	BIS-2CHLOROETHYL ETHER
000095578	2-CHLOROPHENOL
000541731	1,3-DICHLOROBENZENE
000106467	1,4-DICHLOROBENZENE
000095501	1,2-DICHLOROBENZENE
000100516	BENZYL ALCOHOL
000095487	2-METHYLPHENOL
000108601	BIS-2(CHLOROISOPROPYL)ETHER
000106445	4-METHYLPHENOL
000621647	N-NITROSO-DI-N-PROPYLAMINE
000067721	HEXACHLOROETHANE
000098953	NITROBENZENE
000078591	ISOPHORONE
000088755	2-NITROPHENOL
000105679	2,4-DIMETHYLPHENOL
000111911	BIS-(2-CHLOROETHOXY)METHANE
000120832	2,4-DICHLOROPHENOL
000120821	1,2,4-TRICHLOROBENZENE
000065850	BENZOIC ACID
000106478	4-CHLOROANILINE
000087683	HEXACHLOROBUTADIENE
000059507	4-CHLORO-3-METHYLPHENOL
000077474	HEXACHLOROCYCLOPENTADIENE
000088062	2,4,6-TRICHLOROPHENOL
000095954	2,4,5-TRICHLOROPHENOL

Coll. Ending Date/Time: 10/6/01 12:15

000091587	2-CHLORONAPHTHALENE
000088744	2-NITROANILINE
000131113	DIMETHYL PHTHALATE
000606202	2,6-DINITROTOLUENE
000099092	3-NITROANILINE
000051285	2,4-DINITROPHENOL
000100027	4-NITROPHENOL
000132649	DIBENZOFURAN
000121142	2,4-DINITROTOLUENE
000084662	DIETHYLPHTHALATE
007005723	4-CHLOROPHENYL-PHENYLETHER
000100016	4-NITROANILINE
000534521	4,6-DINITRO-2-METHYLPHENOL
000086306	N-NITROSODIPHENYLAMINE
000103333	DIAZENE,DIPHENYL
000101553	4-BROMOPHENYL-PHENYLETHER
000118741	HEXACHLOROBENZENE
000087865	PENTACHLOROPHENOL
000084742	DI-N-BUTYLPHTHALATE
000085687	BUTYLBENZYLPHTHALATE
000117817	BIS(2-ETHYLHEXYL)PHTHALATE
000117840	DI-N-OCTYL PHTHALATE

## Analysis Type: METALS TAL ICP SOLID

CAS Number	Analyte Name
007440224	SILVER
007429905	ALUMINUM
007440382	ARSENIC
007440393	BARIUM
007440417	BERYLLIUM
007440702	CALCIUM
007440439	CADMIUM
007440484	COBALT
007440473	CHROMIUM
007440508	COPPER
007439896	IRON(2714)
007440097	POTASSIUM
007439954	MAGNESIUM
007439965	MANGANESE
007440235	SODIUM
007440020	NICKEL
007439921	LEAD
007782492	SELENIUM
007440360	ANTIMONY
007440280	THALLIUM
007440622	VANADIUM
007440666	ZINC

## Single Component Analyses

CAS Number	Analyte Name
007439976	MERCURY

## Analysis Type: PAH GCMS SOLID

CAS Number	Analyte Name
000091203	NAPHTHALENE
000091576	2-METHYLNAPHTHALENE
000090120	1-METHYLNAPHTHALENE
000092524	BIPHENYL
000581420	2,6-DIMETHYLNAPHTHALENE
028652779	2,3,5-TRIMETHYLNAPHTHALENE
000208968	ACENAPHTHYLENE

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000083329	ACENAPHTHENE
000086737	FLUORENE
000085018	PHENANTHRENE
000120127	ANTHRACENE
000832699	1-METHYLPHENANTHRENE
000206440	FLUORANTHENE
000129000	PYRENE
000056553	BENZO(A)ANTHRACENE
000218019	CHRYSENE
000205992	BENZO(B)FLUORANTHENE
000207089	BENZO(K)FLUORANTHENE
000198550	PERYLENE
000050328	BENZO(A)PYRENE
000192972	BENZO(E)PYRENE
000193395	INDENO(1,2,3-CD)PYRENE
000053703	DIBENZO(A,H)ANTHRACENE
000191242	BENZO(G,H,I)PERYLENE

AC03541 Field/Station ID: VWS - 6

Coll. Ending Date/Time: 10/6/01 11:40

Matrix: solid

Sample Description: Vehicle Wash St.

Analysis Type: NVOA GCMS SOLID

CAS Number	Analyte Name
000108952	PHENOL
000114444	BIS-2CHLOROETHYL ETHER
000095578	2-CHLOROPHENOL
000541731	1,3-DICHLOROBENZENE
000106467	1,4-DICHLOROBENZENE
000095501	1,2-DICHLOROBENZENE
000100516	BENZYL ALCOHOL
000095487	2-METHYLPHENOL
000108601	BIS-2(CHLOROISOPROPYL)ETHER
000106445	4-METHYLPHENOL
000621647	N-NITROSO-DI-N-PROPYLAMINE
000067721	HEXACHLOROETHANE
000098953	NITROBENZENE
000078591	ISOPHORONE
000088755	2-NITROPHENOL
000105679	2,4-DIMETHYLPHENOL
000111911	BIS-(2-CHLOROETHOXY)METHANE
000120832	2,4-DICHLOROPHENOL
000120821	1,2,4-TRICHLOROBENZENE
000065850	BENZOIC ACID
000106478	4-CHLOROANILINE
000087683	HEXACHLOROBUTADIENE
000059507	4-CHLORO-3-METHYLPHENOL
000077474	HEXACHLOROCYCLOPENTADIENE
000088062	2,4,6-TRICHLOROPHENOL
000095954	2,4,5-TRICHLOROPHENOL
000091587	2-CHLORONAPHTHALENE
000088744	2-NITROANILINE
000131113	DIMETHYL PHTHALATE
000606202	2,6-DINITROTOLUENE
000099092	3-NITROANILINE
000051285	2,4-DINITROPHENOL
000100027	4-NITROPHENOL
000132649	DIBENZOFURAN
000121142	2,4-DINITROTOLUENE
000084662	DIETHYLPHTHALATE

007005723	4-CHLOROPHENYL-PHENYLETHER
000100016	4-NITROANILINE
000534521	4,6-DINITRO-2-METHYLPHENOL
000086306	N-NITROSODIPHENYLAMINE
000103333	DIAZENE,DIPHENYL
000101553	4-BROMOPHENYL-PHENYLETHER
000118741	HEXACHLOROBENZENE
000087865	PENTACHLOROPHENOL
000084742	DI-N-BUTYLPHTHALATE
000085687	BUTYLBENZYLPHTHALATE
000117817	BIS(2-ETHYLHEXYL)PHTHALATE
000117840	DI-N-OCTYL PHTHALATE

**Analysis Type: METALS TAL ICP SOLID**

<u>CAS Number</u>	<u>Analyte Name</u>
007440224	SILVER
007429905	ALUMINUM
007440382	ARSENIC
007440393	BARIUM
007440417	BERYLLIUM
007440702	CALCIUM
007440439	CADMIUM
007440484	COBALT
007440473	CHROMIUM
007440508	COPPER
007439896	IRON(2714)
007440097	POTASSIUM
007439954	MAGNESIUM
007439965	MANGANESE
007440235	SODIUM
007440020	NICKEL
007439921	LEAD
007782492	SELENIUM
007440360	ANTIMONY
007440280	THALLIUM
007440622	VANADIUM
007440666	ZINC

**Single Component Analyses**

<u>CAS Number</u>	<u>Analyte Name</u>
007439976	MERCURY

**Analysis Type: PAH GCMS SOLID**

<u>CAS Number</u>	<u>Analyte Name</u>
000091203	NAPHTHALENE
000091576	2-METHYLNAPHTHALENE
000090120	1-METHYLNAPHTHALENE
000092524	BIPHENYL
000581420	2,6-DIMETHYLNAPHTHALENE
028652779	2,3,5-TRIMETHYLNAPHTHALENE
000208968	ACENAPHTHYLENE
000083329	ACENAPHTHENE
000086737	FLUORENE
000085018	PHENANTHRENE
000120127	ANTHRACENE
000832699	1-METHYLPHENANTHRENE
000206440	FLUORANTHENE
000129000	PYRENE
000056553	BENZO(A)ANTHRACENE
000218019	CHRYSENE
000205992	BENZO(B)FLUORANTHENE



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000207089 BENZO(K)FLUORANTHENE  
000198550 PERYLENE  
000050328 BENZO(A)PYRENE  
000192972 BENZO(E)PYRENE  
000193395 INDENO(1,2,3-CD)PYRENE  
000053703 DIBENZO(A,H)ANTHRACENE  
000191242 BENZO(G,H,I)PERYLENE

AC03542 Field/Station ID: MPHS - BW

Coll. Ending Date/Time: 10/11/01 08:00

Matrix: Aqueous

Sample Description: Main PHS

Analysis Type: NVOA GCMS AQUEOUS

CAS Number	Analyte Name
000108952	PHENOL
00011444	BIS-2CHLOROETHYL ETHER
000095578	2-CHLOROPHENOL
000541731	1,3-DICHLOROBENZENE
000106467	1,4-DICHLOROBENZENE
000095501	1,2-DICHLOROBENZENE
000100516	BENZYL ALCOHOL
000095487	2-METHYLPHENOL
000108601	BIS-2(CHLOROISOPROPYL)ETHER
000106445	4-METHYLPHENOL
000621647	N-NITROSO-DI-N-PROPYLAMINE
000067721	HEXACHLOROETHANE
000098953	NITROBENZENE
000078591	ISOPHORONE
000088755	2-NITROPHENOL
000105679	2,4-DIMETHYLPHENOL
000111911	BIS(-2-CHLOROETHOXY)METHANE
000120832	2,4-DICHLOROPHENOL
000120821	1,2,4-TRICHLOROBENZENE
000065850	BENZOIC ACID
000106478	4-CHLOROANILINE
000087683	HEXACHLOROBUTADIENE
000059507	4-CHLORO-3-METHYLPHENOL
000077474	HEXACHLOROCYCLOPENTADIENE
000088062	2,4,6-TRICHLOROPHENOL
000095954	2,4,5-TRICHLOROPHENOL
000091587	2-CHLORONAPHTHALENE
000088744	2-NITROANILINE
000131113	DIMETHYL PHTHALATE
000606202	2,6-DINITROTOLUENE
000099092	3-NITROANILINE
000051285	2,4-DINITROPHENOL
000100027	4-NITROPHENOL
000132649	DIBENZOFURAN
000121142	2,4-DINITROTOLUENE
000084662	DIETHYLPHTHALATE
007005723	4-CHLOROPHENYL-PHENYLEETHER
000100016	4-NITROANILINE
000534521	4,6-DINITRO-2-METHYLPHENOL
000086306	N-NITROSODIPHENYLAMINE
000103333	DIAZENE,DIPHENYL
000101553	4-BROMOPHENYL-PHENYLEETHER
000118741	HEXACHLOROBENZENE
000087865	PENTACHLOROPHENOL
000084742	DI-N-BUTYLPHTHALATE
000085687	BUTYLBENZYLPHTHALATE

000117817	BIS(2-ETHYLHEXYL)PHTHALATE
000117840	DI-N-OCTYL PHTHALATE
<b>Analysis Type: METALS TAL ICP AQUEOUS</b>	
<b>CAS Number</b>	<b>Analyte Name</b>
007440224	SILVER
007429905	ALUMINUM
007440382	ARSENIC
007440393	BARIUM
007440417	BERYLLIUM
007440702	CALCIUM
007440439	CADMIUM
007440484	COBALT
007440473	CHROMIUM
007440508	COPPER
007439896	IRON(2714)
007440097	POTASSIUM
007439954	MAGNESIUM
007439965	MANGANESE
007440235	SODIUM
007440020	NICKEL
007439921	LEAD
007782492	SELENIUM
007440360	ANTIMONY
007440280	THALLIUM
007440622	VANADIUM
007440666	ZINC
<b>Single Component Analyses</b>	
<b>CAS Number</b>	<b>Analyte Name</b>
007439976	MERCURY
<b>Analysis Type: PAH GCMS AQUEOUS</b>	
<b>CAS Number</b>	<b>Analyte Name</b>
000091203	NAPHTHALENE
000091576	2-METHYLNAPHTHALENE
000090120	1-METHYLNAPHTHALENE
000092524	BIPHENYL
000581420	2,6-DIMETHYLNAPHTHALENE
028652779	2,3,5-TRIMETHYLNAPHTHALENE
000208968	ACENAPHTHYLENE
000083329	ACENAPHTHENE
000086737	FLUORENE
000085018	PHENANTHRENE
000120127	ANTHRACENE
000832699	1-METHYLPHENANTHRENE
000206440	FLUORANTHENE
000129000	PYRENE
000056553	BENZO(A)ANTHRACENE
000218019	CHRYSENE
000205992	BENZO(B)FLUORANTHENE
000207089	BENZO(K)FLUORANTHENE
000198550	PERYLENE
000050328	BENZO(A)PYRENE
000192972	BENZO(E)PYRENE
000193395	INDENO(1,2,3-CD)PYRENE
000053703	DIBENZO(A,H)ANTHRACENE
000191242	BENZO(G,H,I)PERYLENE
AC03543	Field/Station ID: B7PHS - BW
	Matrix: Aqueous
	Sample Description: BLDG 7 PHS
	Coll. Ending Date/Time: 10/11/01 09:15

## Analysis Type: NVOA GCMS AQUEOUS

CAS Number	Analyte Name
000108952	PHENOL
000111444	BIS-2CHLOROETHYL ETHER
000095578	2-CHLOROPHENOL
000541731	1,3-DICHLOROBENZENE
000106467	1,4-DICHLOROBENZENE
000095501	1,2-DICHLOROBENZENE
000100516	BENZYL ALCOHOL
000095487	2-METHYLPHENOL
000108601	BIS-(2-CHLOROISOPROPYL)ETHER
000106445	4-METHYLPHENOL
000621647	N-NITROSO-DI-N-PROPYLAMINE
000067721	HEXACHLOROETHANE
000098953	NITROBENZENE
000078591	ISOPHORONE
000088755	2-NITROPHENOL
000105679	2,4-DIMETHYLPHENOL
000111911	BIS-(2-CHLOROETHOXY)METHANE
000120832	2,4-DICHLOROPHENOL
000120821	1,2,4-TRICHLOROBENZENE
000065850	BENZOIC ACID
000106478	4-CHLOROANILINE
000087683	HEXACHLOROBUTADIENE
000059507	4-CHLORO-3-METHYLPHENOL
000077474	HEXACHLOROCYCLOPENTADIENE
000088062	2,4,6-TRICHLOROPHENOL
000095954	2,4,5-TRICHLOROPHENOL
000091587	2-CHLORONAPHTHALENE
000088744	2-NITROANILINE
000131113	DIMETHYL PHTHALATE
000606202	2,6-DINITROTOLUENE
000099092	3-NITROANILINE
000051285	2,4-DINITROPHENOL
000100027	4-NITROPHENOL
000132649	DIBENZOFURAN
000121142	2,4-DINITROTOLUENE
000084662	DIETHYLPHTHALATE
007005723	4-CHLOROPHENYL-PHENYLEETHER
000100016	4-NITROANILINE
000534521	4,6-DINITRO-2-METHYLPHENOL
000086306	N-NITROSODIPHENYLAMINE
000103333	DIAZENE, DIPHENYL
000101553	4-BROMOPHENYL-PHENYLEETHER
000118741	HEXACHLOROBENZENE
000087865	PENTACHLOROPHENOL
000084742	DI-N-BUTYLPHTHALATE
000085687	BUTYLBENZYLPHTHALATE
000117817	BIS(2-ETHYLHEXYL)PHTHALATE
000117840	DI-N-OCTYL PHTHALATE

## Analysis Type: METALS TAL ICP AQUEOUS

CAS Number	Analyte Name
007440224	SILVER
007429905	ALUMINUM
007440382	ARSENIC
007440393	BARIUM
007440417	BERYLLIUM
007440702	CALCIUM

007440439	CADMIUM
007440484	COBALT
007440473	CHROMIUM
007440508	COPPER
007439896	IRON
007440097	POTASSIUM
007439954	MAGNESIUM
007439965	MANGANESE
007440235	SODIUM
007440020	NICKEL
007439921	LEAD
007782492	SELENIUM
007440360	ANTIMONY
007440280	THALLIUM
007440622	VANADIUM
007440666	ZINC

## Single Component Analyses

CAS Number	Analyte Name
007439976	MERCURY

## Analysis Type: PAH GCMS AQUEOUS

CAS Number	Analyte Name
000091203	NAPHTHALENE
000091576	2-METHYLNAPHTHALENE
000090120	1-METHYLNAPHTHALENE
000092524	BIPHENYL
000581420	2,6-DIMETHYLNAPHTHALENE
028652779	2,3,5-TRIMETHYLNAPHTHALENE
000208968	ACENAPHTHYLENE
000083329	ACENAPHTHENE
000086737	FLUORENE
000085018	PHENANTHRENE
000120127	ANTHRACENE
000832699	1-METHYLPHENANTHRENE
000206440	FLUORANTHENE
000129000	PYRENE
000056553	BENZO(A)ANTHRACENE
000218019	CHRYSENE
000205992	BENZO(B)FLUORANTHENE
000207089	BENZO(K)FLUORANTHENE
000198550	PERYLENE
000050328	BENZO(A)PYRENE
000192972	BENZO(E)PYRENE
000193395	INDENO(1,2,3-CD)PYRENE
000053703	DIBENZO(A,H)ANTHRACENE
000191242	BENZO(G,H,I)PERYLENE

Field/Station ID: VWS - WW

Coll. Ending Date/Time: 10/11/01 09:45

Matrix: Aqueous

Sample Description: VWS

## Analysis Type: NVOA GCMS AQUEOUS

CAS Number	Analyte Name
000108952	PHENOL
000111444	BIS-2CHLOROETHYL ETHER
000095578	2-CHLOROPHENOL
000541731	1,3-DICHLOROBENZENE
000106467	1,4-DICHLOROBENZENE
000095501	1,2-DICHLOROBENZENE
000100516	BENZYL ALCOHOL
000095487	2-METHYLPHENOL

000108601	BIS-2(CHLOROISOPROPYL)ETHER
000106445	4-METHYLPHENOL
000621647	N-NITROSO-DI-N-PROPYLAMINE
000067721	HEXACHLOROETHANE
000098953	NITROBENZENE
000078591	ISOPHORONE
000088755	2-NITROPHENOL
000105679	2,4-DIMETHYLPHENOL
000111911	BIS(-2-CHLOROETHOXY)METHANE
000120832	2,4-DICHLOROPHENOL
000120821	1,2,4-TRICHLOROENZENE
000065850	BENZOIC ACID
000106478	4-CHLOROANILINE
000087683	HEXACHLOROBUTADIENE
000059507	4-CHLORO-3-METHYLPHENOL
000077474	HEXACHLOROCYCLOPENTADIENE
000088062	2,4,6-TRICHLOROPHENOL
000095954	2,4,5-TRICHLOROPHENOL
000091587	2-CHLORONAPHTHALENE
000088744	2-NITROANILINE
000131113	DIMETHYL PHTHALATE
000606202	2,6-DINITROTOLUENE
000099092	3-NITROANILINE
000051285	2,4-DINITROPHENOL
000100027	4-NITROPHENOL
000132649	DIBENZOFURAN
000121142	2,4-DINITROTOLUENE
000084662	DIETHYLPHTHALATE
007005723	4-CHLOROPHENYL-PHENYLETHER
000100016	4-NITROANILINE
000534521	4,6-DINITRO-2-METHYLPHENOL
000086306	N-NITROSODIPHENYLAMINE
000103333	DIAZENE,DIPHENYL
000101553	4-BROMOPHENYL-PHENYLETHER
000118741	HEXACHLOROBENZENE
000087865	PENTACHLOROPHENOL
000084742	DI-N-BUTYLPHTHALATE
000085687	BUTYLBENZYLPHTHALATE
000117817	BIS(2-ETHYLHEXYL)PHTHALATE
000117840	DI-N-OCTYL PHTHALATE

Analysis Type: METALS TAL ICP AQUEOUS

CAS Number	Analyte Name
007440224	SILVER
007429905	ALUMINUM
007440382	ARSENIC
007440393	BARIUM
007440417	BERYLLIUM
007440702	CALCIUM
007440439	CADMIUM
007440484	COBALT
007440473	CHROMIUM
007440508	COPPER
007439896	IRON(2714)
007440097	POTASSIUM
007439954	MAGNESIUM
007439965	MANGANESE
007440235	SODIUM
007440020	NICKEL

007439921	LEAD
007782492	SELENIUM
007440360	ANTIMONY
007440280	THALLIUM
007440622	VANADIUM
007440666	ZINC

## Single Component Analyses

CAS Number	Analyte Name
007439976	MERCURY

## Analysis Type: PAH GCMS AQUEOUS

CAS Number	Analyte Name
000091203	NAPHTHALENE
000091576	2-METHYLNAPHTHALENE
000090120	1-METHYLNAPHTHALENE
000092524	BIPHENYL
000581420	2,6-DIMETHYLNAPHTHALENE
028652779	2,3,5-TRIMETHYLNAPHTHALENE
000208968	ACENAPHTHYLENE
000083329	ACENAPHTHENE
000086737	FLUORENE
000085018	PHENANTHRENE
000120127	ANTHRACENE
000832699	1-METHYLPHENANTHRENE
000206440	FLUORANTHENE
000129000	PYRENE
000056553	BENZO(A)ANTHRACENE
000218019	CHRYSENE
000205992	BENZO(B)FLUORANTHENE
000207089	BENZO(K)FLUORANTHENE
000198550	PERYLENE
000050328	BENZO(A)PYRENE
000192972	BENZO(E)PYRENE
000193395	INDENO(1,2,3-CD)PYRENE
000053703	DIBENZO(A,H)ANTHRACENE
000191242	BENZO(G,H,I)PERYLENE

Project Approval: \_\_\_\_\_ Date: \_\_\_\_\_

NV = Not Validated; Inc = Result not entered

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2,700	ug/Kg	U
2,700	ug/Kg	U
2,700	ug/Kg	U
2,700	ug/Kg	U
		Remark
<b>Result</b>	<b>Units</b>	<b>Codes</b>
0.67	mg/Kg	U
6,700	mg/Kg	
2.7	mg/Kg	
110	mg/Kg	
0.56	mg/Kg	U
33,000	mg/Kg	
0.45	mg/Kg	U
5.5	mg/Kg	
69	mg/Kg	
49	mg/Kg	
18,000	mg/Kg	
1,300	mg/Kg	
11,000	mg/Kg	
570	mg/Kg	
430	mg/Kg	
22	mg/Kg	
66	mg/Kg	
0.67	mg/Kg	U
1.6	mg/Kg	
2.2	mg/Kg	U
37	mg/Kg	
100	mg/Kg	
		Remark
<b>Result</b>	<b>Units</b>	<b>Codes</b>
0.17	mg/Kg	U
		Remark
<b>Result</b>	<b>Units</b>	<b>Codes</b>
160	ug/Kg	U
160	ug/Kg	U
160	ug/Kg	U
160	ug/Kg	U
160	ug/Kg	U
160	ug/Kg	U
160	ug/Kg	U
160	ug/Kg	U
160	ug/Kg	U
440	ug/Kg	
160	ug/Kg	U
160	ug/Kg	U
940	ug/Kg	
970	ug/Kg	
390	ug/Kg	
520	ug/Kg	
770	ug/Kg	
290	ug/Kg	
540	ug/Kg	
600	ug/Kg	
210	ug/Kg	
730	ug/Kg	
160	ug/Kg	U
820	ug/Kg	







2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
17,000	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
17,000	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
5,700	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
2,900	ug/Kg	U
12,000	ug/Kg	U
10,000	ug/Kg	U
2,900	ug/Kg	U
		Remark
<u>Result</u>	<u>Units</u>	<u>Codes</u>
0.75	mg/Kg	U
5.200	mg/Kg	
2.2	mg/Kg	
180	mg/Kg	
0.63	mg/Kg	U
49,000	mg/Kg	
0.50	mg/Kg	U
4.3	mg/Kg	
100	mg/Kg	
33	mg/Kg	
15,000	mg/Kg	
1,000	mg/Kg	
12,000	mg/Kg	
670	mg/Kg	



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2,590	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
15,000	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
15,000	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
5,100	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
5,100	ug/Kg	U
2,500	ug/Kg	U
3,600	ug/Kg	U
2,500	ug/Kg	U
2,500	ug/Kg	U
		Remark
Result	Units	<u>Codes</u>
0.67	mg/Kg	U
6,000	mg/Kg	
2.5	mg/Kg	
130	mg/Kg	
0.56	mg/Kg	U
20,000	mg/Kg	
0.44	mg/Kg	U
4.5	mg/Kg	
22	mg/Kg	
27	mg/Kg	
14,000	mg/Kg	
1,300	mg/Kg	
5,300	mg/Kg	
260	mg/Kg	
280	mg/Kg	
15	mg/Kg	
67	mg/Kg	
0.67	mg/Kg	U
1.6	mg/Kg	U
2.2	mg/Kg	U
27	mg/Kg	
100	mg/Kg	
		Remark
Result	Units	<u>Codes</u>









3,400	ug/Kg	U
3,400	ug/Kg	U
6,700	ug/Kg	U
3,400	ug/Kg	U
3,400	ug/Kg	U
3,400	ug/Kg	U
3,400	ug/Kg	U
6,700	ug/Kg	U
3,400	ug/Kg	U
3,400	ug/Kg	U
17,000	ug/Kg	U
3,800	ug/Kg	J
		Remark
<u>Result</u>	<u>Units</u>	<u>Codes</u>
0.82	mg/Kg	U
9,200	mg/Kg	
4.1	mg/Kg	
120	mg/Kg	
0.68	mg/Kg	U
47,000	mg/Kg	
0.54	mg/Kg	U
8.0	mg/Kg	
54	mg/Kg	
200	mg/Kg	
20,000	mg/Kg	
2,000	mg/Kg	
17,000	mg/Kg	
500	mg/Kg	
700	mg/Kg	
31	mg/Kg	
130	mg/Kg	
0.82	mg/Kg	U
6.1	mg/Kg	
2.7	mg/Kg	U
59	mg/Kg	
280	mg/Kg	
		Remark
<u>Result</u>	<u>Units</u>	<u>Codes</u>
0.20	mg/Kg	U
		Remark
<u>Result</u>	<u>Units</u>	<u>Codes</u>
320	ug/Kg	
570	ug/Kg	
360	ug/Kg	
200	ug/Kg	U
790	ug/Kg	
700	ug/Kg	
200	ug/Kg	U
200	ug/Kg	U
470	ug/Kg	
2,500	ug/Kg	
730	ug/Kg	
470	ug/Kg	
2,600	ug/Kg	
2,300	ug/Kg	
690	ug/Kg	
890	ug/Kg	
1,200	ug/Kg	



260	ug/L	J
5.3	ug/L	U
		<b>Remark</b>
<b>Result</b>	<b>Units</b>	<b>Codes</b>
6.0	ug/L	U
7,700	ug/L	
11	ug/L	
160	ug/L	
5.0	ug/L	U
150,000	ug/L	QD
4.0	ug/L	U
8.0	ug/L	U
34	ug/L	
170	ug/L	
12,000	ug/L	
6,300	ug/L	
19,000	ug/L	
270	ug/L	
11,000	ug/L	
32	ug/L	
180	ug/L	
7.0	ug/L	U
14	ug/L	U
20	ug/L	U
23	ug/L	
800	ug/L	
		<b>Remark</b>
<b>Result</b>	<b>Units</b>	<b>Codes</b>
0.31	ug/L	
		<b>Remark</b>
<b>Result</b>	<b>Units</b>	<b>Codes</b>
0.52	ug/L	QR
0.90	ug/L	QR
0.60	ug/L	
0.32	ug/L	U
1.2	ug/L	
0.32	ug/L	U
0.45	ug/L	
0.32	ug/L	U
0.98	ug/L	J
5.8	ug/L	J
1.7	ug/L	J
0.84	ug/L	J
7.0	ug/L	J
6.1	ug/L	J
4.0	ug/L	
4.8	ug/L	
4.9	ug/L	
1.9	ug/L	
2.6	ug/L	
3.3	ug/L	
0.32	ug/L	U
1.2	ug/L	QR
0.32	ug/L	U
1.1	ug/L	QR



4.0	ug/L	U
8.0	ug/L	U
23	ug/L	
370	ug/L	
6,600	ug/L	
6,000	ug/L	
17,000	ug/L	
150	ug/L	
69,000	ug/L	
18	ug/L	
560	ug/L	
7.0	ug/L	U
24	ug/L	
20	ug/L	U
17	ug/L	
1,000	ug/L	
		Remark
<u>Result</u>	<u>Units</u>	<u>Codes</u>
0.30	ug/L	U
		Remark
<u>Result</u>	<u>Units</u>	<u>Codes</u>
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
		Remark
<u>Result</u>	<u>Units</u>	<u>Codes</u>
5.8	ug/L	U
5.8	ug/L	U QR
5.8	ug/L	U
5.8	ug/L	U QR
5.8	ug/L	U QR
5.8	ug/L	U QR
5.8	ug/L	U
5.8	ug/L	U



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	ug/L	
	ug/L	
.0	ug/L	U
.800	ug/L	U
15,000	ug/L	
		Remark
<b>Result</b>	<b>Units</b>	<b>Codes</b>
30	ug/L	
		Remark
<b>Result</b>	<b>Units</b>	<b>Codes</b>
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.35	ug/L	U
0.95	ug/L	
0.42	ug/L	
0.35	ug/L	U
1.8	ug/L	QD
2.0	ug/L	QD
1.1	ug/L	
1.3	ug/L	
2.1	ug/L	
0.79	ug/L	
1.5	ug/L	
1.8	ug/L	
0.55	ug/L	
1.7	ug/L	
0.35	ug/L	U
0.35	ug/L	U

Report Date: 10/31/01 1:14PM

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Tuesday**  
**November 6, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of 5:00 p.m. 11/6)**

**Air: Fixed Monitors in lower Manhattan:**

**Asbestos** - EPA analyzed 96 samples taken in and around ground zero from November 1 through November 3. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1701, with 28 samples above the standard (27 of these were collected prior to September 30 and one on October 9).

**Air: Fixed Monitors outside Manhattan:**

**Asbestos** - Additional asbestos monitors have been placed at Public School (P.S.) 154 (33 East 135<sup>th</sup> St., Bronx), Intermediate School 143 (511 W. 182<sup>nd</sup> St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island), and P.S. 199 (3290 48<sup>th</sup> St., Queens). From October 14 to October 23, thirty-three asbestos samples were collected and analyzed from these locations. All the results showed no exceedances of the AHERA re-entry standard.

**Air: Fixed Monitors in New Jersey:**

**Asbestos** - Four air samples were taken in New Jersey on November 1. All samples showed results less than school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 177, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Eighty-seven samples were collected from on October 31 through November 3. All but one of the samples showed results less than the school re-entry standard. One sample collected on October 31, from Location 12A (wash tent), exceeded the AHERA standard. This incident is being investigated further. Three samples collected on November 1 were not analyzed due to filter overloading; these samples were located around the mess and supply tent and wash



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operations areas. Two sample locations on November 1 and two locations on November 2 and 3rd experienced sampler pump failure, deeming the results invalid.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Tuesday, November 6, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Nov 1, 1201 - 2400 hrs)

All 19 samples analyzed were below the TEM AHERA standard.  
1 location (P) was not sampled due to a pump fault.

NYC / ER (Nov 2, 0001 - 1200 hrs)

All 20 samples analyzed were below the TEM AHERA standard.

NYC / ER (Nov 2, 1201 - 2400 hrs)

All 17 samples analyzed were below the TEM AHERA standard.  
3 locations (E, P, and T) were not sampled due to pump faults.

NYC / ER (Nov 3, 0001 - 1200 hrs)

All 20 samples analyzed were below the TEM AHERA standard.

NJ / ER (Nov 1)

All 4 samples were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

Fresh Kills (Oct 31, 0605 - Oct 31, 1905) - Asbestos

1 of 19 samples analyzed was above the TEM AHERA standard.  
Exceedance of the TEM AHERA standard occurred at indoor "Wash" Location # 12A  
(115.56 S/mm<sup>3</sup>).

Note: Low sample volumes recorded.

Fresh Kills (Nov 1, 0657 - 1935) - Asbestos

All 15 samples analyzed were below the TEM AHERA standard.  
1 location ("Perimeter" Location #3) was not sampled due to a pump fault.  
3 samples (Perimeter station at "Wash" Location #12B, Mess "Tent" Location #15, and  
Supply "Tent" Location #16) were not analyzed due to overloading of particulates.

Fresh Kills (Nov 1, 1524 - Nov 2, 0650) - Asbestos

All 17 samples analyzed were below the TEM AHERA standard.  
2 locations ("Sift" Location #9A and "Barge" Location #13) had a pump failure (results  
deemed invalid).

Note: Low sample volumes recorded.

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Fresh Kills (Nov 2, 0650 - Nov 2, 1908) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Fresh Kills (Nov 2, 1615 - Nov 3, 0750) - Asbestos

All 17 samples analyzed were below the TEM AHERA standard.

2 locations ("Barge" Location #13 and Supply "Tent" Location #16) had a pump failure (results deemed invalid).

Note: Low sample volumes recorded.

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/02/01 16:15 to 11/03/01 07:50

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
11/02/01	LF00169	P-1	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/02/01	LF00170	P-2	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/02/01	LF00171	P-3	720	Air	<7.0	<0.004	1***	0	8.75	0.0047
11/02/01	LF00172	P-4	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/02/01	LF00173	P-5	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/02/01	LF00174	P-6	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/02/01	LF00175	P-7	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/02/01	LF00176	P-8	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/02/01	LF00177	S-9A	109	Air	<7.0	<0.025	0	0	<7.87	<0.0276
11/02/01	LF00178	S-9B	320	Air	<7.0	<0.008	0	0	<7.87	<0.0095
11/02/01	LF00179	S-10A	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/02/01	LF00180	S-10B	568	Air	<7.0	<0.005	0	0	<7.87	<0.0053
11/02/01	LF00181	W-11	601	Air	<7.0	<0.005	0	0	<7.87	<0.0050
11/02/01	LF00182	W-12A	691.3	Air	8.92	0.005	1***	2****	26.25	0.0146
11/02/01	LF00183	W-12B	475.4	Air	<7.0	<0.006	0	0	<7.87	<0.0054
11/02/01	LF00184	B-13	0	Air	R	R	R	R	R	R
11/02/01	LF00185	B-14	711	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/02/01	LF00186	T15	720	Air	22.93	0.012	0	0	<8.75	<0.0047
11/02/01	LF00187	Lot Blank	3	Air	R	R	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/02/01	LF00188	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/02/01	LF00189	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

COC No. n/a

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- \*\*\*\* One Chrysotile and one Anthrophyllite
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Sample not submitted due to no sample volume
- R - Sample data rejected due to no sample volume
- RE - Sample was re-analyzed for TEM due to non-asbestos count being greater than 20

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/02/01 0650 to 11/02/01 1908

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**	S/mm <sup>2</sup>
11/02/01	LF00148	P-1	690	Air	<7.0	<0.004	0	0	<8.89	<0.0050
11/02/01	LF00149	P-2	691	Air	<7.0	<0.004	0	0	<8.89	<0.0050
11/02/01	LF00150	P-3	692	Air	<7.0	<0.004	1***	0	8.89	0.0048
11/02/01	LF00151	P-4	693	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/02/01	LF00152	P-5	694	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/02/01	LF00153	P-6	694	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/02/01	LF00154	P-7	689	Air	7.64	0.004	0	0	<8.89	<0.0050
11/02/01	LF00155	P-8	684	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/02/01	LF00156	S-9A	664	Air	<7.0	<0.004	1***	0	8	0.0046
11/02/01	LF00157	S-9B	573	Air	<7.0	<0.005	0	0	16	0.0108
11/02/01	LF00158	S-10A	519	Air	<7.0	<0.005	0	0	<8	<0.0059
11/02/01	LF00159	S-10B	627	Air	<7.0	<0.004	0	0	<8	<0.0049
11/02/01	LF00160	W-11	684	Air	<7.0	<0.004	1***	0	8.89	0.0048
11/02/01	LF00161	W-12A	720	Air	<7.0	<0.004	1***	0	17.78	0.0095
11/02/01	LF00162	W-12B	720	Air	<7.0	<0.004	2***	0	26.67	0.0148
11/02/01	LF00163	B-13	691	Air	<7.0	<0.004	1***	0	<8	<0.0045
11/02/01	LF00164	B-14	679	Air	<7.0	<0.004	0	0	<8	<0.0045
11/02/01	LF00165	T-15	720	Air	<7.0	<0.004	0	0	<8	<0.0045
11/02/01	LF00165	T-16	614	Air	<7.0	<0.004	0	0	<8	<0.0050
11/02/01	LF00167	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/02/01	LF00168	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

COC No. n/a

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/01/01 1524 to 11/02/02 0650

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
11/01/01	LF00127	P-1	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/01/01	LF00128	P-2	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/01/01	LF00129	P-3	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/01/01	LF00130	P-4	720	Air	<7.0	<0.004	1***	0	8.75	0.0047
11/01/01	LF00131	P-5	720	Air	<7.0	<0.004	1***	0	8.75	0.0047
11/01/01	LF00132	P-6	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/01/01	LF00133	P-7	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/01/01	LF00134	P-8	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/01/01	LF00135	S-9A	0	Air	R	R	R	R	R	R
11/01/01	LF00136	S-9B	320	Air	<7.0	<0.008	0	0	<7.87	<0.0095
11/01/01	LF00137	S-10A	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/01/01	LF00138	S-10B	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/01/01	LF00139	W-11	678	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	1***	8.75	0.0050
11/01/01	LF00140	W-12A	684.9	Air	26.75	0.015	1***	0	8.75	0.0049
11/01/01	LF00141	W-12B	503	Air	<7.0	<0.005	0	0	<7.87	<0.0060
11/01/01	LF00142	B-13	0	Air	R	R	R	R	R	R
11/01/01	LF00143	B-14	720	Air	<7.0	<0.004	1***	0	8.75	0.0047
11/01/01	LF00144	T-15	681	Air	19.11	0.011	0	0	<8.75	<0.0049
11/01/01	LF00145	T-16	720	Air	11.46	0.006	0	0	<8.75	<0.0047
11/01/01	LF00146	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/01/01	LF00147	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

COC No. 019

- Key:
- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
  - \*\* Structure (S) is roughly equivalent to fiber (f)
  - \*\*\* Chrysotile
  - \*\*\*\* Actinolite
  - NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
  - NA<sup>(2)</sup> - Not analyzed for TEM
  - n/a - Not applicable
  - R - Sample rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples Via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 10/31/01 0605 to 10/31/01 1905

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
10/31/01	LF00064	P-1	688	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/31/01	LF00065	P-2	689	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/31/01	LF00066	P-3	701	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/31/01	LF00067	P-4	705	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/31/01	LF00068	P-5	688	Air	<7.0	<0.004	1***	0	8.89	0.0049
10/31/01	LF00069	P-6	685	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/31/01	LF00070	P-7	697	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/31/01	LF00071	P-8	698	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/31/01	LF00072	S-9A	678	Air	<7.0	<0.004	0	0	<8.89	<0.0049
10/31/01	LF00073	S-9B	355	Air	<7.0	<0.008	0	0	<8.00	<0.0067
10/31/01	LF00074	S-10A	697	Air	<7.0	<0.004	0	1***	8.89	0.0049
10/31/01	LF00075	S-10B	539	Air	<7.0	<0.005	5***	0	40	0.0286
10/31/01	LF00076	W-11	697	Air	7.64	0.004	0	0	<8.89	<0.0049
10/31/01	LF00077	W-12A	705	Air	15.92	0.009	12***	1	115.96	0.0031
10/31/01	LF00078	W-12B	706	Air	11.46	0.006	1***	0	8.89	0.0046
10/31/01	LF00079	B-13	562	Air	<7.0	<0.005	1***	0	8	0.0055
10/31/01	LF00080	B-14	672	Air	<7.0	<0.004	1***	0	8	0.0046
10/31/01	LF00081	T-15	721	Air	<7.0	<0.004	1***	0	8.89	0.0047
10/31/01	LF00082	T-16	722	Air	<7.0	<0.004	2***	0	17.78	0.0095
10/31/01	LF00083	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
10/31/01	LF00084	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

COCC No. n/a

- Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/01/01 0657 to 11/01/01 1935

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S-f/cc**
11/01/01	LF00106	P-1	702	Air	<7.0	<0.004	2***	0	17.78	0.0097
11/01/01	LF00107	P-2	700	Air	<7.0	<0.004	1***	0	8.89	0.0049
11/01/01	LF00108	P-3	0.2	Air	NS	NS	NS	NS	NS	NS
11/01/01	LF00109	P-4	710	Air	7.64	0.004	0	0	<8.89	<0.0048
11/01/01	LF00110	P-5	700	Air	7.01	0.004	0	0	<8.89	<0.0049
11/01/01	LF00111	P-6	700	Air	10.19	0.006	1***	0	8.89	0.0049
11/01/01	LF00112	P-7	696	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/01/01	LF00113	P-8	699	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/01/01	LF00114	S-9A	671	Air	11.46	0.007	1***	0	8.00	0.0046
11/01/01	LF00115	S-9B	573	Air	19.11	0.013	1***	0	8.00	0.0054
11/01/01	LF00116	S-10A	689	Air	20.38	0.011	2***	0	17.78	0.0069
11/01/01	LF00117	S-10B	595	Air	16.56	0.011	1***	0	8.00	0.0052
11/01/01	LF00118	W-11	700	Air	17.83	0.010	1***	0	8.89	0.0049
11/01/01	LF00119	W-12A	683	Air	26.75	0.015	7***	0	62.22	0.0351
11/01/01	LF00120	W-12B	684	Air	12.74	0.007	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/01/01	LF00121	B-13	698	Air	9.55	0.005	2***	0	17.78	0.0068
11/01/01	LF00122	B-14	698	Air	<7.0	<0.004	1***	0	8.89	0.0049
11/01/01	LF00123	T-15	685	Air	20.38	0.011	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/01/01	LF00124	T-16	449	Air	15.29	0.013	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/01/01	LF00125	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/01/01	LF00126	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

CDC No. n/a

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Sample not submitted due to no sample volume
- R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/01/01 1201 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	Structures (#)	5µ	S/mm <sup>2</sup>	S-f/cc**
11/01/01	RST-00164	Q	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00163	J	720	Air	7.64	0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00160	L	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00161	M1	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00162	N	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00165	A	720	Air	10.19	0.005	1***	0	0	8.61	0.0046
11/01/01	RST-00167	B	720	Air	15.29	0.008	0	0	0	<8.61	<0.0046
11/01/01	RST-00168	C1	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00169	H	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00170	I	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00171	D	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00172	K	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00175	T	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00174	U	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00176	V	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	RST-00177	S	720	Air	8.92	0.005	0	0	0	<8.61	<0.0046
---	---	P	NS	NS	NS	NS	NS	NS	NS	NS	NS
11/01/01	RST-00178	E	720	Air	10.19	0.005	0	0	0	<8.61	<0.0046
11/01/01	RST-00165	F	720	Air	11.46	0.006	0	0	0	<8.61	<0.0046
11/01/01	RST-00173	K-Drip	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/01/01	FB110201	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/01/01	TB110201	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

ccaf 00017 and 00018

- Sampling Locations:
- A: NE corner of West Broadway & Barclay
  - B: SE corner of Church & Dey St.
  - C: Trinity (a.k.a. Church) & Liberty
  - C1: SW corner of Broadway & Liberty St.
  - D: East end of Albany St. at Greenwich St.
  - E: Western end of Liberty St. at South End Ave
  - F: Northern median strip of Vesey & West St
  - G: Church and Duane St.
  - H: South side of Chase Manhattan Plaza at Pine St.
  - I: SE corner of Wall St. & Broadway
  - J: NE corner of Warren & West St.
  - K: West St. & Albany in median strip
  - L: On walkway toward North Park rec. area (north side of Suyvesant High), access to TAGA bus area

- PCM by NIOSH 7400
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
  - M1: West St. - 50 yards south of Harrison St. at bulkhead
  - N: South side of Pier 25 (next to volleyball ct)
  - P: NE corner of South End Ave. & Albany
  - Q: Barclay & West St. (center island) in proximity to USCG command post
  - R: TAGA Bus Location
  - S: Rector & South End
  - T: Pier 6 Heliport
  - U: Pier 6 Exit 2
  - V: Pier 6 Bus Sign

- TEM (AHERA)
- Structure (S) is roughly equivalent to fiber (f)
  - Chrysotile
  - Not analyzed due to overloading of particulates
  - Not analyzed for TEM
  - n/a - Not applicable
  - NR - Not requested
  - NS - Not sampled

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Key:  
\* Sample volume (filters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysotile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
n/a - Not applicable  
NR - Not requested  
NS - Not sampled

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/02/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>
11/02/01	RST-00183	Q	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00182	J	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00181	L	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00180	M1	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00179	N	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00185	A	720	Air	17.83	0.009	0	<8.61
11/02/01	RST-00186	B	720	Air	7.64	0.004	0	<8.61
11/02/01	RST-00187	C1	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00188	H	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00189	I	720	Air	<7.0	<0.004	1**	8.61
11/02/01	RST-00190	D	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00191	K	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00192	T	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00194	V	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00196	S	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00195	P	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00197	E	720	Air	<7.0	<0.004	0	<8.61
11/02/01	RST-00184	F	720	Air	<7.0	<0.004	0	<8.61
11/02/01	FB110201	Field Blank	0	Air	<7.0	<0.004	0	<8.61
11/02/01	FB110201	Field Blank	0	Air	n/a	n/a	NA <sup>(2)</sup>	NA <sup>(3)</sup>
11/02/01	TB110201	Trip Blank	0	Air	<7.0	<7.0	NA <sup>(2)</sup>	NA <sup>(3)</sup>

code# 00018 and 00020

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Doy St.
- C: Trinity (a.k.a. Church) & Liberty St.
- D: SW corner of Broadway & Liberty St.
- E: East end of Albany St. at Greenwich St.
- F: Western end of Liberty St. at South End Ave
- G: Northern median strip of Vesey & West St
- H: Church and Duane St.
- I: South side of Chase Manhattan Plaza at Pine St.
- J: SE corner of Wall St. & Broadway
- K: NE corner of Warren & West St.
- L: West St. & Albany in median strip
- M: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

M: Western end of Harrison St. at West St.

- M1: (on tree next to bulkhead)
- N: West St. - 50 yards south of Harrison St. at bulkhead
- P: South side of Pier 25 (next to volleyball ct)
- Q: NE corner of South End Ave. & Albany
- R: Barclay & West St. (center island) in proximity to USCG command post
- S: TAGA Bus Location
- T: Reactor & South End
- U: Pier 6 Heliport
- V: Pier 6 Bus Sign

Key:  
\* Sample volume (filters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysotile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
n/a - Not applicable  
NR - Not requested  
NS - Not sampled

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/02/01 1201 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	5µ	S/fcc**	
11/02/01	RST-00203	Q	720	Air	<7.0	<0.004	0	<8.61	<0.0046	
11/02/01	RST-00202	J	720	Air	11.46	0.005	0	<8.61	<0.0046	
11/02/01	RST-00199	L	720	Air	7.64	0.004	0	<8.61	<0.0046	
11/02/01	RST-00200	M1	720	Air	<7.0	<0.004	0	<8.61	<0.0046	
11/02/01	RST-00201	N	720	Air	<7.0	<0.004	0	<8.61	<0.0046	
11/02/01	RST-00205	A	720	Air	20.38	0.011	0	<8.61	<0.0046	
11/02/01	RST-00206	B	720	Air	14.01	0.007	0	<8.61	<0.0046	
11/02/01	RST-00207	C1	720	Air	<7.0	<0.004	0	<8.61	<0.0046	
11/02/01	RST-00208	C1-DJP	720	Air	<7.0	<0.004	0	<8.61	<0.0046	
11/02/01	RST-00209	H	720	Air	<7.0	<0.004	0	<8.61	<0.0046	
11/02/01	RST-00210	I	720	Air	<7.0	<0.004	0	<8.61	<0.0046	
11/02/01	RST-00211	D	720	Air	<7.0	<0.004	0	<8.61	<0.0046	
11/02/01	RST-00212	K	720	Air	<7.0	<0.004	0	<8.61	<0.0046	
11/02/01	RST-00213	T	NS	NS	NS	NS	NS	NS	NS	
11/02/01	RST-00214	U	720	Air	<7.0	<0.004	0	<8.61	<0.0046	
11/02/01	RST-00215	V	720	Air	<7.0	<0.004	0	<8.61	<0.0046	
11/02/01	RST-00215	S	720	Air	<7.0	<0.004	0	<8.61	<0.0046	
11/02/01	RST-00215	P	NS	NS	NS	NS	NS	NS	NS	
11/02/01	RST-00204	E	NS	NS	NS	NS	NS	NS	NS	
11/02/01	TB110301	Trip Blank	0	Air	10.19	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	
11/02/01	FB110301	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	

cod# 60021 and 60022

- Sampling Locations:**  
A: NE corner of West Broadway & Barclay  
B: SE corner of Church & Dey St.  
C: Trinity (a.k.a. Church) & Liberty  
C1: SW corner of Broadway & Greenwich St.  
D: East end of Albany St. at Greenwich St.  
E: Western end of Liberty St. at South End Ave  
F: Northern median strip of Vesey & West St  
G: Church and Duane St.  
H: South side of Chase Manhattan Plaza at Pine St.  
I: SE corner of Wall St. & Broadway  
J: NE corner of Warren & West St.  
K: West St. & Albany in median strip  
L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- Key:**  
\* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysotile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
n/a - Not applicable  
NR - Not requested  
NS - Not sampled
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
M1: West St. - 50 yards south of Harrison St. at bulkhead  
N: South side of Pier 25 (next to volleyball ct)  
P: NE corner of South End Ave. & Albany  
Q: Barclay & West St. (center island) in proximity to USCG command post  
R: TAGA Bus Location  
S: Reactor & South End  
T: Pier 6 Heliport  
U: Pier 6 Exit 2  
V: Pier 6 Bus Sign

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/03/01 1201 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					fmm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**	
11/03/01	RST-00220	Q	720	Air	7.64	0.004	0	0	<8.61	<0.0046
11/03/01	RST-00219	J	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00216	L	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00217	M1	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00218	N	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00222	A	720	Air	11.46	0.005	0	0	<8.61	<0.0046
11/03/01	RST-00223	B	720	Air	14.01	0.007	0	0	<8.61	<0.0046
11/03/01	RST-00224	C1	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00226	H	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00227	I	672	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00228	D	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00229	K	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00230	T	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00232	U	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00233	V	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00234	S	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00235	P	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00221	E	720	Air	<7.0	<0.004	0	0	<8.61	<0.0046
11/03/01	RST-00231	U-Dup	720	Air	8.92	0.005	0	0	<8.61	<0.0046
11/03/01	FB110301	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/03/01	FB110301	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

conf 60023and 00024

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

M: Western end of Harrison St. at West St.  
(on tree next to bulkhead)

- M1: West St. -50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball c)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

Key:  
\* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysotile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
n/a - Not applicable  
NR - Not requested  
NS - Not sampled

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Asbestos Air Sampling Results NYC ER/INJ/DEP  
 Sampling Date and Time: 11/01/2001 1131 to 11/01/2001 2120

Date Sampled	Sample No.	Sampling Location	Sample Volume**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ	S/mm <sup>2</sup>	S-f/cc*
11/01/01	1LIB110101	Liberty Park	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
11/01/01	2CIT110101	CITGO Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
11/01/01	3FMC110101	FMC Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
11/01/01	4SHL110101	Shell Terminal	480	Air	<7.0	<0.006	0	0	<6.15	<0.0049
11/01/01	5FLD110101	Field Blank	0	Air	<7.0	n/a	NA	NA	NA	NA

COC No. is not available

Key:  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading  
 n/a - Not applicable  
 NA - Not analyzed for TEM

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location	Sampling Times
Liberty Park	11/01/01 1131 - 1931
CITGO Terminal	11/01/01 1218 - 2018
FMC Terminal	11/01/01 1250 - 2050
Shell Terminal	11/01/01 1320 - 2120

**U.S. Environmental Protection Agency (EPA)  
Daily Summary**

**Wednesday, November 7, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 7, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 46 samples taken in and around ground zero from November 3 through November 4. All samples showed results less than 70 structures per millimeter squared, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1,747, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside Manhattan:**

**Asbestos** - Additional asbestos monitors have been placed at Public School (P.S.) 154 (33 East 135<sup>th</sup> St., Bronx), Intermediate School 143 (511 W. 182<sup>nd</sup> St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48<sup>th</sup> St., Queens). On October 25, a total of ten samples were collected from these locations. All the samples showed results less than the school re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Seventy-two samples were collected from November 3 through November 5. All the samples showed results less than the school re-entry standard. During this period, one sample located around the sifting and wash operations areas was not analyzed due to filter overloading and three locations experienced sampler pump failure deeming the results invalid.

**VOCs** - Sampling for VOCs was conducted on November 2, 3 and 5 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day.

Benzene exceeded the OSHA PEL of 1 part per million (ppm) in some samples taken from the North Tower and South Tower debris piles. The samples taken at North Park Pier did not find

any benzene, toluene, ethyl benzene, and styrene levels above the detection limit of 20 parts per billion by volume (ppbv). Elevated levels of toluene, ethyl benzene and styrene were found in a sample collected from the North Tower debris pile; however, all levels were below their respective OSHA PELs. Chlorodifluoro-methane (Freon-22) was not found in any samples above the detection limit of 20-50 ppbv.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on November 3 through November 5 at Pace University, Borough of Manhattan Community College, and the Coast Guard building in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, an EPA air quality index which would indicate that the air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**PM<sub>10</sub>** - Monitoring for particulate matter (particles less than 10 micrometers in diameter) was conducted from October 16 through October 24 at Pace University, Borough of Manhattan Community College, the Coast Guard building, Public School (P.S.) 274 in Brooklyn, and the Canal Street Post Office. All 24-hour average values were below the National Ambient Air Quality Standard of 150 ug/m<sup>3</sup> for all available stations.

**Particulate Monitoring** - EPA used portable monitors to collect samples on November 4 and 5 at the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure level for particulates.

**Direct Air Readings** - Direct readings taken on November 3 through November 5 showed no levels of significance. No readings were noted above the carbon monoxide NAAQS 8-hour average of 9 ppm.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Wednesday, November 7, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 3, 1201 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 4, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 3, 0655 - 1928) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 sample ("Sift" Location #10B) was not analyzed due to particulate overloading.
- Fresh Kills (Nov 3, 1709 - Nov 4, 0744) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 location ("Barge" Location #13) was not sampled due to a broken pump.
- Fresh Kills (Nov 4, 0657 - 1927) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Nov 4, 1837 - Nov 5, 0657) - Asbestos
  - All 17 samples analyzed were below the TEM AHERA standard.
  - 1 locations ("Barge" Location #13) was not sampled due to a broken pump.
  - 1 location (perimeter station at "Wash" Location #12B) had a pump failure (results deemed invalid).

Ambient Air Sampling Locations

- NYC / ER (Nov 4) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 7½ hours.
  - Station L values ranged from 0.0 to 62.5 ug/m<sup>3</sup> with an average of 17.3 ug/m<sup>3</sup>.
  - Station N values ranged from 0.0 to 56.0 ug/m<sup>3</sup> with an average of 10.5 ug/m<sup>3</sup>.
  - Station R values ranged from 0.0 to 56.0 ug/m<sup>3</sup> with an average of 13.3 ug/m<sup>3</sup>.
  - Note: Dataram readings for Nov 2<sup>nd</sup> were determined to be unuseable.
  - Note: Dataram readings not collected on Nov 3<sup>rd</sup> due to rain.



- NYC / ER (Nov 5) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 10½ hours.
  - Station L values ranged from 0.0 to 5.2 ug/m<sup>3</sup> with an average of 4.1 ug/m<sup>3</sup>.
  - Station N values ranged from 8.8 to 9.7 ug/m<sup>3</sup> with an average of 9.4 ug/m<sup>3</sup>.
  - Station R values ranged from 0.1 to 8.7 ug/m<sup>3</sup> with an average of 7.8 ug/m<sup>3</sup>.
- NYC / ER (Nov 3) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **12.94 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **12.18 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **11.51 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 4) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **12.04 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **5.65 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **8.68 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 5) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **6.10 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **5.29 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **4.75 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Oct 16) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **30.4 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **30.0 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **39.2 ug/m<sup>3</sup>**.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **29.8 ug/m<sup>3</sup>**.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - No data available.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

- NYC / ER (Oct 17) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *92.4 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *24.9 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *18.2 ug/m<sup>3</sup>*.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was *19.2 ug/m<sup>3</sup>*.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *15.9 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Oct 18) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *72.3 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *28.1 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *21.0 ug/m<sup>3</sup>*.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was *21.0 ug/m<sup>3</sup>*.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *18.7 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Oct 19) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *78.3 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *42.1 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *34.3 ug/m<sup>3</sup>*.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was *45.9 ug/m<sup>3</sup>*.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *26.8 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Oct 20) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *87.0 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *47.0 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *35.5 ug/m<sup>3</sup>*.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was *61.9 ug/m<sup>3</sup>*.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *36.6 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

- NYC / ER (Oct 25) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St. Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
  
- NYC / ER (Oct 28) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St. Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
  - Note: The sample for Site 5 was reported to have been collected on Oct. 27<sup>th</sup>.
  
- NYC / ER (Nov 2) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) on the debris pile in the plume at ground level.
  - 1 of 3 other samples (North Park Pier) did not note any benzene above the detection limit (20 ppbv).
  - Chlorodifluoromethane (Freon-22) was not identified in any samples above the detection limit (20 - 50 ppbv).
  
- NYC / ER (Nov 3) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) on the debris pile in the plume at ground level.
  - Benzene levels at North Tower were as high as 83 ppmv.
  - 1 of 2 other samples (North Park Pier) did not note any benzene above the detection limit (20 ppbv).
  - Elevated levels of toluene (67 ppmv), ethyl benzene (95 ppmv), and styrene (56 ppmv) noted in sample collected from North Tower on the debris pile in the plume at ground level. Note: all levels below respective OSHA PELs.
  - Toluene, ethyl benzene, and styrene were not identified at the North Park Pier Location above their detection limits (20 ppbv).
  - Chlorodifluoromethane (Freon-22) was not identified in any samples above the detection limit (20 - 50 ppbv).

- NYC / ER (Nov 5) - Volatile organics (TAGA)
  - Of the 4 samples collected, benzene did not exceed OSHA TWA PEL (1 ppm) at any location (including on the debris pile in the plume at ground level).
  - 2 of the 4 samples (North Park Pier and "EPA trailer near the wash tent") did not note any benzene above the detection limit (20 ppbv).
  - Chlorodifluoromethane (Freon-22) was not identified in any samples above the detection limit (20 ppbv).

Direct Reading Instruments

- NYC / ER (Nov 3)
  - Nothing of significance reported.
- NYC / ER (Nov 4)
  - Nothing of significance reported.
- NYC / ER (Nov 5)
  - Nothing of significance reported.

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 10/25/2001 12:00 to 10/25/2001 24:00

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	S/mm <sup>2</sup>	S-f/cc**	
10/25/01	7093-18-0028	Pace University	1440	Air	8.92	0.002	1***	15.5	0.0041	
10/25/01	7093-19-0028	BMCC	1440	Air	<7.0	<0.002	0	<15.50	<0.0041	
10/25/01	7093-20-0028	Coast Guard	1202	Air	<7.0	<0.002	0	<15.50	<0.0050	
10/25/01	7093-15-0027	Manhattan PS-143	1440	Air	<7.0	<0.002	0	<15.50	<0.0041	
10/25/01	7094-09-0023	Bronx PS-154	1440	Air	<7.0	<0.002	0	<15.50	<0.0041	
10/25/01	7096-12-0024	Queens PS-199	1440	Air	<7.0	<0.002	0	<15.50	<0.0041	
10/25/01	7095-98-0025	Brooklyn PS-274	1440	Air	<7.0	<0.002	0	<15.50	<0.0041	
10/25/01	7097-18-0023	Staten Is. PS-44	1178****	Air	<7.0	<0.002	0	<12.92	<0.0042	

cccf is not available

Key:

- \* Volume is based on pump reading
- \*\* Structure (S) roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- \*\*\*\* Sample volume (liters) is below recommended limit for the TEM method

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 10/27/2001 12:00 to 10/27/2001 24:00 and 10/28/2001 12:00 to 10/28/2001 24:00

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
10/28/01	7095-15-0050	Manhattan PS-143	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/27/01	7094-09-0025	Bronx	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/28/01	7096-12-0027	Queens PS-199	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/28/01	7095-98-0028	Brooklyn PS-274	1354	Air	<7.0	<0.002	0	<15.50	<0.0044
10/28/01	7097-18-0025	Staten Is PS-44	980***	Air	<7.0	<0.003	0	<11.07	<0.0044
10/28/01	7095-19-0031	BMCC	1428	Air	<7.0	<0.002	0	<15.50	<0.0042
10/28/01	7095-20-0031	Coast Guard	1440	Air	<7.0	<0.002	1****	15.5	0.0041
10/28/01	7098-18-0031	Pace Univ.	1440	Air	<7.0	<0.002	0	<15.50	<0.0041

coc n/a

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysotile

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/03/01 0655 to 11/03/01 1928

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/cc	f/mm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	Structures (#) 5µ	S-f/cc**
11/03/01	LF00190	P-1	356	Air	<7.0	<0.008	0	1***	8	0.0087
11/03/01	LF00191	P-2	683	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/03/01	LF00192	P-3	357	Air	<7.0	<0.008	0	0	<8	<0.0086
11/03/01	LF00193	P-4	682	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/03/01	LF00194	P-5	681	Air	<7.0	<0.004	0	0	<8.89	<0.0050
11/03/01	LF00195	P-6	682	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/03/01	LF00196	P-7	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/03/01	LF00197	P-8	690	Air	<7.0	<0.004	0	2***	<8.89	<0.0050
11/03/01	LF00198	S-9A	685	Air	<7.0	<0.004	0	1***	17.78	0.01
11/03/01	LF00199	S-9B	684	Air	<7.0	<0.004	0	0	<8.89	<0.0050
11/03/01	LF00200	S-10A	681	Air	<7.0	<0.004	0	0	<8.89	<0.0050
11/03/01	LF00201	S-10B	179	Air	<7.0	<0.015	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/03/01	LF00202	W-11	692	Air	15.29	0.009	0	0	<8.89	<0.0049
11/03/01	LF00203	W-12A	720	Air	7.01	0.004	1***	0	8.89	0.0048
11/03/01	LF00204	W-12B	720	Air	<7.0	<0.004	2***	0	17.78	0.0095
11/03/01	LF00205	B-13	682	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/03/01	LF00206	B-14	682	Air	7.01	0.004	0	0	<8.89	<0.0049
11/03/01	LF00207	T-15	716	Air	17.83	0.010	1***	0	8.89	0.0048
11/03/01	LF00208	T-16	708	Air	14.01	0.008	1***	0	8.89	0.0048
11/03/01	LF00209	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/03/01	LF00210	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

COC No. n/a

Key:  
\* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysotile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/03/01 17:09 to 11/04/01 07:44

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	f/mm <sup>2</sup>	PCM by NIOSH 7400			TEM (AHERA)		
						f/cc	Structures (#)	S-f/cc**	0.5µ - 5µ	5µ	S/mm <sup>2</sup>
11/03/01	LF00211	P-1	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048	
11/03/01	LF00212	P-2	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048	
11/03/01	LF00213	P-3	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048	
11/03/01	LF00214	P-4	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048	
11/03/01	LF00215	P-5	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048	
11/03/01	LF00216	P-6	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048	
11/03/01	LF00217	P-7	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048	
11/03/01	LF00218	P-8	448	Air	<7.0	<0.006	0	<8.89	<0.0069	<0.0069	
11/03/01	LF00219	S-9A	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048	
11/03/01	LF00220	S-9B	320	Air	<7.0	<0.006	0	<8.89	<0.0066	<0.0066	
11/03/01	LF00221	S-10A	665	Air	<7.0	<0.004	0	<8.89	<0.0046	<0.0046	
11/03/01	LF00222	S-10B	720	Air	<7.0	<0.004	0	<8.89	<0.0046	<0.0046	
11/03/01	LF00223	S-11	672	Air	19.75	0.011	0	<8.89	<0.0048	<0.0048	
11/03/01	LF00224	W-12A	703.3	Air	16.55	0.009	0	<8.89	<0.0049	<0.0049	
11/03/01	LF00225	W-12B	511.0	Air	<7.0	<0.005	0	<8.89	<0.0050	<0.0050	
11/03/01	LF00226	B-13	NS	NS	NS	NS	NS	NS	NS	NS	
11/03/01	LF00227	B-14	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048	
11/03/01	LF00228	T-15	705	Air	9.55	0.005	0	<8.89	<0.0048	<0.0048	
11/03/01	LF00229	T-16	705	Air	12.10	0.007	0	<8.89	<0.0048	<0.0048	
11/03/01	LF00230	Lot Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	
11/03/01	LF00231	Tip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	

COC No. na

- Key:
- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
  - \*\* Structure (S) is roughly equivalent to fiber (f)
  - \*\*\* Chrysotile
  - NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
  - NA<sup>(2)</sup> - Not analyzed for TEM
  - n/a - Not applicable
  - NR - Not requested
  - NS - Sample not submitted due to no sample volume
  - R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples Via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



Sampling date and lrmess: 11/04/01 0657 to 11/04/01 1927

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	f/m <sup>2</sup>	f/cc	S-f/cc**
11/04/01	LF00232	P-1	633	Air	<7.0	<0.004	0	<8.89	<0.0049	NA <sup>(1)</sup>
11/04/01	LF00233	P-2	700	Air	<7.0	<0.004	0	<8.89	<0.0049	NA <sup>(2)</sup>
11/04/01	LF00234	P-3	696	Air	<7.0	<0.004	0	<8.89	<0.0049	NA <sup>(2)</sup>
11/04/01	LF00235	P-4	694	Air	<7.0	<0.004	0	<8.89	<0.0049	NA <sup>(2)</sup>
11/04/01	LF00236	P-5	693	Air	<7.0	<0.004	0	<8.89	<0.0049	NA <sup>(2)</sup>
11/04/01	LF00237	P-6	694	Air	<7.0	<0.004	0	<8.89	<0.0049	NA <sup>(2)</sup>
11/04/01	LF00238	P-7	720	Air	<7.0	<0.004	0	<8.89	<0.0049	NA <sup>(2)</sup>
11/04/01	LF00239	P-8	652	Air	<7.0	<0.004	0	<8.89	<0.0049	NA <sup>(2)</sup>
11/04/01	LF00240	S-9A	698	Air	<7.0	<0.004	0	<8.89	<0.0050	NA <sup>(2)</sup>
11/04/01	LF00241	S-9B	697	Air	<7.0	<0.004	0	<8.89	<0.0050	NA <sup>(2)</sup>
11/04/01	LF00242	S-10A	690	Air	<7.0	<0.004	0	<8.89	<0.0050	NA <sup>(2)</sup>
11/04/01	LF00243	S-10B	689	Air	<7.0	<0.004	0	<8.89	<0.0050	NA <sup>(2)</sup>
11/04/01	LF00244	W-11	691	Air	22.93	0.013	1***	35.55	0.0190	NA <sup>(2)</sup>
11/04/01	LF00245	W-12A	720	Air	43.31	0.023	4***	6.89	0.0048	NA <sup>(2)</sup>
11/04/01	LF00246	W-12B	720	Air	<7.0	<0.004	0	<8.89	<0.0049	NA <sup>(2)</sup>
11/04/01	LF00247	B-13	695	Air	<7.0	<0.004	0	<8.89	<0.0049	NA <sup>(2)</sup>
11/04/01	LF00248	B-14	695	Air	<7.0	<0.004	0	<8.89	<0.0049	NA <sup>(2)</sup>
11/04/01	LF00249	T-15	732	Air	31.21	0.016	1***	8.89	0.0047	NA <sup>(2)</sup>
11/04/01	LF00250	Lot Blank	729	Air	12.74	0.007	NA <sup>(3)</sup>	8.89	0.0047	NA <sup>(2)</sup>
11/04/01	LF00251	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	8.89	0.0047	NA <sup>(2)</sup>
11/04/01	LF00252	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	8.89	0.0047	NA <sup>(2)</sup>

COCC No. 118

- Key:
- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
  - \*\* Structure (S) is roughly equivalent to fiber (f)
  - \*\*\* Chrysotile
  - NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
  - NA<sup>(2)</sup> - Not analyzed for TEM
  - n/a - Not applicable
  - NR - Not requested
  - NS - Sample not submitted due to no sample volume
  - R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA-40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 Slmm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/04/01 1837 to 11/05/01 0857

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	fimm <sup>2</sup>	ficc	TEM (AHERA)			
							Structures (#)	S <sub>10</sub>	S <sub>100</sub>	
11/04/01	LF00253	P-1	720	Air	<7.0	<0.004	0	1***	8.75	0.0047
11/04/01	LF00254	P-2	720	Air	<7.0	<0.004	0	0	8.75	<0.0047
11/04/01	LF00255	P-3	720	Air	<7.0	<0.004	0	0	8.75	<0.0047
11/04/01	LF00256	P-4	720	Air	<7.0	<0.004	0	0	8.75	<0.0047
11/04/01	LF00257	P-5	720	Air	<7.0	<0.004	0	0	8.75	<0.0047
11/04/01	LF00258	P-6	720	Air	<7.0	<0.004	0	0	8.75	<0.0047
11/04/01	LF00259	P-7	720	Air	<7.0	<0.004	0	0	8.75	<0.0047
11/04/01	LF00260	P-8	720	Air	<7.0	<0.004	0	0	8.75	<0.0047
11/04/01	LF00261	S-9A	720	Air	7.64	0.004	0	0	8.75	<0.0047
11/04/01	LF00262	S-9B	320	Air	10.19	0.012	0	0	8.75	<0.0047
11/04/01	LF00263	S-10A	720	Air	14.01	0.007	0	0	8.75	<0.0047
11/04/01	LF00264	S-10B	720	Air	14.01	0.007	0	0	8.75	<0.0047
11/04/01	LF00265	W-11	652.1	Air	26.75	0.016	0	0	8.75	<0.0047
11/04/01	LF00266	W-12A	326.2	Air	<7.0	<0.008	0	0	15.75	0.0093
11/04/01	LF00267	W-12B	0	Air	R	R	R	R	R	R
11/04/01	LF00268	B-13	NS	NS	NS	NS	NS	NS	NS	NS
11/04/01	LF00269	B-14	516.5	Air	<7.0	<0.005	0	0	8.75	<0.0047
11/04/01	LF00270	T-15	720	Air	<7.0	<0.004	0	0	8.75	<0.0047
11/04/01	LF00271	T-16	709	Air	<7.0	<0.004	1***	0	8.75	0.0048
11/04/01	LF00272	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/04/01	LF00273	Tip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

COC No. n/a

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysler
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NS - Sample not submitted due to no sample volume
- R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples Via NIOSH 7400, Revision 3, Issue 2, 8/1/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/imm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/03/01 1201 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (f) 0.5µ - 5µ	f/m <sup>2</sup>	f/cc	S-f/cc**
11/03/01	RST-00241	Q	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00239	J	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00236	L	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00237	M1	656	Air	<7.0	<0.004	0	<7.75	<0.0045	<0.0045
11/03/01	RST-00238	N	650	Air	<7.0	<0.004	0	<7.75	<0.0045	<0.0045
11/03/01	RST-00242	A	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00243	B	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00244	C1	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00245	H	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00246	I	500	Air	<7.0	<0.005	2***	15.5	0.0119	0.0119
11/03/01	RST-00247	D	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00249	K	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00250	T	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00251	V	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00252	S	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00253	P	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00254	E	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00255	F	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00240	F	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/03/01	RST-00248	D-Duplicate	720	Air	7.64	0.004	0	<8.61	<0.0046	<0.0046
11/03/01	FB110401	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/03/01	TB110401	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

ccaf 0025 and 0026

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- C: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Helipad
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

Key:  
\* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysole  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
n/a - Not applicable  
NR - Not requested  
NS - Not sampled

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/04/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**	S/mm <sup>2</sup>
11/04/01	RST-00251	Q	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00259	J	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00258	L	672	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00257	MT	641	Air	<7.0	<0.004	0	<7.75	<0.0047	<0.0047
11/04/01	RST-00257	N	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00262	A	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00263	B	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00264	C	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00265	H	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00265	I	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00267	D	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00268	K	707	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00269	T	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00270	U	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00271	V	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00272	S	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00274	P	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00275	E	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00260	F	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	RST-00273	S-Duplicate	720	Air	<7.0	<0.004	0	<8.61	<0.0046	<0.0046
11/04/01	FB110401	Field Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	<8.61	<0.0046	NA <sup>(2)</sup>
11/04/01	TB110401	Tip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	<8.61	<0.0046	NA <sup>(2)</sup>

Code# 00227 and 00228

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Abony St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: NE corner of Wall St. & Broadway
- J: NE corner of Wall & West St.
- K: West St. & Albany in median
- L: On walkway toward North Park (see area (north side of Suyvesant High)), access to TACA bus area

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- MT: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TACA Bus Location
- S: Rector & South End
- T: Pier 6 Helipad
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to filter (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Not sampled

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

DRAFT GC/MS Results for 11/05/01 DRAFT

File name	NYC540	NYC541	NYC542	NYC543	NYC544	NYC545
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient	Ambient	North Tower	South Tower
Sample number			07063	07061	07065	07064
Sample Height			breathing	breathing	ground	ground
Volume		250 mL	250 mL	100 mL	100 mL	100 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1340 ppbv	210 ppbv
Chlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	310 ppbv	210 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	19 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	28 ppbv
Isocrotyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	26 ppbv	630 ppbv	1200 ppbv
Trichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
MIBP	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	18 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	17 ppbv	17 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110 ppbv	170 ppbv
o,p'-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	16 ppbv	33 ppbv
m,p'-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1440 ppbv	630 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	14 ppbv	RL=20 ppbv
Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	21 ppbv	17 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	12 ppbv	17 ppbv
o,p'-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	220 ppbv	160 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	14 ppbv
Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	92 ppbv
m,p'-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	17 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	14 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	56 ppbv	39 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	10 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benz Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

1192

Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/4/01 (Early)

RST: B. Hoffman

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl	HF	COCl <sub>2</sub>
L	0829	ND	ND	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
M1	0837	ND	ND	ND	20.9	2	ND	ND	ND	ND	ND	ND	ND
N	0843	ND	ND	ND	20.9	1	ND	ND	ND	ND	ND	ND	ND
J	0849	ND	ND	ND	20.9	2	ND	ND	ND	ND	ND	ND	ND
F	0856	ND	ND	ND	20.9	1	ND	ND	ND	ND	ND	ND	ND
Q	0902	ND	ND	ND	20.9	1	ND	ND	ND	ND	ND	ND	ND
A	0910	ND	ND	ND	20.9	2	ND	ND	ND	ND	ND	ND	ND
B	0915	ND	ND	ND	20.9	1	ND	ND	ND	ND	ND	ND	ND
C1	0926	ND	ND	ND	20.9	2	ND	ND	ND	ND	ND	ND	ND
H	0933	ND	ND	ND	20.9	3	ND	ND	ND	ND	ND	ND	ND
I	0941	ND	ND	ND	20.9	3	ND	ND	ND	ND	ND	ND	ND
D	0951	ND	ND	ND	20.9	4	ND	ND	ND	ND	ND	ND	ND
K	0957	ND	ND	ND	20.9	8	ND	ND	ND	ND	ND	ND	ND
T	1005	ND	ND	ND	20.9	1	ND	ND	ND	ND	ND	ND	ND
U	1010	ND	ND	ND	20.9	1	ND	ND	ND	ND	ND	ND	ND
V	1013	ND	ND	ND	21	ND	ND	ND	ND	ND	ND	ND	ND
S	1022	ND	ND	ND	21.1	3	ND	ND	ND	ND	ND	ND	ND
P	1029	ND	ND	ND	21.1	1	ND	ND	ND	ND	<1.0	ND	ND
E	1036	ND	ND	ND	21.1	ND	ND	ND	ND	ND	<1.0	ND	ND

Air Monitoring Locations

- A: Barclay and Broadway
- B: Church and Dey
- C1: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location
- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- Q: No Location Established
- P: Albany and South End
- R: West and Murray
- S: No Monitoring At This Location
- T: Rector and South End
- U: Pier 6 (Light Pole)
- V: Pier 6 (Heliport)
- W: Pier 6 (Bus Sign)

\* used Draeger started @ station P

1193

Air Monitoring Work Sheet

*Late*

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/4/01 (*late*)

RST: B. Hoffman

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1237	ND	ND	ND	20.9	2	ND	ND	ND	ND	ND	ND	ND
N	1243	ND	ND	ND	21.1	2	ND	ND	ND	ND	ND	ND	ND
M1	1247	ND	ND	ND	21.0	2	ND	ND	ND	ND	ND	ND	ND
J	1252	ND	ND	ND	21.0	4	ND	ND	ND	ND	ND	ND	ND
F	1256	ND	ND	ND	21.0	2	ND	ND	ND	ND	ND	ND	ND
Q	1258	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	ND
A	1304	ND	ND	ND	21.1	6	ND	ND	ND	ND	ND	ND	ND
E	1311	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	ND
C1	1316	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	ND
H	1325	ND	ND	ND	21.2	1	ND	ND	ND	ND	ND	ND	ND
I	1337	ND	ND	ND	21.1	6	ND	ND	ND	ND	ND	ND	ND
D	1344	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	ND
K	1349	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	ND
T	1355	ND	ND	ND	21.1	ND	ND	ND	ND	ND	ND	ND	ND
U	1401	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	ND
V	1405	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	ND
S	1414	ND	ND	ND	21.2	1	ND	ND	ND	ND	ND	ND	ND
P	1422	ND	ND	ND	21.3	2	ND	ND	ND	ND	ND	ND	ND
E	1427	ND	ND	ND	21.3	1	ND	ND	ND	ND	ND	ND	ND

Air Monitoring Locations

- A: Barclay and Broadway
- B: Church and Dey
- C1: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Helipad)
- V: Pier 6 (Bus Sign)

\* started every 30 min

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/5/01 Early

RST: R. Tolson & Son, Inc.  
C Metzger

Location	Time	FID (ppb)	PID (ppb)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
<del>L</del>	<del>0827</del>	<del>0.0</del>	<del>0.0</del>	<del>0</del>	<del>20.4</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>
L	0827	ND	ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
M1	0836	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
N	0841	ND	ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
J	0847	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
F	0847	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
G	0852	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
A	0901	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
B	0910	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
CI	0917	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
H	0926	ND	ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
I	0935	ND	ND	ND	20.4	2	ND	ND	ND	ND	ND	ND	ND
D	0948	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
K	0950	ND	ND	ND	20.4	2	ND	ND	ND	ND	ND	ND	ND
T	1002	ND	ND	ND	20.4	5	ND	ND	ND	ND	ND	ND	ND
U	1003	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
V	1009	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
S	1020	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
P	1025	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
E	1030	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	ND

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- CI: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- F: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Heliport)
- V: Pier 6 (Bus Sign)

ND: non-detect

\* Dräger CMS faulted



United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/5/01 Late

RST: A. Becker, C. Metzger  
J.R. Trabner

Location	Time (MST)	FID (ppb)	PID (ppb)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl	HF	COCl <sub>2</sub>
L	1234	ND	ND	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND
M1	1238	ND	ND	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND
N	1241	ND	ND	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND
J	1245	ND	ND	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND
F	1249	ND	ND	ND	20.7	1	ND	ND	ND	ND	ND	ND	ND
G	1251	ND	ND	ND	20.7	1	ND	ND	ND	ND	ND	ND	ND
A	1252	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
B	1300	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
C1	1311	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
H	1312	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
I	1312	ND	ND	ND	20.6	2	ND	ND	ND	ND	ND	ND	ND
D	1328	ND	ND	ND	20.5	2	ND	ND	ND	ND	ND	ND	ND
K	1331	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
T	1338	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
U	1340	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
V	1342	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
S	1349	ND	ND	ND	20.6	2	ND	ND	ND	ND	ND	ND	ND
P	1350	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
E	1352	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND

**Air Monitoring Locations**

- 1: Barclay and Broadway
- 3: Church and Dey
- 21: Liberty and Broadway
- 2: Greenwich and Albany
- 2: Liberty and South End
- 2: West and Vesey
- 2: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Helipon)
- V: Pier 6 (Bus Sign)

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: E. Hoffman

U.S. EPA: Norrell

Date: 11/4/01

RST Site Project Manager Brennan

Location	R	L	V			
DataRAM ID No.	2648	2643	2646			
Flow Rate (Liters / Minute)	2.0 L/m	2.0 L/m	2.0 L/m			
Start Time	0710	0713	0720			
Stop Time	1440	1449	1457			
Run Time (Minutes)	456	456	455			
Minimum Concentration (ug/m3)	0.0 ug/m3	0.0 ug/m3	0.0 ug/m3			
Maximum Concentration (ug/m3)	56.0 ug/m3	62.5 ug/m3	56.0 ug/m3			
Average Concentration (TWA) (ug/m3)	13.3 ug/m3	17.3 ug/m3	10.5 ug/m3			

**United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet**

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: A. Becker

U.S. EPA: Norrell

Date: 11/5/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2647	2646	2648			
Flow Rate (Liters / Minute)	2	2	2			
Start Time	0735	0737	0747			
Stop Time	1414	1412	1417			
Run Time (Minutes)	649	645	638			
Minimum Concentration (ug/m3)	0.1	0.0	8.8			
Maximum Concentration (ug/m3)	8.7	5.2	9.7			
Average Concentration (TWA) (ug/m3)	7.8	4.1	9.4			

File name	NYC510	NYC511	NYC512	NYC513	NYC514	NYC515
Sample Location	Instrument Blank	Tedlar Bag Blank	Ambient No. Park Pier 25	North Tower	South Tower	Austin Tobin Plaza
Sample Number			10116	10116	10117	10118
Sample Height			Breathing	Ground	Ground	Breathing
Volume		250 mL	250 mL	20 mL	20 mL	100 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	4100 ppbv	380 ppbv	RL=20 ppbv
Chlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1700 ppbv	200 ppbv	RL=20 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	51 ppbv	RL=50 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	75 ppbv	RL=50 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	4000 ppbv	480 ppbv	73 ppbv
Trichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
2-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
MTBE	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	RL=50 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Methyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	760 ppbv	91 ppbv	RL=20 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	280 ppbv	50 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	85 ppbv	RL=50 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1700 ppbv	810 ppbv	20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	150 ppbv	RL=50 ppbv	RL=20 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	82 ppbv	RL=50 ppbv	RL=20 ppbv
Methyl isobutyl ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	80 ppbv	RL=50 ppbv	RL=20 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2800 ppbv	250 ppbv	RL=20 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	59 ppbv	RL=50 ppbv	RL=20 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	25 ppbv	RL=50 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	98 ppbv	RL=50 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3000 ppbv	210 ppbv	RL=20 ppbv
m,p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110 ppbv	RL=50 ppbv	RL=20 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110 ppbv	RL=50 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1200 ppbv	RL=50 ppbv	RL=20 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	80 ppbv	RL=50 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	85 ppbv	RL=50 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	45 ppbv	RL=50 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=50 ppbv	RL=20 ppbv

NO GC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

DRAFT GC/MS Results for 11/83/01 DRAFT

File Name	NYC521	NYC522	NYC523	NYC524	NYC525	NYC526	NYC527
Sample Location	Instrument Bank	Teddy Gap Bank	Ambient	North Tower	North Tower	South Tower	Austin Toyn Plaza
Sample Number			No. Park Pier 28	10120	10120	07061	07052
Sample Height			Breathing	Ground	Ground	Ground	Breathing
Volume		100 mL	100 mL	20 mL	1 mL	20 mL	100 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	43,000 ppbv	149,000 ppbv	2,300 ppbv	24 ppbv
Chlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	8,350 ppbv	16,800 ppbv	1,800 ppbv	RL=20 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	290 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
1,1-Difluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	560 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,100 ppbv	1,100 ppbv	RL=50 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	190 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Acetylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	30,000 ppbv	32,000 ppbv	2,700 ppbv	240 ppbv
Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
MIBK	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2,700 ppbv	2,800 ppbv	140 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	17,600 ppbv	17,800 ppbv	630 ppbv	37 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Ethyl acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Tetradichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2,700 ppbv	2,800 ppbv	390 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	74 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	161,000 ppbv	163,000 ppbv	4,500 ppbv	46 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2,200 ppbv	2,100 ppbv	110 ppbv	RL=20 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	172 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	17,600 ppbv	17,800 ppbv	630 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	780 ppbv	RL=1 ppmv	99 ppbv	53 ppbv
Methyl isobutyl ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	145,000 ppbv	147,000 ppbv	2,000 ppbv	33 ppbv
trans-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	320 ppbv	RL=1 ppmv	60 ppbv	RL=20 ppbv
Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	95 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	17,000 ppbv	17,800 ppbv	72 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	41,000 ppbv	95,000 ppbv	1,600 ppbv	58 ppbv
m,p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2,000 ppbv	1,700 ppbv	186 ppbv	RL=20 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,300 ppbv	1,400 ppbv	72 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	146,000 ppbv	156,000 ppbv	490 ppbv	44 ppbv
Bromofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,000 ppbv	RL=1 ppmv	162 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1,600 ppbv	1,000 ppbv	RL=50 ppbv	RL=20 ppbv
1,2,4,6-Tetramethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1760 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	190 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
1,5-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	350 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	56 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv
hexachloro-1,3,5-triazene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=1 ppmv	RL=50 ppbv	RL=20 ppbv

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED  
WITH DISCRETION

1200

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/3/01 (late)

RST: B. Hoffman

Location	Time	FD (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1230	ND	ND	ND	21.0	1.0	ND	ND	ND	ND	ND	ND	ND
M1	1236	ND	ND	ND	21.0	1.0	ND	ND	ND	ND	ND	ND	ND
N	1241	ND	ND	ND	21.0	4.0	ND	ND	ND	ND	ND	ND	ND
J	1303	ND	ND	ND	21.1	3.0	ND	ND	ND	ND	ND	ND	ND
G	1307	ND	ND	ND	21.1	3.0	ND	ND	ND	ND	ND	ND	ND
F	1310	ND	ND	ND	21.1	3.0	ND	ND	ND	ND	ND	ND	ND
A	1314	ND	ND	ND	21.1	7.0	ND	ND	ND	ND	ND	ND	ND
B	1320	ND	ND	ND	21.1	4.0	ND	ND	ND	ND	ND	ND	ND
C1	1324	ND	ND	ND	21.0	5.0	ND	ND	ND	ND	ND	ND	ND
H	1333	ND	ND	ND	21.1	ND	ND	ND	ND	ND	*1.0	ND	ND
I	1342	ND	ND	ND	21.1	3.0	ND	ND	ND	ND	<1.0	ND	ND
D	1354	ND	ND	ND	21.1	4.0	ND	ND	ND	ND	<1.0	ND	ND
K	1400	ND	ND	ND	21.1	3.0	ND	ND	ND	ND	<1.0	ND	ND
T	1408	ND	ND	ND	21.1	4.0	ND	ND	ND	ND	<1.0	ND	ND
U	1415	ND	ND	ND	21.1	1.0	ND	ND	ND	ND	<1.0	ND	ND
V	1420	ND	ND	ND	21.1	1.0	ND	ND	ND	ND	<1.0	ND	ND
S	1426	ND	ND	ND	21.1	ND	ND	ND	ND	ND	<1.0	ND	ND
P	1429	ND	ND	ND	21.1	3.0	ND	ND	ND	ND	<1.0	ND	ND
E	1434	ND	ND	ND	21.1	2.0	ND	ND	ND	ND	<1.0	ND	ND
[Handwritten signature]													Brian Hoffman

**Air Monitoring Locations**

- |                                   |  |                                   |
|-----------------------------------|--|-----------------------------------|
| A: Barclay and Broadway           | H: Chase Plaza (Pine Street between Nassau and Williams) | O: No Location Established        |
| B: Church and Dey                 | I: Wall Street and Broadway                              | P: Albany and South End           |
| C1: Liberty and Broadway          | J: West and Warren                                       | Q: West and Murray                |
| D: Greenwich and Albany           | K: West and Albany                                       | R: No Monitoring At This Location |
| E: Liberty and South End          | L: High School   | S: Rector and South End           |
| F: West and Vesey                 | M: B-10 Wash Station on West Street                      | T: Pier 6 (Light Pole)            |
| G: No Monitoring At This Location | N: Pier 25   | U: Pier 6 (Helipad)               |
|                                   |  | V: Pier 6 (Bus Sign)              |

\* Began using Draeger CMS

1201

**U.S. Environmental Protection Agency (EPA)**

**Daily Summary**

**Thursday, November 8, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 8, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 52 samples taken in and around ground zero from November 4 through November 5. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1,799, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside Manhattan:**

**Asbestos** - Additional asbestos monitors have been placed at Public School (P.S.) 154 (33 East 135<sup>th</sup> St., Bronx), Intermediate School 143 (511 W. 182<sup>nd</sup> St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48<sup>th</sup> St., Queens). From October 26 to October 29, 18 asbestos samples were collected and analyzed from these locations. All the results showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Thirty-two samples were collected from November 5 through November 6. All but five of the samples showed results less than the school re-entry standard. The five samples collected on November 5 from Location 8 (perimeter), Locations 9A and 9B (sifting stations), and Locations 12A and 12 B (wash stations) exceeded the AHERA standard. These findings are being investigated. During this period, three samples located around the sifting and barge operations areas were not analyzed due to filter overloading and two locations experienced sampler pump failure deeming the results invalid.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates from October 31 through November 7 at the Staten Island Landfill. Nothing of significance was reported at any Staten Island sampling locations. On November 3, the portable monitors were not operable due to high humidity and rain.

**VOCs** - Sampling for VOCs was conducted on November 6 and November 7 at five locations in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Six of the ten samples taken on November 6 and 7<sup>th</sup> at North Park Pier, Austin Tobin Plaza, and the EPA Wash Tent did not find any benzene levels above the detection limit of 20 parts per billion by volume (ppbv). On November 7, benzene exceeded the OSHA PEL of 1 part per million (ppm) in two samples taken from the North Tower and South Tower debris piles. Chlorodifluoromethane (Freon-22) was not found in any samples above the detection limit of 20 ppbv.

**Dioxin** - Ten samples were collected on October 18 and analyzed for dioxin/furans. Four of the samples (Locations B - Church & Dey, 3A - between World Trade Center buildings 4 & 5, C1 - Liberty and Broadway and D - Greenwich and Albany) showed results above the level at which EPA would take some type of action to reduce people's exposure. This action guideline is based on a 30-year exposure. However, none of the samples were above the EPA action guideline adjusted to a one-year exposure. These levels do not pose a short-term health affect but should be monitored if they persist for a long period of time.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on November 6 at Pace University, Borough of Manhattan Community College, and the Coast Guard building in Battery Park. All 24-hour average values were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**Particulate Monitoring** - EPA used portable monitors to collect samples on November 7 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**Direct Air Readings** - Direct readings taken on November 6 and 7<sup>th</sup> in and around ground zero showed no levels of significance. No readings were noted above the carbon monoxide NAAQS 8-hour average of 9 ppm.

**PATH Train Water Removal** - EPA collected samples from the water pumped from the PATH train tunnels on October 3, October 10 and October 26. Samples were analyzed for a variety of substances including metals, VOCs, PCBs, asbestos and dioxin. All of the results for samples collected on October 3 and October 10 were below levels of concern with the exception of zinc, which was detected on October 10 at a level that exceeded marine water quality criteria. Results for PATH samples collected on October 26 identified chlorodifluoromethane (Freon-22) and dichlorodifluoromethane (Freon-12) in the water. The concentrations of all other VOCs were consistent with previous results.



U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Thursday, November 8, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 4, 1201 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 5, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 5, 0657 - 2007) - Asbestos
  - 5 of 15 samples analyzed were above the TEM AHERA standard.
  - Exceedances of the TEM AHERA standard occurred at "Perimeter" Location #8 (112 S/mm<sup>2</sup>), "Sift" Location #9A (71.11 S/mm<sup>2</sup>), "Sift" Location #9B (71.11 S/mm<sup>2</sup>), indoor "Wash" Location #12A (275.56 S/mm<sup>2</sup>), and perimeter station at "Wash" Location #12B (106.67 S/mm<sup>2</sup>).
  - 3 samples ("Sift" Location #10B, "Barge" Location #13, and "Barge" Location #14) were not analyzed due to particulate overloading.
  - 1 location ("Sift" Location #10A) was not sampled due to a pump fault.
- Fresh Kills (Nov 5, 1905 - Nov 6, 0830) - Asbestos
  - All 17 samples analyzed were below the TEM AHERA standard.
  - 1 location perimeter station at "Wash" Location #12B had a pump failure (results deemed invalid).
  - 1 location ("Barge" Location #13) was not sampled.
- Fresh Kills (Oct 31) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations.
  - Reduced dataram availability due to wear and tear.
- Fresh Kills (Nov 1) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at two stations.
  - Several datarams went down, along with reduced pump availability.
- Fresh Kills (Nov 2) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations.
  - Reduced dataram availability.
- Fresh Kills (Nov 3) - Particulate Monitoring (Dataram)
  - Datarams not operated due to high humidity and rain.

- Fresh Kills (Nov 4) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations.
  - Reduced dataram availability.
- Fresh Kills (Nov 5) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations.
  - Reduced dataram availability.
- Fresh Kills (Nov 6) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations.
  - Reduced dataram availability.
- Fresh Kills (Nov 7) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations.
  - Reduced dataram availability.

#### Ambient Air Sampling Locations

- NYC / ER (Oct 18) - Dioxin
  - 4 of the 10 samples (Location B, 3A, C1, and D) collected were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - No samples were identified above the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.
  - Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for long-term (chronic exposure).
- NYC / ER (Nov 7) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 7½ hours.
  - Station L values ranged from 0.6 to 25.8 ug/m<sup>3</sup> with an average of 9.6 ug/m<sup>3</sup>.
  - Station N values ranged from 0.0 to 23.7 ug/m<sup>3</sup> with an average of 3.8 ug/m<sup>3</sup>.
  - Station R values ranged from 12.0 to 23.3 ug/m<sup>3</sup> with an average of 16.4 ug/m<sup>3</sup>.
  - Note: Dataram readings for Nov 6<sup>th</sup> were determined to be unuseable.
- NYC / ER (Nov 6) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was 6.47 ug/m<sup>3</sup>.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was 7.04 ug/m<sup>3</sup>.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was 4.63 ug/m<sup>3</sup>.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

- NYC / ER (Oct 26) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St. Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
  
- NYC / ER (Oct 27) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St. Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 6 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
  - Note: The sample for Site 5 for Oct 27<sup>th</sup> was previously reported.
  - Note: Data was not reported for Site 8.
  
- NYC / ER (Oct 29) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St. Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
  - Note: The sample for Site 9 had a low volume.

- NYC / ER (Oct 31) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
- NYC / ER (Nov 6) - Volatile organics (TAGA)
  - Of the 5 samples collected, benzene did not exceed OSHA TWA PEL (1 ppm) at any location (including on the debris pile in the plume at ground level).
  - 3 of the 5 samples (North Park Pier, Austin Tobin Plaza, and "Wash Tent") did not note any benzene above the detection limit (20 ppbv).
  - Chlorodifluoromethane (Freon-22) was not identified in any samples above the detection limit (20 ppbv).
- NYC / ER (Nov 7) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) on the debris pile in the plume at ground level.
  - Benzene levels at North Tower were as high as 83 ppmv.
  - The other 3 samples (North Park Pier, Austin Tobin Plaza, and "Wash Tent") did not note any benzene above the detection limit (20 ppbv).

#### Direct Reading Instruments

- NYC / ER (Nov 6)
  - Nothing of significance reported.
- NYC / ER (Nov 7)
  - Nothing of significance reported.

#### Ambient Water Monitoring

- NYC / ER (Oct 26)
  - Samples collected from PATH dewatering project.
  - VOC scan identified chlorodifluoromethane (Freon 22) and dichlorodifluoromethane (Freon 12).
  - Concentrations of other VOCs detected on Oct 26<sup>th</sup> were consistent with those detected in the Oct 3<sup>rd</sup> and Oct 10<sup>th</sup> samples.

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/05/01 0657 to 11/05/2001 2007

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm?	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
11/05/01	LF00274	P-1	591	Air	<7.0	<0.005	3***	0	24	0.0156
11/05/01	LF00275	P-2	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/05/01	LF00276	P-3	720	Air	<7.0	<0.004	1***	0	8.89	0.0048
11/05/01	LF00277	P-4	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/05/01	LF00278	P-5	720	Air	10.83	0.006	0	0	<8.89	<0.0048
11/05/01	LF00279	P-6	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/05/01	LF00280	P-7	720	Air	<7.0	<0.004	14***	0	<8.89	<0.0048
11/05/01	LF00281	P-8	629	Air	<7.0	<0.004	0	0	112	0.0696
11/05/01	LF00282	S-9A	717	Air	<7.0	<0.004	7***	1***	71.11	0.0382
11/05/01	LF00283	S-9B	715	Air	<7.0	<0.004	8***	0	71.11	0.0383
11/05/01	LF00284	S-10A	NS	NS	NS	NS	NS	NS	NS	NS
11/05/01	LF00285	S-10B	NS	NS	NS	NS	NS	NS	NS	NS
11/05/01	LF00286	W-11	720	Air	8.28	0.005	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/05/01	LF00287	W-12A	720	Air	15.29	0.008	0	0	<8.89	<0.0048
11/05/01	LF00288	W-12B	720	Air	17.83	0.0095	30***	1***	275.56	0.1473
11/05/01	LF00289	B-13	720	Air	9.55	0.005	11***	1***	106.67	0.057
11/05/01	LF00290	B-14	721	Air	13.38	0.007	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/05/01	LF00291	T-15	720	Air	12.10	0.006	3***	0	26.67	0.0143
11/05/01	LF00292	T-16	720	Air	16.56	0.009	0	0	<8.89	<0.0048
11/05/01	LF00293	Trig Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/05/01	LF00294	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

CGC No. 198

- Key: \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 \*\*\*\* Amosite  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NS - Sample not submitted due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/04  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/05/01 1905 to 11/06/01 0830

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	f/m <sup>2</sup>	f/cc	PCM by NIOSH 7400		Structures (f)		TEM (AHERA)	
							f/m <sup>2</sup>	f/cc	0.5l - 5l	5l	S/fcc**	S/m <sup>2</sup>
11/05/01	LF00295	P-1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11/05/01	LF00296	P-2	720	Air	7.64	0.004	0	0	0	0	<8.75	<0.0047
11/05/01	LF00297	P-3	720	Air	<7.0	<0.004	0	0	0	0	<8.75	<0.0047
11/05/01	LF00298	P-4	720	Air	<7.0	<0.004	0	0	0	0	<8.75	<0.0047
11/05/01	LF00299	P-5	720	Air	<7.0	<0.004	0	0	0	0	<8.75	<0.0047
11/05/01	LF00300	P-6	720	Air	<7.0	<0.004	0	0	0	0	<8.75	<0.0047
11/05/01	LF00301	P-7	720	Air	<7.0	<0.004	0	0	0	0	<8.75	<0.0047
11/05/01	LF00302	P-8	720	Air	<7.0	<0.004	0	0	0	0	<8.75	<0.0047
11/05/01	LF00303	S-9A	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	0	0	0	<8.75	<0.0047
11/05/01	LF00304	S-9B	320	Air	<7.0	<0.008	1***	0	0	0	8.75	0.0105
11/05/01	LF00305	S-10A	720	Air	<7.0	<0.004	0	0	0	0	<7.87	<0.0042
11/05/01	LF00306	S-10B	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	0	0	0	<7.87	<0.0042
11/05/01	LF00307	W-11	564.5	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	0	0	0	26.25	0.0179
11/05/01	LF00308	W-12A	720.0	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	3***	0	0	0	31.50	0.0168
11/05/01	LF00309	W-12B	0	R	R	R	4***	0	0	0	R	R
11/05/01	LF00310	B-13	NS	NS	NS	NS	R	R	R	R	R	R
11/05/01	LF00311	B-14	660.7	Air	<7.0	<0.004	0	0	0	0	<8.75	<0.0047
11/05/01	LF00312	E-15	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	0	0	0	<8.75	<0.0047
11/05/01	LF00313	T-16	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	3***	0	0	0	26.25	0.0140
11/05/01	LF00314	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/05/01	LF00315	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key: \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Drysolite  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NS - Sample not submitted due to no sample volume  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/04/01 12:01 to 2:40

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	S/m <sup>2</sup>	S-f/cc**
11/04/01	RST-00281	Q	720	Air	<7.0	<0.004	0	0	<8.61
11/04/01	RST-00279	J	720	Air	<7.0	<0.004	0	0	<8.61
11/04/01	RST-00276	L	720	Air	<7.0	<0.004	0	0	<8.61
11/04/01	RST-00277	M1	720	Air	<7.0	<0.004	0	0	<8.61
11/04/01	RST-00278	N	720	Air	<7.0	<0.004	0	0	<8.61
11/04/01	RST-00282	A	720	Air	10.19	0.005	0	0	<8.61
11/04/01	RST-00284	B	720	Air	19.11	0.010	0	0	<8.61
11/04/01	RST-00285	C1	720	Air	11.46	0.006	0	0	<8.61
11/04/01	RST-00286	H	297	Air	<7.0	<0.009	0	0	<0.0100
11/04/01	RST-00287	I	720	Air	<7.0	<0.004	0	0	<0.0046
11/04/01	RST-00288	D	720	Air	17.83	0.009	0	0	<8.61
11/04/01	RST-00289	K	720	Air	<7.0	<0.004	0	0	<0.0046
11/04/01	RST-00291	U	720	Air	<7.0	<0.004	0	0	<8.61
11/04/01	RST-00292	V	720	Air	<7.0	<0.004	0	0	<8.61
11/04/01	RST-00293	S	720	Air	<7.0	<0.004	0	0	<8.61
11/04/01	RST-00294	P	720	Air	<7.0	<0.004	0	0	<8.61
11/04/01	RST-00295	E	720	Air	<7.0	<0.004	0	0	<8.61
11/04/01	RST-00283	A-Duplicate	720	Air	11.46	0.006	0	0	<8.61
11/04/01	FBI10501	Field Blank	0	Air	7.84	0.004	1**	0	0.0046
11/04/01	TB110501	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

ccid 0028 and 0030

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(3)</sup> - Not applicable
- n/a - Not requested
- NS - Not sampled

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Reclor & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- D: SW corner of Broadway & Liberty St.
- E: East end of Albany St. at Greenwich St.
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Fire St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyessant High), access to TAGA bus area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/05/01 0901 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)			S-fiber**	S-fiber**
					f/m <sup>2</sup>	f/cc	Structures (f)	0.5µ-5µ	5µ		
11/05/01	RST-00001	Q	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00039	J	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00296	L	694	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00287	M1	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00296	N	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00302	A	720	Air	8.92	0.005	0	0	0	8.61	0.0046
11/05/01	RST-00303	B	720	Air	15.29	0.008	1***	0	0	8.61	0.0046
11/05/01	RST-00304	C1	720	Air	10.19	0.005	0	0	0	<8.61	<0.0046
11/05/01	RST-00305	H	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00306	I	720	Air	8.92	0.005	0	0	0	<8.61	<0.0046
11/05/01	RST-00307	D	707	Air	11.46	0.005	0	0	0	<8.61	<0.0046
11/05/01	RST-00308	K	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00309	T	674	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00310	U	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00311	V	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00312	S	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00313	P	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00315	E	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	RST-00300	F	720	Air	8.92	0.005	0	0	0	<8.61	<0.0046
11/05/01	RST-00314	P-Duplicate	720	Air	<7.0	<0.004	0	0	0	<8.61	<0.0046
11/05/01	FBI10691	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/05/01	TB110691	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

0002 0003 0004 0005 0006 0007 0008 0009 0010 0011 0012 0013 0014 0015 0016 0017 0018 0019 0020 0021 0022 0023 0024 0025 0026 0027 0028 0029 0030 0031 0032 0033 0034 0035 0036 0037 0038 0039 0040 0041 0042 0043 0044 0045 0046 0047 0048 0049 0050 0051 0052 0053 0054 0055 0056 0057 0058 0059 0060 0061 0062 0063 0064 0065 0066 0067 0068 0069 0070 0071 0072 0073 0074 0075 0076 0077 0078 0079 0080 0081 0082 0083 0084 0085 0086 0087 0088 0089 0090 0091 0092 0093 0094 0095 0096 0097 0098 0099 0100

Sampling Locations

- A: NE corner of West Broadway & Barclay
- B: SE corner of West Broadway & Dev St
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of West St. at Broadway
- I: SE corner of Wall St. at Broadway
- J: NE corner of Warren & West St
- K: West St. & Albany at Manhattan
- L: On Albany (West) side of North Plank rec area (north side of Suyvesant High), access to TACA bus area

- M: Western end of Harrison St. at West St. (on fire next to bulkhead)
- M1: West St., 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TACA Bus Location
- S: Beach & South End
- T: Pier 6 East part
- U: Pier 6 East
- V: Pier 6 Bus Sign

Key:  
 \* Sample volumes (filters) is below recommended limit for the TEM method; volume is based on pump setting  
 \*\* Structures (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not applicable for TEM  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 1, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 10/26/2001 12:00 to 10/26/2001 24:00

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)				
					f/mm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*	
		Staten Island PS #44	NS	NS	NS	NS	NS	NS	NS	NS	NS
10/26/01	7093-15-0028	Manhattan PS #143	1248	Air	<7.0	<0.002	0	0	<15.50	<0.0048	<0.0048
10/26/01	7094-09-0024	Bronx PS #154	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041	<0.0041
10/26/01	7096-12-0025	Queens PS #199	1232	Air	<7.0	<0.002	0	0	<15.50	<0.0048	<0.0048
10/26/01	7095-98-0026	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041	<0.0041
10/26/01	7093-18-0029	Pace U.	1086***	Air	<7.0	<0.002	0	0	<12.92	<0.0046	<0.0046
10/26/01	7093-19-0029	BMCC	784***	Air	<7.0	<0.003	0	0	<9.69	<0.0048	<0.0048
10/26/01	7093-20-0029	Coast Guard	1304	Air	<7.0	<0.002	0	0	<15.50	<0.0046	<0.0046

ccc n/a

Key:

- NS: Not sampled
- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 10/26/2001 1210 to 2318 and 10/27/01 1200 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
10/26/01	7097-18-0024	Staten Island PS #44	1356	Air	<7.0	<0.002	0	0	<15.50	<0.0044
10/27/01	7095-98-0027	Brooklyn PS #274	1394	Air	<7.0	<0.002	0	0	<15.50	<0.0043
10/27/01	7096-12-0026	Queens PS #199	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
NS	NS	Bronx PS #154	NS	NS	NS	NS	NS	NS	NS	NS
10/27/01	7093-15-0029	Manhattan PS #143	1422	Air	<7.0	<0.002	0	0	<15.50	<0.0042
10/27/01	7093-19-0030	BMCC	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/27/01	7093-18-0030	Pace U.	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/27/01	7093-20-0030	Coast Guard	1202	Air	<7.0	<0.002	0	0	<15.50	<0.0050

cc: n/a

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- NS: Not sampled

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 10/29/2001 12:00 to 10/29/2001 24:00

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
10/29/01	7097-19-0026	Staten Island PS #44	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/29/01	7095-98-0029	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/29/01	7094-09-0026	Bronx PS #154	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/29/01	7093-15-0031	Manhattan PS #143	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0044
10/29/01	7093-19-0032	BMCC	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0044
10/29/01	7093-18-0032	Pace U.	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/29/01	7093-20-0032	Coast Guard	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/29/01	7096-12-0028	Queens PS #199	96***	Air	<7.0	<0.028	0	0	<7.75	<0.0311

cdc n/a

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 10/31/2001 12:00 to 10/31/2001 24:00

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
							0.5µ - 5µ	5µ		
10/31/01	7094-09-0028	Bronx PS #154	1286	Air	<7.0	<0.002	0	0	<15.50	<0.0046
10/31/01	7097-16-0028	Staten Island PS #44	1222	Air	<7.0	<0.002	0	0	<15.50	<0.0049
10/31/01	7095-98-0031	Brooklyn PS #274	1268	Air	<7.0	<0.002	0	0	<15.50	<0.0047
10/31/01	7096-12-0030	Queens PS #199	1248	Air	<7.0	<0.002	0	0	<15.50	<0.0048
10/31/01	7093-15-0033	Manhattan PS #143	1286	Air	<7.0	<0.002	0	0	<15.50	<0.0046
10/31/01	7093-20-0034	Coast Guard	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/31/01	7093-18-0034	Pace U.	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/31/01	7093-19-0034	BMCC	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041

cdc n/a

Key:

\*Structure (S) roughly equivalent to fiber (f)

\*\* Sample volume is based on pump reading

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 07, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	52	13:00:00	10	00:15:00	100	0.0	2.8	9.5	218.2
2	-74.198262	40.566883	2295	1	52	13:00:00	10	00:15:00	100	0.0	6.0	42.5	8071.8
3	-74.198685	40.570054	2011	1	47	11:45:00	10	00:15:00	100	0.0	7.6	35.6	8285.0
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	47	11:45:00	10	00:15:00	100	0.0	13.2	31.3	1157.0
8	-74.203019	40.561915	2363	1	47	11:45:00	10	00:15:00	100	0.0	11.4	77.2	5644.5

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 01, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	48	12:00:00	10	00:15:00	100	0.0	1.0	25.3	1026.0
2	-74.198262	40.566883	2012	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
3	-74.198685	40.570054	2011	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	2295	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
8	-74.203019	40.561915	2363	1	48	12:00:00	10	00:15:00	100	0.0	0.0	49.6	375.5

Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
November 02, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	45	11:15:00	10	00:15:00	100	0.0	3.1	7.0	94.5
2	-74.198262	40.566883	2295	1	45	11:15:00	10	00:15:00	100	0.0	10.6	39.9	1708.6
3	-74.198685	40.570054	2011	1	45	11:15:00	10	00:15:00	100	0.0	8.1	45.7	2354.9
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	45	11:15:00	10	00:15:00	100	0.0	0.0	28.4	1082.4
8	-74.203019	40.561915	2363	1	45	11:15:00	10	00:15:00	100	0.0	0.0	34.1	1692.6

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 03, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
2	-74.198262	40.566883	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
3	-74.198685	40.570054	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
8	-74.203019	40.561915	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0



Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
November 04, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	46	11:30:00	10	00:15:00	100	0.0	1.5	7.7	1217.3
2	-74.198262	40.566883	2295	1	46	11:30:00	10	00:15:00	100	0.0	0.0	22.7	1339.0
3	-74.198685	40.570054	2011	1	43	10:45:00	10	00:15:00	100	0.0	6.3	20.4	864.6
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	46	11:30:00	10	00:15:00	100	0.0	5.4	14.3	1038.5
8	-74.203019	40.561915	2363	1	44	11:00:00	10	00:15:00	100	0.0	0.0	13.3	921.8

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 05, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2246	1	47	11:45:00	10	00:15:00	100	0.0	1.8	11.4	414.1
2	-74.198262	40.566883	2295	1	47	11:45:00	10	00:15:00	100	0.0	0.0	16.8	14727.8
3	-74.198685	40.570054	2011	1	46	11:30:00	10	00:15:00	100	0.0	0.0	9.6	1287.9
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	46	11:30:00	10	00:15:00	100	0.0	0.0	29.4	820.2
8	-74.203019	40.561915	2363	1	45	11:15:00	10	00:15:00	100	0.0	0.0	80.0	2231.2

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 06, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2246	1	43	10:45:00	10	00:15:00	100	0.0	0.0	9.0	74.0
2	-74.198262	40.566883	2295	1	49	12:15:00	10	00:15:00	100	0.0	0.3	14.9	611.5
3	-74.198685	40.570054	2011	1	49	12:15:00	10	00:15:00	100	0.0	1.4	21.8	1836.0
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	49	12:15:00	10	00:15:00	100	0.0	3.1	9.3	1542.1
8	-74.203019	40.561915	2363	1	48	12:00:00	10	00:15:00	100	0.0	0.0	47.7	6084.5

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 October 31, 2001

Location	Longitude	Latitude	DataRam ID	Tag#	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2011	1	22	05:30:00	10	00:15:00	100	0.0	0.0	13.4	2402.0
2	-74.198262	40.566883	2295	1	22	05:30:00	10	00:15:00	100	0.0	0.0	8.7	124.8
3	-74.198685	40.570054	2294	1	22	05:30:00	10	00:15:00	100	0.0	0.0	15.5	148.3
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	2012	1	21	05:15:00	10	00:15:00	100	0.0	0.0	13.7	422.8
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
8	-74.203019	40.561915	2363	1	21	05:15:00	10	00:15:00	100	0.0	0.0	18.1	672.2

NYC Emergency Response  
Air Samples - dibenz and furan results  
Sampling Date: 10/16/01

Sample No.	WG9257-1 Method Blank		01045 R-TAGA		01046 R-TAGA		01047 A-Derlely & West Broadway		01048 B-Church & Day SL		01049 Loc 3A Between WTC 4 & WTC 5	
Volume (Liters)	Result	EMPC	MDL	ng	Result	EMPC	MDL	ng/m <sup>3</sup>	Result	EMPC	MDL	ng/m <sup>3</sup>
Analyte	ng	ng	ng	ng	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
2378-TCDF	U	0.027	0.10	U	0.0030	0.0030	0.0030	U	U	0.0035	0.0035	0.0035
12378-PeCDF	U	0.027	0.10	U	0.015	0.015	0.015	U	U	0.015	0.015	0.015
123478-HxCDF	U	0.012	0.10	U	0.015	0.015	0.015	U	U	0.015	0.015	0.015
123478-HxCDF	U	0.012	0.10	U	0.015	0.015	0.015	U	U	0.015	0.015	0.015
123478-HxCDF	U	0.012	0.10	U	0.015	0.015	0.015	U	U	0.015	0.015	0.015
123478-HxCDF	U	0.012	0.10	U	0.015	0.015	0.015	U	U	0.015	0.015	0.015
123478-HxCDF	U	0.012	0.10	U	0.015	0.015	0.015	U	U	0.015	0.015	0.015
123478-HxCDF	U	0.012	0.10	U	0.015	0.015	0.015	U	U	0.015	0.015	0.015
123478-HxCDF	U	0.012	0.10	U	0.015	0.015	0.015	U	U	0.015	0.015	0.015
123478-HxCDF	U	0.012	0.10	U	0.015	0.015	0.015	U	U	0.015	0.015	0.015
123478-HxCDF	U	0.012	0.10	U	0.015	0.015	0.015	U	U	0.015	0.015	0.015
123478-HxCDF	U	0.012	0.10	U	0.015	0.015	0.015	U	U	0.015	0.015	0.015
OCDF	U	0.0082	0.20	U	0.030	0.030	0.030	U	U	0.030	0.030	0.030
Total TCDFs	U			U				U	U			
Total PeCDFs	U			U				U	U			
Total HxCDFs	U			U				U	U			
Total HxCDFs	U			U				U	U			
Total HxCDFs	U			U				U	U			
Total TCDFs	U			U				U	U			
Total PeCDFs	U			U				U	U			
Total HxCDFs	U			U				U	U			
Total HxCDFs	U			U				U	U			
Total Adjusted Conc												
TEQ (ND=12)					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TEQ (ND=12)					0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033

CCCF 0327  
EMPC: Estimated Maximum Possible Concentration  
TEQ: Toxicity Equivalent  
The TEQ (ND=12) is calculated using 1/2 of the estimated detection limit for U (non-detect) values.

NIC Emergency Response  
 AA Sampling Analysis  
 Sampling Date 10/14/01

Sample No. Volume (liters) Analyte	01050 C11-Liberty St. & Broadway 4830			01051 D-Greenwich & Albany St. 4820			01052 P-Albany St. & South End 4820			01053 S-Steiner Place & South End Ave. 4100			01054 E-Liberty St. & South End Ave. 4820			01055 Field Blank			01056 Lot Blank		
	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng	EMPC ng	MDL ng	Result ng	EMPC ng	MDL ng			
2516 TCDF	U	0.0552	0.0241	U	0.0205	0.0241	U	0.0242	U	0.0242	U	0.0242	U	0.0242	U	0.0242	U	0.0242			
12378-PeCDD	U	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
12378-HxCDD	0.0047 J	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
12378-HxCDF	0.0093 J	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
12378-HxCDF	0.0426	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
12378-HxCDF	0.0457	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
2276 TCDF	0.0541 J	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
2276-PeCDD	0.0191 J	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
2276-HxCDD	0.0083 J	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
12378-HxCDF	0.0071	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
12378-HxCDF	0.0092 J	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
12378-HxCDF	U	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
12378-HxCDF	0.0197 J	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
12378-HxCDF	0.0016 J	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
12378-HxCDF	0.0085 J	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
Total TCDFs	0.538	0.243	0.0522	U	0.0522	0.0522	U	0.0522	U	0.0522	U	0.0522	U	0.0522	U	0.0522	U	0.0522			
Total PeCDDs	0.456	0.193	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
Total HxCDDs	0.0083	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
Total HxCDFs	0.0942	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
Total TCDFs	0.212	0.133	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
Total PeCDDs	0.0774	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
Total HxCDDs	0.0083	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
Total HxCDFs	0.0232	0.0241	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
Total Adjusted Conc	0.6124	0.072	0.0241	U	0.0241	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241	U	0.0241			
TEQ (NI=1/2)	0.159	0.007	0.007	U	0.007	0.007	U	0.007	U	0.007	U	0.007	U	0.007	U	0.007	U	0.007			

COCC 0007

EMPC: Estimated Minimum Possible Concentration  
 TEQ: Toxicity Equivalent

\* Filter overload caused flow fault, volume is estimated.

The TEQ (NI=1/2) is calculated using 1/2 of the estimated detection limit for U (non detect) values.

10-16-01/6048/248

NO GC EVALUATION HAS BEEN PERFORMED.  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 DRAFT GC/MS Results for 11/07/01 DRAFT

File Name	NYC067	NYC068	NYC069	NYC070	NYC071	NYC072	NYC073	NYC076
Sample Location	Instrument Blank	Teled. Bag Blank	Ambient Rm 25 North	Washing Tent	North Tower Plume	South Tower Plume	Austin Techn Plaza	
Sample Number			07482	07483	07484	07485	07486	
Sample Height			breathing	breathing	ground	ground	breathing	
Volume		250 mL	250 mL	250 mL	110 mL	110 mL	250 mL	
Fluorene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	45000 ppbv	126000 ppbv	RL=20 ppbv	
Chlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Dichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Dichlorotrifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11600 ppbv	26000 ppbv	RL=20 ppbv	
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	1720 ppbv	RL=20 ppbv	
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	1830 ppbv	RL=20 ppbv	
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1350 ppbv	850 ppbv	RL=20 ppbv	
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	16700 ppbv	50000 ppbv	59 ppbv	
Trichloroethylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
MIBK	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	4300 ppbv	12200 ppbv	RL=20 ppbv	
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1250 ppbv	RL=200 ppbv	RL=20 ppbv	
2,2,4-Trimethylpentane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	12000 ppbv	13300 ppbv	RL=20 ppbv	
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	185700 ppbv	RL=20 ppbv	
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3500 ppbv	15100 ppbv	RL=20 ppbv	
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1300 ppbv	RL=200 ppbv	RL=20 ppbv	
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	183000 ppbv	51000 ppbv	RL=20 ppbv	
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3100 ppbv	11400 ppbv	RL=20 ppbv	
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1100 ppbv	1100 ppbv	39 ppbv	
Methyl isobutyl ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	810 ppbv	570 ppbv	RL=20 ppbv	
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	4100 ppbv	28000 ppbv	RL=20 ppbv	
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
2-Methylpropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11200 ppbv	950 ppbv	RL=20 ppbv	
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Dichloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Bromobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	41000 ppbv	28300 ppbv	RL=20 ppbv	
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	4200 ppbv	11800 ppbv	RL=20 ppbv	
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3700 ppbv	1620 ppbv	RL=20 ppbv	
Bromobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	17400 ppbv	9800 ppbv	RL=20 ppbv	
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1200 ppbv	1200 ppbv	RL=20 ppbv	
1,3-Dimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3500 ppbv	1000 ppbv	RL=20 ppbv	
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11800 ppbv	800 ppbv	RL=20 ppbv	
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=200 ppbv	RL=20 ppbv	

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/7/01 Every

RST: Bilie A Hoff

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (#)	COCl <sub>2</sub> (ppb)
L	0817	ND	ND	ND	20.1	ND	ND	ND	ND	ND	ND	ND	ND
M	0822	ND	ND	ND	20.1	ND	ND	ND	ND	ND	ND	ND	ND
N	0828	ND	ND	ND	20.1	ND	ND	ND	ND	ND	ND	ND	ND
J	0838	ND	ND	ND	20.1	1	ND	ND	ND	ND	ND	ND	ND
F	0844	ND	ND	ND	20.2	2	ND	ND	ND	ND	ND	ND	ND
Q	0847	ND	ND	ND	20.2	ND	ND	ND	ND	ND	ND	ND	ND
K	0855	ND	ND	ND	20.2	2	ND	ND	ND	ND	ND	ND	ND
E	0859	*	ND	ND	20.2	3	ND	ND	ND	ND	ND	ND	ND
CI	0906		ND	ND	20.2	ND	ND	ND	ND	ND	ND	ND	ND
H	0910		ND	ND	20.2	1	ND	ND	ND	ND	ND	ND	ND
I	0920		ND	ND	20.2	2	ND	ND	ND	ND	ND	ND	ND
V	0926		ND	ND	20.2	2	ND	ND	ND	ND	ND	ND	ND
K	0933		ND	ND	20.2	ND	ND	ND	ND	ND	ND	ND	ND
T	0942		ND	ND	20.2	ND	ND	ND	ND	ND	ND	ND	ND
U	0945		ND	ND	20.2	2	ND	ND	ND	ND	ND	ND	ND
V	0949		ND	ND	20.2	2	ND	ND	ND	ND	ND	ND	ND
S	0957		ND	ND	20.3	2	ND	ND	ND	ND	ND	ND	ND
P	1001		ND	ND	20.3	ND	ND	ND	ND	ND	ND	ND	ND
E	1004	↓	ND	ND	20.3	1	ND	ND	ND	ND	ND	ND	ND
<i>[Handwritten signature and scribbles]</i>													

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- CI: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location
- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Heliport)
- V: Pier 6 (Bus Sign)

\* FID MALFUNCTIONING, READINGS NOT COLLECTED



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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

*Gate*

DATE: 11/7/01

RST: B. Hoffman

Location	Time	FID (units)	PD (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1245	ND	ND	ND	20.2	ND	ND	ND	ND	ND	ND	ND	ND
M1	1248	ND	ND	ND	20.2	2	ND	ND	ND	ND	ND	ND	ND
N	1251	ND	ND	ND	20.3	1	ND	ND	ND	ND	ND	ND	ND
J	1256	ND	ND	ND	20.3	3	ND	ND	ND	ND	ND	ND	ND
F	1259	ND	ND	ND	20.3	4	ND	ND	ND	ND	ND	ND	ND
Q	1301	ND	ND	ND	20.3	ND	ND	ND	ND	ND	ND	ND	ND
A	1305	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
B	1311	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
C1	1318	ND	ND	ND	20.5	3	ND	ND	ND	ND	ND	ND	ND
H	1322	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
E	1332	ND	ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
D	1344	ND	ND	ND	20.4	3	ND	ND	ND	ND	ND	ND	ND
K	1346	ND	ND	ND	20.4	4	ND	ND	ND	ND	ND	ND	ND
T	1354	ND	ND	ND	20.4	2	ND	ND	ND	ND	ND	ND	ND
U	1356	ND	ND	ND	20.4	4	ND	ND	ND	ND	ND	ND	ND
V	1358	ND	ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
S	1407	ND	ND	ND	20.5	3	ND	ND	ND	ND	ND	ND	ND
P	1410	ND	ND	ND	20.5	4	ND	ND	ND	ND	ND	ND	ND
E	1412	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- Cl: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location

- H: Chase Plaza (Five Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Helicopter)
- V: Pier 6 (Bus Sign)

\* BEGAN USING DRAGGER GAS - 5PM  
BATTERY WAS DEAD.

\*\* FID was examined during lunch  
Page 2 of 2

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: Billie L. Hoffman

U.S. EPA: Norrell

Date: 11/7/01

RST Site Project Manager Brennan

Location	L	R	N			
DataRAM ID No.	2643	2648	2646			
Flow Rate (Liters / Minute)	2.0 <sup>l</sup> / <sub>m</sub>	2.0 <sup>l</sup> / <sub>m</sub>	2.0 <sup>l</sup> / <sub>m</sub>			
Start Time	0712	0715	0720			
Stop Time	1444	1439	1450			
Run Time (Minutes)	452	444	450			
Minimum Concentration (ug/m3)	.6 <sup>ug</sup> / <sub>m3</sub>	12.0 <sup>ug</sup> / <sub>m3</sub>	0.0 <sup>ug</sup> / <sub>m3</sub>			
Maximum Concentration (ug/m3)	25.8 <sup>ug</sup> / <sub>m3</sub>	23.3 <sup>ug</sup> / <sub>m3</sub>	23.7 <sup>ug</sup> / <sub>m3</sub>			
Average Concentration (TWA) (ug/m3)	9.6 <sup>ug</sup> / <sub>m3</sub>	16.4 <sup>ug</sup> / <sub>m3</sub>	3.8 <sup>ug</sup> / <sub>m3</sub>			



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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

EARLY

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/6/01

RST: B. Hoffman

Location	Time	FID (units)	FID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0823	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	ND
M1	0830	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	ND
N	0836	ND	ND	ND	20.5	2	ND	ND	ND	ND	ND	ND	ND
J	0841	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
F	0845	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
D	0849	ND	ND	ND	20.5	3	ND	ND	ND	ND	ND	ND	ND
A	0855	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	ND
B	0901	ND	ND	ND	20.6	2	ND	ND	ND	ND	ND	ND	ND
C1	0906	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
H	0911	ND	ND	ND	20.5	2	ND	ND	ND	ND	ND	ND	ND
I	0918	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
G	0927	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
K	0931	ND	ND	ND	20.5	2	ND	ND	ND	ND	ND	ND	ND
T	0941	ND	ND	ND	20.5	2	ND	ND	ND	ND	ND	ND	ND
U	0945	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
V	0950	ND	ND	ND	20.6	5	ND	ND	ND	ND	ND	ND	ND
S	0958	ND	ND	ND	20.7	3	ND	ND	ND	ND	ND	ND	ND
P	1003	ND	ND	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND
E	1011	ND	ND	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- C1: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Reefer and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Helipad)
- V: Pier 6 (Bus Sign)

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

EARLY

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/6/01

RST: B. Hoffman

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0823	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	ND
M1	0830	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	ND
N	0836	ND	ND	ND	20.5	2	ND	ND	ND	ND	ND	ND	ND
J	0841	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
F	0845	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
D	0849	ND	ND	ND	20.5	3	ND	ND	ND	ND	ND	ND	ND
A	0855	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	ND
B	0900	ND	ND	ND	20.6	2	ND	ND	ND	ND	ND	ND	ND
CI	0906	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
H	0911	ND	ND	ND	20.5	2	ND	ND	ND	ND	ND	ND	ND
I	0917	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
D	0927	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
K	0931	ND	ND	ND	20.5	2	ND	ND	ND	ND	ND	ND	ND
T	0941	ND	ND	ND	20.5	2	ND	ND	ND	ND	ND	ND	ND
V	0945	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
V	0950	ND	ND	ND	20.6	5	ND	ND	ND	ND	ND	ND	ND
S	0955	ND	ND	ND	20.7	3	ND	ND	ND	ND	ND	ND	ND
D	1003	ND	ND	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND
E	1011	ND	ND	ND	20.2	ND	ND	ND	ND	ND	ND	ND	ND

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- CI: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location

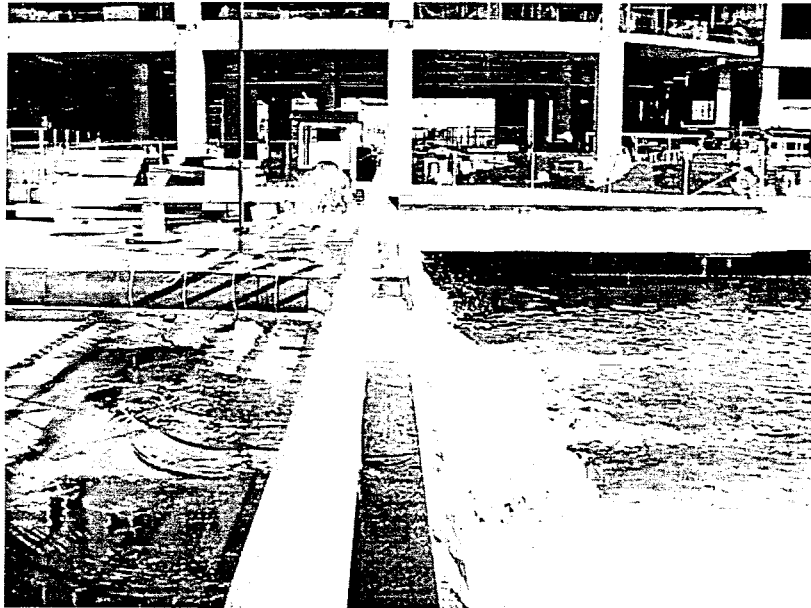
- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Helipad)
- V: Pier 6 (Bus Sign)

November 5, 2001 (10:36am)

Preliminary Data

New York City/ World Trade Center Sampling Activities  
Exchange Place PATH Dewatering 3 (10/26/01 Sample)



EPA Personnel: Richard Coleates  
Thuan Tran

Sampling Date: October 26, 2001

Location: Grab samples from direct discharge to the Hudson River.

Sample Matrix: Aqueous

Analytes (Laboratory): VOCs + Freon + MTBE (EPA Region 2)  
Microbiology (EPA Region 2)

Objective: The sampling was conducted primarily to evaluate whether PATH tunnel discharge

water contains chlorodifluoromethane (Freon 22) which has been detected at increasing concentrations in air at Ground Zero. Total and fecal coliforms and heterotrophic plate count were included in the sampling regime to address NYSDOH concerns regarding pathogens in WTC basement and PATH tunnel water.

The discharge at Exchange Place was discontinued around noon on November 2 (previous report of October 31 was incorrect), and PATH tunnel/basement effluent is currently pumped out from the PATH terminal area of the WTC in Manhattan and routed to the Newtown Creek POTW.

**Preliminary Results Summary:**

**General Characteristics:** Sample was a light amber color and had a "sewage-like" odor.

**VOCs:** Eight VOCs were detected in the sample. Chlorodifluoromethane (Freon 22) was detected at a concentration of 1600 ug/L. An analytical standard for this compound was not included in analysis of the samples collected on 10/03/01 or 10/10/01. Notwithstanding, it would have been identified as a "tentatively identified compound" (TIC) if it had been present at significant concentrations in those samples, and it was not. Freon 22 has been detected in air samples at the site, as well as in basement water samples collected by PANYNJ and others. Methyl-tertiary butyl ether (MTBE) was detected at 110 ug/L, which is slightly higher than the concentration detected in the 10/10/01 sample. Concentrations of the other six detected VOCs were consistent with those detected in the 10/03/01 and 10/10/01 samples.

Volatile Organic Compounds Detected in Exchange Place PATH Tunnel Effluent			
Date	10/03/01	10/10/01	10/26/01
Compound	Result (ug/L)	Result (ug/L)	Result (ug/L)
Chloromethane	10 QE	ND	ND
Acetone	80 QE	90 QR	99
Methylene Chloride	12	17	16
2-Butanone	21 QE	21	22
Toluene	13	18	21
2-Hexanone	10	ND	ND QE
m/p Xylenes	ND	10	12
Methyl Tert-Butyl Ether	68	65	110
Dichlorodifluoromethane	ND*	ND*	45 QS
Chlorodifluoromethane	ND*	ND*	1600

QE - Accuracy check sample below lower acceptance limit

QS- Spike recoveries above upper acceptance limit

\* Analytical standard not run, but not detected as a TIC in these samples

**Microbiology:** Total and fecal coliforms were both detected at 3000 MPN/100 ml. This is an

1234

order of magnitude or more less than the level ( $10^4$  -  $10^6$ /100 ml) in "typical" untreated domestic wastewater (Metcalf and Eddy, 1991). The heterotrophic plate count (HPC) result was to numerous to count (TNTC/1 ml).



**U.S. Environmental Protection Agency (EPA)****Daily Summary****Friday, November 9, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 9, 2001 at 5:00 p.m.)****Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 82 samples taken in and around ground zero from November 5 through November 7. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1,881, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside Manhattan:**

**Asbestos** - Additional asbestos monitors have been placed at Public School (P.S.) 154 (33 East 135<sup>th</sup> St., Bronx), Intermediate School 143 (511 W. 182<sup>nd</sup> St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48<sup>th</sup> St., Queens). Asbestos samples collected on November 1 from these locations showed no exceedances of the AHERA re-entry standard.

**Air: Fixed Monitors in New Jersey:**

**Asbestos** - Four air samples were taken in New Jersey on November 5. All samples showed results less than school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 181, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Forty-eight samples were collected from November 6 through November 7. All but five of the samples showed results less than the school re-entry standard. During this period, four samples were not analyzed due to filter overloading and four locations had sampler pump failures deeming the results invalid.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on November 8 at the Staten Island Landfill. No levels of significance were reported at three sampling locations.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on November 7 and 8<sup>th</sup> at Pace University, Borough of Manhattan Community College, and the Coast Guard building in Battery Park. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Friday, November 9, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 5, 1201 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 6, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
  - The PCM results for Locations I and D should be considered suspect and are undergoing further evaluation.
- NYC / ER (Nov 6, 1201 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 7, 0001 - 1200 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 1 locations (L) was not sampled due to a pump fault.
- NJ / ER (Nov 5)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 6, 0703 - 1948) - Asbestos
  - 2 of 13 samples analyzed were above the TEM AHERA standard.
  - Exceedances of the TEM AHERA standard occurred at "Wash" Location #11 (80 S/mm<sup>2</sup>) and Mess "Tent" Location #15 (90 S/mm<sup>2</sup>).
  - 4 samples ("Sift" Location #9B, indoor "Wash" Location #12A, "Barge" Location #14, and Supply "Tent" Location #16) were not analyzed due to particulate overloading.
  - 2 locations (Perimeter Location #1 and "Sift" Location #10A) were not sampled due to a pump fault.
- Fresh Kills (Nov 6, 1855 - Nov 7, 0808) - Asbestos
  - All 16 samples analyzed were below the TEM AHERA standard.
  - 2 locations ("Sift" Location #9A and perimeter station at "Wash" Location #12B) had a pump failure (results deemed invalid).
  - 1 location ("Barge" Location #13) was not sampled.
- Fresh Kills (Nov 7, 0703 - 2000) - Asbestos
  - 3 of 19 samples analyzed were above the TEM AHERA standard.
  - Exceedances of the TEM AHERA standard occurred at "Sift" Location #10A (80 S/mm<sup>2</sup>), "Wash" Location #11 (88.89 S/mm<sup>2</sup>) and "Barge" Location #14 (80 S/mm<sup>2</sup>).

- Fresh Kills (Nov 8) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at three stations.
  - Reduced dataram availability.

Ambient Air Sampling Locations

- NYC / ER (Nov 7) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *14.92 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *15.41 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *13.31 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 8) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *15.83 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *19.10 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *16.81 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 1) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building - Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/01/2001 1200 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
11/01/01	7094-09-0029	Bronx PS #154	1344	Air	<7.0	<0.002	0	0	<15.50	<0.0044
11/01/01	7093-15-0034	Manhattan PS #143	1244	Air	<7.0	<0.002	0	0	<15.50	<0.0048
11/01/01	7097-18-0029	Staten Island PS #44	926***	Air	<7.0	<0.003	0	0	<11.07	<0.0046
11/01/01	7095-98-0032	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
11/01/01	7096-12-0031	Queens IS #143	946***	Air	<7.0	<0.003	0	0	<11.07	<0.0045
11/01/01	7093-19-0035	BMCC	1260	Air	<7.0	<0.002	0	0	<15.50	<0.0047
11/01/01	7093-20-0035	Coast Guard	1186	Air	<7.0	<0.002	0	0	<12.92	<0.0042
11/01/01	7093-18-0035	Pace U.	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041

CGC I/A

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/05/01 1201 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	S-fiber**	S/m <sup>2</sup>	S-fiber**
11/05/01	RST-00321	Q	720	Air	7.64	0.004	0	0	-8.82	<0.0047
11/05/01	RST-00319	J	720	Air	8.92	0.005	0	0	-8.82	<0.0047
11/05/01	RST-00316	L	720	Air	<7.0	<0.004	0	0	-8.82	<0.0047
11/05/01	RST-00317	M1	720	Air	<7.0	<0.004	0	0	-8.82	<0.0047
11/05/01	RST-00318	N	720	Air	<7.0	<0.004	0	0	-8.82	<0.0047
11/05/01	RST-00322	A	720	Air	<7.0	<0.004	0	0	-8.82	<0.0047
11/05/01	RST-00323	B	665	Air	11.46	0.007	0	0	-7.94	<0.0046
11/05/01	RST-00324	C1	720	Air	24.20	0.013	0	0	-8.82	<0.0047
11/05/01	RST-00325	H	720	Air	29.30	0.016	0	0	-8.82	<0.0047
11/05/01	RST-00326	I	720	Air	12.74	0.007	0	0	-8.82	<0.0047
11/05/01	RST-00327	D	720	Air	49.68	0.027	0	0	-8.82	<0.0047
11/05/01	RST-00328	K	720	Air	14.01	0.007	0	0	-8.82	<0.0047
11/05/01	RST-00329	T	720	Air	<7.0	<0.004	0	0	-8.82	<0.0047
11/05/01	RST-00330	U	720	Air	7.64	0.004	0	0	-8.82	<0.0047
11/05/01	RST-00331	V	720	Air	<7.0	<0.004	0	0	-8.82	<0.0047
11/05/01	RST-00332	S	700	Air	<7.0	<0.004	0	0	-8.82	<0.0049
11/05/01	RST-00333	P	720	Air	<7.0	<0.004	0	0	-8.82	<0.0047
11/05/01	RST-00335	E	720	Air	<7.0	<0.004	0	0	-8.82	<0.0047
11/05/01	RST-00330	F	720	Air	7.64	0.004	0	0	-8.82	<0.0047
11/05/01	RST-00334	P-Duplicate	720	Air	<7.0	<0.004	0	0	-8.82	<0.0047
11/05/01	FB110601	Field Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>
11/05/01	TB110601	Trip Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>

ccsf 00033 and 00034

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median ship of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median ship
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 28 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Helipad
- U: Pier 6 EMT Z
- V: Pier 6 Bus Sign

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FL-11-05-01pm.xls

RST: 11/13/01

- Key:
- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
  - \*\* Structure (S) is roughly equivalent to fiber (f)
  - \*\* Chrysolite
  - NA<sup>(a)</sup> - Not analyzed due to overloading of particulates
  - NA<sup>(b)</sup> - Not analyzed for TEM
  - n/a - Not applicable

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/06/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)				
					f/mm <sup>2</sup>	f/cc	Structures (#)	5µ	5µ - 5µ	5µ - 5µ	S-f/cc**
11/06/01	RST-00341	Q	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00339	J	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00338	L	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00337	M	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00336	N	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00342	A	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00343	C	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00344	G	720	Air	20.38	0.010	0	0	0	<7.94	<0.0051
11/06/01	RST-00345	H	560	Air	15.29	0.010	0	0	0	<7.94	<0.0051
11/06/01	RST-00346	I	720	Air	12.74	0.008	0	0	0	<8.82	<0.0047
11/06/01	RST-00347	D	618	Air	54.78	0.029	0	0	0	<7.94	<0.0049
11/06/01	RST-00348	K	720	Air	11.46	0.006	0	0	0	<8.82	<0.0047
11/06/01	RST-00349	T	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00350	U	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00351	V	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00352	S	688	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00353	P	719	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00354	E	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00355	F	720	Air	7.64	0.004	0	0	0	<8.82	<0.0047
11/06/01	RST-00352	V-Duplicate	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/06/01	FB110691	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/06/01	TB110691	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

ccsl 00333 and 00334

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty St.
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on line next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCC command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Pierport
- U: Pier 6 Exit 5
- V: Pier 6 Bus Sign

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysolite  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/06/01 1201 to 2400

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-floc**
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	
11/06/01	RST-00369	M1	720	Air	<7.0	<0.004	0	0	<0.0047
11/06/01	RST-00368	M1	720	Air	7.0	<0.009	0	0	<0.0047
11/06/01	RST-00368	N1	720	Air	7.6	0.034	0	0	<0.0047
11/06/01	RST-00369	J	720	Air	8.36	0.075	0	0	<0.0047
11/06/01	RST-00360	F	720	Air	<7.0	<0.004	0	0	<0.0047
11/06/01	RST-00361	Q	720	Air	7.64	<0.004	0	0	<0.0047
11/06/01	RST-00362	A	720	Air	17.83	0.0095	0	0	<0.0047
11/06/01	RST-00363	B	720	Air	28.03	0.015	0	0	<0.0047
11/06/01	RST-00364	C1	720	Air	24.20	0.013	0	0	<0.0047
11/06/01	RST-00365	H	720	Air	14.01	0.007	0	0	<0.0047
11/06/01	RST-00366	I	720	Air	40.76	0.022	1***	0	0.0047
11/06/01	RST-00367	D	720	Air	15.29	0.008	0	0	<0.0047
11/06/01	RST-00368	K	720	Air	<7.0	<0.004	0	0	<0.0047
11/06/01	RST-00370	K-Duplicate	720	Air	<7.0	<0.004	0	0	<0.0047
11/06/01	RST-00371	T	720	Air	<7.0	<0.004	0	0	<0.0047
11/06/01	RST-00372	U	720	Air	10.19	0.005	0	0	<0.0047
11/06/01	RST-00373	S	720	Air	<7.0	<0.004	0	0	<0.0047
11/06/01	RST-00374	P	712	Air	8.92	<0.004	0	0	<0.0047
11/06/01	RST-00375	E	720	Air	<7.0	0.005	0	0	<0.0047
11/06/01	TB110701	Field Blank	0	Air	<7.0	n/a	NA(2)	NA(2)	NA(2)
11/06/01	TB110701	Trip Blank	0	Air	<7.0	n/a	NA(2)	NA(2)	NA(2)

code 0007 and 0036

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Uly St.
- C: Trinity (a.k.a. Church) & Liberty
- D: SW corner of Broadway & Liberty St.
- E: East end of Albany St. at Greenwich St.
- F: Western end of Liberty St. at South End Ave
- G: Northern median strip of Vesey & West St
- H: Church and Duane St.
- I: South side of Chase Manhattan Plaza at Pine St.
- J: SE corner of Wall St. & Broadway
- K: NE corner of Wall Street & West St.
- L: On walkway toward North Park (across north side of Suyvesant High), access to TAGA bus area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/04  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup>: Not analyzed due to overloading of particulates
- NA<sup>(2)</sup>: Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Not sampled

- M: Western end of Harrison St. at West St.
- M1: (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign



NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/07/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (f)	f/m <sup>2</sup>	S/fcc**	S/fcc**
11/07/01	RST-00376	M1	Z20	Air	10.19	0.005	0	-8.82	-0.0047	NS
11/07/01	RST-00377	N	Z20	Air	-7.0	-0.004	0	-8.82	-0.0047	NS
11/07/01	RST-00378	J	Z20	Air	14.01	0.007	0	-8.82	-0.0047	NS
11/07/01	RST-00379	F	Z20	Air	-7.0	-0.004	0	-8.82	-0.0047	NS
11/07/01	RST-00380	Q	Z20	Air	-7.0	-0.004	0	-8.82	-0.0047	NS
11/07/01	RST-00381	A	Z20	Air	11.46	0.006	0	-8.82	-0.0047	NS
11/07/01	RST-00382	B	Z20	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	-8.82	-0.0047	NS
11/07/01	RST-00383	C1	Z20	Air	14.01	0.007	0	-8.82	-0.0047	NS
11/07/01	RST-00384	H	665	Air	-7.0	-0.004	0	-7.94	-0.0046	NS
11/07/01	RST-00385	I	Z20	Air	10.19	0.005	0	-8.82	-0.0047	NS
11/07/01	RST-00386	D	662	Air	-7.0	-0.004	0	-7.94	-0.0046	NS
11/07/01	RST-00387	K	Z20	Air	-7.0	-0.004	0	-8.82	-0.0047	NS
11/07/01	RST-00388	T	Z20	Air	-7.0	-0.004	0	-8.82	-0.0047	NS
11/07/01	RST-00389	U	Z20	Air	-7.0	-0.004	0	-8.82	-0.0047	NS
11/07/01	RST-00390	V	Z20	Air	7.64	0.004	0	-8.82	-0.0047	NS
11/07/01	RST-00391	S	Z20	Air	10.19	0.005	0	-8.82	-0.0047	NS
11/07/01	RST-00392	P	Z20	Air	-7.0	-0.004	0	-8.82	-0.0047	NS
11/07/01	RST-00393	E	Z20	Air	-7.0	-0.004	0	-8.82	-0.0047	NS
11/07/01	RST-00394	E-Duplicate	Z20	Air	-7.0	-0.004	0	-8.82	-0.0047	NS
11/07/01	FB110701	Field Blank	0	Air	-7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/07/01	TB110701	Trip Blank	0	Air	-7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

cas# 00038 and 00040

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on fire next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

Key:  
 • Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysolite  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Not sampled

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/06/01 0703 to 11/06/2001 1948

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)							
					f/m <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-fiber**					
11/06/01	LF00316	P-1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11/06/01	LF00317	P-2	706	Air	<-0.004	<-0.004	0	0	0	<-8.89	<-0.0048	<-0.0048	<-0.0048	<-0.0048
11/06/01	LF00318	P-3	678	Air	<-0.004	<-0.004	0	0	0	<-8.89	<-0.0048	<-0.0048	<-0.0048	<-0.0048
11/06/01	LF00319	P-4	697	Air	<-0.004	<-0.004	2***	0	0	17.78	0.0098	0.0098	0.0098	0.0098
11/06/01	LF00320	P-5	700	Air	<-0.004	<-0.004	0	0	0	<-8.89	<-0.0049	<-0.0049	<-0.0049	<-0.0049
11/06/01	LF00321	P-6	701	Air	<-0.004	<-0.004	0	0	0	<-8.89	<-0.0049	<-0.0049	<-0.0049	<-0.0049
11/06/01	LF00322	P-7	720	Air	<-0.004	<-0.004	0	0	0	<-8.89	<-0.0048	<-0.0048	<-0.0048	<-0.0048
11/06/01	LF00323	P-8	637	Air	<-0.004	<-0.004	2***	0	0	16	0.0097	0.0097	0.0097	0.0097
11/06/01	LF00324	S-9A	690	Air	<-0.004	<-0.004	3***	0	0	24	0.0134	0.0134	0.0134	0.0134
11/06/01	LF00325	S-9B	692	Air	<-0.004	<-0.004	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/06/01	LF00326	S-10A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11/06/01	LF00327	S-10B	695	Air	<-0.004	<-0.004	3***	0	0	24	0.0133	0.0133	0.0133	0.0133
11/06/01	LF00328	W-11	696	Air	8.92	0.005	9***	0	0	80	0.0443	0.0443	0.0443	0.0443
11/06/01	LF00329	W-12A	687	Air	<-0.004	<-0.004	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/06/01	LF00330	W-12B	720	Air	<-0.004	<-0.004	5	0	0	44.44	0.0238	0.0238	0.0238	0.0238
11/06/01	LF00331	B-13	703	Air	<-0.004	<-0.004	3***	2***	2***	44.44	0.0243	0.0243	0.0243	0.0243
11/06/01	LF00332	B-14	703	Air	<-0.004	<-0.004	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/06/01	LF00333	T-15	873	Air	<-0.003	<-0.003	9***	0	0	90	0.0397	0.0397	0.0397	0.0397
11/06/01	LF00334	T-16	672	Air	<-0.004	<-0.004	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/06/01	LF00335	Lot Blank	0	Air	<-0.004	<-0.004	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/06/01	LF00336	Trip Blank	0	Air	<-0.004	<-0.004	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key: \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 \*\*\*\* One Amosite and one Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NS - Sample not submitted due to pump failure

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/06/01 1655 to 11/07/01 0800

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm?	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**	
11/06/01	LF00337	P-1	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	0	<8.75	<0.0047
11/06/01	LF00338	P-2	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/06/01	LF00339	P-3	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/06/01	LF00340	P-4	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/06/01	LF00341	P-5	739	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/06/01	LF00342	P-6	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/06/01	LF00343	P-7	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/06/01	LF00344	P-8	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/06/01	LF00345	S-9A	0	Air	R	R	R	R	R	R
11/06/01	LF00346	S-9B	320	Air	<7.0	<0.008	0	0	<7.87	<0.0085
11/06/01	LF00347	S-10A	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/06/01	LF00348	S-10B	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	0	<8.75	<0.0047
11/06/01	LF00349	W-11	564.3	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	1***	0	7.87	0.0054
11/06/01	LF00350	W-12A	633.9	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	3***	1***	31.60	0.0191
11/06/01	LF00351	W-12B	0	R	R	R	R	R	R	R
11/06/01	LF00352	B-13	NS	NS	NS	NS	NS	NS	NS	NS
11/06/01	LF00353	B-14	711.9	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/06/01	LF00354	T-15	595	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	0	<7.87	<0.0057
11/06/01	LF00355	T-16	683	Air	11.46	0.006	2***	0	17.51	0.0099
11/06/01	LF00356	Lot Blank	0	Air	<7.0	n/a	0	0	<7.87	0.0099
11/06/01	LF00356	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

CCC-NO. 618

- Key:**
- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
  - \*\* Structure (S) is roughly equivalent to fiber (f)
  - \*\*\* Chromsiles
  - NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
  - NA<sup>(2)</sup> - Not analyzed for TEM
  - n/a - Not applicable
  - NS - Sample not submitted due to faulty pump/battery
  - R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/07/01 0703 to 11/07/01 2000

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	0.5µ-5µ	5µ	S-f/cc**
11/07/01	LF00357	P-1	720	Air	10.19	0.005	4***	2***	53.33	0.0285
11/07/01	LF00358	P-2	720	Air	15.29	0.008	1***	0	8.89	0.0048
11/07/01	LF00359	P-3	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/07/01	LF00360	P-4	707	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/07/01	LF00361	P-5	712	Air	7.64	0.004	0	0	<8.89	<0.0048
11/07/01	LF00362	P-6	514	Air	<7.0	<0.005	0	0	<8.00	<0.0060
11/07/01	LF00363	P-7	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/07/01	LF00364	P-8	582	Air	<7.0	<0.005	0	0	<8.00	<0.0053
11/07/01	LF00365	S-9A	680	Air	9.55	0.005	1***	1***	16	0.0091
11/07/01	LF00366	S-9B	399	Air	20.38	0.020	3***	1***	32	0.0309
11/07/01	LF00367	S-10A	708	Air	16.56	0.009	9***	0	80	0.0435
11/07/01	LF00368	S-10B	717	Air	15.92	0.009	9***	0	8.89	0.0048
11/07/01	LF00369	W-11	707	Air	22.83	0.0125	10***	0	88.89	0.0484
11/07/01	LF00370	W-12A	687	Air	12.74	0.007	4***	1***	40	0.0231
11/07/01	LF00371	W-12B	670	Air	16.56	0.0095	0	0	<8.00	<0.0048
11/07/01	LF00372	B-13	719	Air	10.63	0.006	0	0	<8.89	<0.0048
11/07/01	LF00373	B-14	718	Air	14.01	0.0075	8***	1***	80	0.0429
11/07/01	LF00374	T15	710	Air	12.74	0.007	7***	0	62.22	0.0337
11/07/01	LF00375	T16	112	Air	<7.0	<0.024	3***	0	24	0.0825
11/07/01	LF00376	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/07/01	LF00377	Tip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

COC No. n/a

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- \*\*\*\* 1 Amosite and 6 Chrysotile structures
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Sample not submitted due to no sample volume
- R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Asbestos Air Sampling Results NYC ER/NJ/DEP  
 Sampling Date and Time: 11/05/2001 1002 to 1934

Date Sampled	Sample No.	Sampling Location	Sample Volume <sup>1</sup>	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ	S/mm <sup>2</sup>	S-f/cc*
11/05/01	1LIB110501	Liberty Park	918	Air	<7.0	<0.003	0	0	<11.43	<0.0048
11/05/01	2CIT110501	CITGO Terminal	1048	Air	<7.0	<0.003	0	0	<13.33	<0.0049
11/05/01	3FMC110501	FMC Terminal	796	Air	<7.0	<0.003	0	0	<10	<0.0048
11/05/01	4SHL110501	Shell Terminal	604	Air	<7.0	<0.004	0	0	<7.27	<0.0046
11/05/01	5FLD110501	Field Blank	0	Air	<7.0	n/a	NA	NA	NA	NA

COC No. is not available

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading
- n/a - Not applicable
- NA - Not analyzed for TEM

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

**Sampling Location**  
 Liberty Park  
 CITGO Terminal  
 FMC Terminal  
 Shell Terminal

**Sampling Times**  
 11/05/01 1002 - 1741  
 11/05/01 1050 - 1934  
 11/05/01 1119 - 1757  
 11/05/01 1135 - 1637

**Daily DataRam Particulate Monitoring Summary Sheet**  
**Staten Island Landfill**  
**November 08, 2001**

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	33	08:15:00	10	00:15:00	100	0.0	0.0	12.2	17145.5
2	-74.198262	40.566883	2295	1	0	00:00:00	10	00:15:00	100	0.0	0.0	0.0	0.0
3	-74.198685	40.570054	2011	1	0	00:00:00	10	00:15:00	100	0.0	0.0	0.0	0.0
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	48	12:00:00	10	00:15:00	100	0.0	16.5	34.7	1108.1
8	-74.203019	40.561915	2363	1	47	11:45:00	10	00:15:00	100	0.0	13.8	33.1	141.4

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Saturday, November 10, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 10, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 39 samples taken in and around ground zero from November 7 through November 8. In addition, EPA sampled for asbestos at three recently added lower Manhattan locations from October 30 to November 3, for a total of 48 samples in this period. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1,929, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected on October 30, November 2 and 3<sup>rd</sup> from these locations showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

Air (Asbestos) - Nineteen samples were collected from November 7 through November 8. All were below the school re-entry standard.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on November 8 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene in samples from the North Tower and South Tower debris piles in the plume exceeded the OSHA PEL of 1 part per million (ppm). Elevated levels of toluene, ethyl benzene and styrene were found in the sample from the North Tower debris pile, but all levels were below the respective OSHA PELs.

1250

**Particulate Monitoring** - EPA used portable monitors to collect samples on November 8 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**Direct Air Readings** - Direct readings taken on November 8 in and around ground zero showed no levels of significance.



**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))**  
**Air / Bulk / Wipe / Water Sampling Situation Report**  
**Saturday, November 10, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 7, 1201 - 2400 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 8, 0001 - 1200 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 1 location (H - duplicate) was not sampled due to a pump fault.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 7, 1953 - Nov 8, 0655) - Asbestos
  - All 19 samples analyzed were above the TEM AHERA standard.
  - 1 location ("Barge" Location #13) was not sampled.

Ambient Air Sampling Locations

- NYC / ER (Nov 8) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 7½ hours.
  - Station L values ranged from 4.5 to 154.4 ug/m<sup>3</sup> with an average of 44.9 ug/m<sup>3</sup>.
  - Station N values ranged from 0.0 to 162.7 ug/m<sup>3</sup> with an average of 32.2 ug/m<sup>3</sup>.
  - Station R values ranged from 17.7 to 102.4 ug/m<sup>3</sup> with an average of 33.9 ug/m<sup>3</sup>.
- NYC / ER (Oct 30) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St, Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.

- NYC / ER (Nov 2) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
- NYC / ER (Nov 3) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
- NYC / ER (Nov 8) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) on the debris pile in the plume at ground level.
  - Benzene level at North Tower was 180 ppmv.
  - Elevated levels of toluene (74 ppmv), ethyl benzene (67 ppmv), and styrene (40 ppmv) also noted in the sample collected from North Tower on the debris pile in the plume at ground level. Note: all levels below respective OSHA PELs.
  - 1 of the 2 other samples ("Wash Tent") did not note any benzene above the detection limit (20 ppbv).

#### Direct Reading Instruments

- NYC / ER (Nov 8)
  - Nothing of significance reported.

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/07/01 12:01 to 2:40  
Data Validation Date: 11/09/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/cm <sup>2</sup>	f/cc	Structures (f)	S/mm <sup>2</sup>	S-f/cc**
11/07/01	RST-00385	M	720	Air	17.46	0.005	0	0	<0.0047
11/07/01	RST-00387	N	720	Air	<7.0	<0.004	0	0	<0.0047
11/07/01	RST-00388	F	720	Air	14.01	0.007	0	0	<0.0047
11/07/01	RST-00400	G	720	Air	11.46	0.006	2***	0	0.0034
11/07/01	RST-00401	A	720	Air	<7.0	<0.004	0	0	<0.0047
11/07/01	RST-00402	B	720	Air	16.56	0.009	0	0	<0.0047
11/07/01	RST-00403	B-Duplicate	720	Air	17.83	0.0095	0	0	<0.0047
11/07/01	RST-00404	C1	720	Air	21.66	0.012	1***	0	0.0047
11/07/01	RST-00405	H	720	Air	11.46	0.006	0	0	<0.0047
11/07/01	RST-00406	I	720	Air	20.38	0.011	1***	0	0.0047
11/07/01	RST-00407	D	720	Air	15.29	0.008	0	0	<0.0047
11/07/01	RST-00408	K	720	Air	10.19	0.005	0	0	<0.0047
11/07/01	RST-00409	T	720	Air	<7.0	<0.004	0	0	<0.0047
11/07/01	RST-00410	U	720	Air	<7.0	<0.004	0	0	<0.0047
11/07/01	RST-00411	V	720	Air	<7.0	<0.004	0	0	<0.0047
11/07/01	RST-00412	S	720	Air	<7.0	<0.004	0	0	<0.0047
11/07/01	RST-00413	P	720	Air	<7.0	<0.004	0	0	<0.0047
11/07/01	RST-00414	E	720	Air	<7.0	<0.004	0	0	<0.0047
11/07/01	FH110901	Field Blank	0	Air	<7.0	n/a	NA <sup>(9)</sup>	NA <sup>(9)</sup>	NA <sup>(9)</sup>
11/07/01	TB110901	Trip Blank	0	Air	<7.0	n/a	NA <sup>(9)</sup>	NA <sup>(9)</sup>	NA <sup>(9)</sup>

conf 00041 and 00042

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church & Liberty St.
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant Hglt), access to TAGA bus area

- M: Western end of Harrison St. at West St.
- M1: (on tree next to bulkhead)
- N: West St. - 50 yards south of Harrison St. at bulkhead
- N1: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Hellport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Key:  
\* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysotile  
NA<sup>(9)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(8)</sup> - Not analyzed for TEM  
n/a - Not applicable  
NR - Not requested  
NS - Not sampled

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/08/01 0001 to 1200  
 Data Validation Date: 11/09/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S-f/cc**	
11/08/01	RST-00415	L	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/08/01	RST-00416	M1	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/08/01	RST-00417	N	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/08/01	RST-00418	J	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/08/01	RST-00419	F	684	Air	7.64	0.004	0	0	0	<8.82	<0.0047
11/08/01	RST-00420	Q	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/08/01	RST-00421	A	545	Air	<7.0	<0.005	0	0	0	<7.94	<0.0056
11/08/01	RST-00422	B	720	Air	12.74	0.007	0	0	0	<8.82	<0.0047
11/08/01	RST-00423	C1	720	Air	19.11	0.010	0	0	0	<8.82	<0.0047
11/08/01	RST-00424	H	720	Air	14.01	0.007	0	0	0	<8.82	<0.0047
11/08/01	-	H-Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS
11/08/01	RST-00425	I	720	Air	16.56	0.009	0	0	0	<8.82	<0.0047
11/08/01	RST-00426	D	720	Air	11.46	0.006	0	0	0	<8.82	<0.0047
11/08/01	RST-00427	K	720	Air	7.64	0.004	0	0	0	<8.82	<0.0047
11/08/01	RST-00428	T	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/08/01	RST-00429	U	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/08/01	RST-00430	V	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/08/01	RST-00431	S	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/08/01	RST-00432	E	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/08/01	RST-00433	L	720	Air	<7.0	<0.004	0	0	0	<8.82	<0.0047
11/08/01	FB110801	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/08/01	TB110801	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

cont. 00043 and 00045

- Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Day St.  
 C: Trinity (a.k.a. Church) & Liberty St.  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St.  
 H: Church and Duane St.  
 I: South side of Chase Manhattan Plaza at Pine St.  
 J: SE corner of Wall St. & Broadway  
 K: NE corner of Warren & West St.  
 L: On West St. & Albany in median strip  
 M: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 P: South side of Pier 25 (next to volleyball ct)  
 P1: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Hellport  
 U: Pier 6 Exit 2  
 V: Pier 6 bus sign

- Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 (3) - Chrysolite  
 NA<sup>(3)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 1, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 10/30/2001 1200 to 2400

Data Validation Date: 11/09/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
10/30/01	7093-19-0033	BMCC	1202	Air	<7.0	<0.002	0	0	<15.50	<0.0050
10/30/01	7093-18-0035	Pace Univ.	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/30/01	7093-20-0033	Coast Guard	1000***	Air	<7.0	<0.003	0	0	<12.92	<0.0050
10/30/01	7097-18-0027	Staten Is. PS-44	992***	Air	<7.0	<0.003	0	0	<12.92	<0.0050
10/30/01	7095-98-0030	Brooklyn PS-274	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/30/01	7096-12-0029	Queens PS-199	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/30/01	7094-09-0027	Bronx PS-154	1440	Air	<7.0	<0.002	0	0	<15.50	<0.0041
10/30/01	7095-15-0032	Manhattan PS-143	1166***	Air	<7.0	<0.002	0	0	<12.92	<0.0043

cpc n/8

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/02/2001 1200 to 2400

Data Validation Date: 11/09/01

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
11/02/01	7093-15-0035	Manhattan PS #143	1392	Air	<7.0	<0.002	0	0	<15.87	<0.0044
11/02/01	7094-09-0030	Bronx PS #154	1234	Air	<7.0	<0.002	0	0	<15.87	<0.0049
11/02/01	7096-12-0032	Queens PS #199	1400	Air	<7.0	<0.002	0	0	<15.87	<0.0044
11/02/01	7095-98-0033	Brooklyn PS #274	1394	Air	<7.0	<0.002	0	0	<15.87	<0.0044
11/02/01	7095-19-0036	BMCC	1440	Air	<7.0	<0.002	0	0	<15.87	<0.0042
11/02/01	7093-18-0036	Pace U.	1440	Air	<7.0	<0.002	0	0	<15.87	<0.0042
11/02/01	7093-20-0036	Coast Guard	1364	Air	<7.0	<0.002	0	0	<19.84	<0.0056
11/02/01	7097-18-0030	Staten Island PS #44	1422	Air	<7.0	<0.002	0	0	<15.87	<0.0043

ccg n/a

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/03/2001 1200 to 2400

Data Validation Date: 11/09/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
11/03/01	7093-15-0036	Manhattan PS #143	1332	Air	NR	NR	0	0	<15.87	<0.0046
11/03/01	7093-18-0037	Pace U	1440	Air	NR	NR	0	0	<15.87	<0.0042
11/03/01	7093-19-0037	BMCC	1020***	Air	NR	NR	0	0	<13.23	<0.0050
11/03/01	7093-20-0037	Coast Guard	964***	Air	NR	NR	0	0	<11.34	<0.0045
11/03/01	7095-98-0034	Brooklyn PS #274	1440	Air	NR	NR	0	0	<15.87	<0.0042
11/03/01	7094-09-0031	Bronx PS #154	1152***	Air	NR	NR	0	0	<13.23	<0.0044
11/03/01	7096-12-0033	Queens PS #199	1062***	Air	NR	NR	0	0	<13.23	<0.0048
11/03/01	7097-18-0031	Staten Island PS #44	964***	Air	NR	NR	0	0	<11.34	<0.0045

cdc n/a

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- NR - Not requested

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Data Validation Date: 11/09/01

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/07/01 19:53 to 11/08/01 06:35

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S-f/cc**	
11/07/01	LF00378	P-1	891	Air	<7.0	<0.004	0	0	0	<8.75	<0.0049
11/07/01	LF00379	P-2	713	Air	<7.0	<0.007	0	0	0	<8.75	<0.0047
11/07/01	LF00380	P-3	387	Air	<7.0	<0.007	0	0	0	<8.75	<0.0047
11/07/01	LF00381	P-4	711	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/07/01	LF00382	P-5	710	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/07/01	LF00383	P-6	709	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/07/01	LF00384	P-7	711	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/07/01	LF00385	P-8	708	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/07/01	LF00386	S-9A	718.1	Air	<7.0	<0.004	2***	0	0	17.5	0.0094
11/07/01	LF00387	S-9B	320	Air	<7.0	<0.006	0	0	0	<8.75	<0.0105
11/07/01	LF00388	S-10A	715.3	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/07/01	LF00389	S-10B	706.1	Air	<7.0	<0.004	0	0	0	<8.75	<0.0048
11/07/01	LF00390	W-1A	680.3	Air	35.72	0.020	4***	0	0	35.00	0.0214
11/07/01	LF00391	W-1B	292.2	Air	<7.0	<0.004	1***	0	0	8.75	0.0049
11/07/01	NS	B-1	NS	Air	<7.0	<0.004	NS	NS	NS	NS	<0.0161
11/07/01	LF00393	B-1A	713.3	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/07/01	LF00394	T-15	713	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	0	0	<8.75	<0.0047
11/07/01	LF00395	T-16	693	Air	15.92	0.009	0	0	0	<8.75	<0.0049
11/07/01	LF00396	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/07/01	LF00397	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: R<sub>2</sub> T<sub>1</sub>

U.S. EPA: Norrell

Date: 11/8/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2648	2646	2645			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	0706	0702	0708			
Stop Time	1433	1437	1440			
Run Time (Minutes)	446	455	452			
Minimum Concentration (ug/m3)	17.7	4.5	0.0			
Maximum Concentration (ug/m3)	102.4	154.4	162.7			
Average Concentration (TWA) (ug/m3)	33.9	44.9	32.2			

GC EVALUATION HAS BEEN PERFORMED  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION

DRAFT GC/MS Results for 11/06/01 DRAFT

File name	NYC079	NYC080	NYC081	NYC082	NYC086	NYC085
Sample Location	Instrument: Blank	Tadlar Bag Blank	Washing Tent	North Tower Plume	South Tower Plume	Austin Tobin Plaza
Sample Number			07487	07488	07489	07490
Sample Height			breathing	ground	ground	breathing
Volume		250 mL	250 mL	10 mL	200 mL	100 mL
Propane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	92000 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2200 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	9200 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	960 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	250 ppbv	RL=20 ppbv	RL=20 ppbv
Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	330 ppbv	RL=20 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	93000 ppbv	300 ppbv	82 ppbv
Trichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	6200 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Methylene Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
MIBK	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Methyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
2-Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	21000 ppbv	30 ppbv	RL=20 ppbv
cis-1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	15200 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	410 ppbv	21 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1180,000 ppbv	1100 ppbv	65 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	13700 ppbv	RL=20 ppbv	RL=20 ppbv
Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11900 ppbv	65 ppbv	122 ppbv
Methyl Isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	900 ppbv	RL=20 ppbv	RL=20 ppbv
cis-1,2-Dichlorocyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	174000 ppbv	170 ppbv	54 ppbv
trans-1,2-Dichlorocyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
2-Exanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11200 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorodifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	660 ppbv	RL=20 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	67000 ppbv	200 ppbv	120 ppbv
m,p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	7100 ppbv	RL=20 ppbv	RL=20 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	6300 ppbv	RL=20 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	140000 ppbv	100 ppbv	49 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	3200 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1400 ppbv	RL=20 ppbv	RL=20 ppbv
1,3,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2500 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/5/01

RST: RT

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl	HF	COCl <sub>2</sub>
L	0757	ND*	ND	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND
M	0803	ND	ND	ND	20.7	2	ND	ND	ND	ND	ND	ND	ND
N	0808	ND	ND	ND	20.7	1	ND	ND	ND	ND	ND	ND	ND
J	0813	ND	ND	ND	20.7	4	ND	ND	ND	ND	ND	ND	ND
F	0818	ND	ND	ND	20.7	3	ND	ND	ND	ND	ND	ND	ND
A	0821	0.4*	ND	ND	20.7	2	ND	ND	ND	ND	ND	ND	ND
A	0827	ND	ND	ND	20.7	2	ND	ND	ND	ND	ND	ND	ND
B	0833	0.5**	ND	ND	20.7	3	ND	ND	ND	ND	ND	ND	ND
C	0841	0.5**	ND	ND	20.7	3	ND	ND	ND	ND	ND	ND	ND
H	0847	ND	ND	ND	20.7	2	ND	ND	ND	ND	ND	ND	ND
I	0853	0.2	ND	ND	20.7	3	ND	ND	ND	ND	ND	ND	ND
D	0905	0.4**	ND	ND	20.7	5	ND	ND	ND	ND	ND	ND	ND
K	0915	0.4**	ND	ND	20.7	4	ND	ND	ND	ND	ND	ND	ND
T	0925	0.3	ND	ND	20.7	3	ND	ND	ND	ND	ND	ND	ND
U	0929	0.3	ND	ND	20.7	1	ND	ND	ND	ND	ND	ND	ND
V	0933	0.4	ND	ND	20.7	2	ND	ND	ND	ND	ND	ND	ND
S	0942	0.4	ND	ND	20.8	3	ND	ND	ND	ND	<1*	ND	ND
P	0950	0.4	ND	ND	20.8	2	ND	ND	ND	ND	<1*	ND	ND
E	0955	0.3	ND	ND	20.8	2	ND	ND	ND	ND	<1*	ND	ND

**Air Monitoring Locations**

- G: Barclay and Broadway
- I: Church and Dey
- L: Liberty and Broadway
- K: Greenwich and Albany
- S: Liberty and South End
- W: West and Vesey
- i: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- J: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Heliport)
- V: Pier 6 (Bus Sign)

- \*1 Idling trucks
- \*2 Heavy smoke downwind of burning pile
- \*3 Traffic
- \*4 Idling machinery generator, Page 1 of 2 downwind of pile

\* Beginning Deaqer CMS

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/8/01 P.M.

RST: JET, JB, AB

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCl (ppm)	HF	COCl <sub>2</sub>
L	1210	ND	ND	1	20.8	2	ND	ND	ND	ND	ND	ND
MI	1216	ND	ND	ND	20.8	1	ND	ND	ND	ND	ND	ND
N	1220	ND	ND	ND	20.8	1	ND	ND	ND	ND	ND	ND
J	1228	ND	ND	ND	20.8	1	ND	ND	ND	ND	ND	ND
E	1234	ND	ND	ND	20.9	2	ND	ND	ND	ND	ND	ND
Q	1237	ND	ND	ND	20.9	2	ND	ND	ND	ND	1.0	ND
A	1245	0.1	ND	ND	21.0	2	ND	ND	ND	<1*	ND	ND
B	1252	0.4	ND	ND	21.0	4	ND	ND	ND	<1	ND	ND
CI	1305	0.3	ND	ND	21.0	13*	ND	ND	ND	<1	ND	ND
H	1305	ND	ND	ND	21.0	2	ND	ND	ND	<1	ND	ND
I	1312	ND	ND	ND	21.0	3	ND	ND	ND	<1	ND	ND
D	1323	0.2	ND	ND	20.9	2	ND	ND	ND	<1	ND	ND
K	1329	0.1	ND	ND	21.0	3	ND	ND	ND	<1	ND	ND
T	1342	ND	ND	ND	21.0	1	ND	ND	ND	<1	ND	ND
U	1344	ND	ND	ND	21.0	1	ND	ND	ND	<1	ND	ND
V	1347	0.2	ND	ND	21.0	1	ND	ND	ND	<1	0.7	ND
S	1357	ND	ND	ND	21.0	1	ND	ND	ND	<1	ND	ND
<del>P</del>	1400	0.1	ND	ND	21.0	1	ND	ND	ND	<1	ND	ND
E	1405	0.1	ND	ND	21.0	2	ND	ND	ND	<1	ND	ND

**Air Monitoring Locations**

- G: Barclay and Broadway
- H: Church and Dey
- I: Liberty and Broadway
- J: Greenwich and Albany
- K: Liberty and South End
- L: West and Vesey
- M: No Monitoring At This Location

- N: Chase Plaza (Pine Street between Nassau and Williams)
- O: Wall Street and Broadway
- P: West and Warren
- Q: West and Albany
- R: High School
- S: B-10 Wash Station on West Street
- T: Pier 25

- U: No Location Established
- V: Albany and South End
- W: West and Murray
- X: No Monitoring At This Location
- Y: Rector and South End
- Z: Pier 6 (Light Pole)
- AA: Pier 6 (Helipad)
- AB: Pier 6 (Bus Sign)

\* Damage  
or Bus: by diesel fumes in area.

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Sunday and Monday  
November 11 and 12**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 12, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 39 samples taken in and around ground zero from November 8 through November 9. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 1,968, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Staten Island Landfill:**

**Air (Asbestos)** - Fifty-four samples collected from November 8 through November 9 were analyzed for asbestos. All but one were below the school re-entry standard.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Monday, November 12, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 8, 1201 - 2400 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 1 location (H) was inadequately sampled due to pump fault
- NYC / ER (Nov 9, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 8, 0657 - 1948) - Asbestos
  - All 19 samples were below the TEM AHERA standard.
- Fresh Kills (Nov 8, 1900 - Nov 9, 0828) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 location (Supply Tent - T16) was not analyzed due to overloading of particulates
- Fresh Kills (Nov 9, 0719 - 2012) - Asbestos
  - 1 of 17 samples analyzed were above the TEM AHERA standard.
  - Exceedance of the TEM AHERA standard occurred at Location # T16 ( $80 \text{ S/mm}^2$ )
  - 2 locations (Wash Area - W-12A, Mess Tent - T15) were not analyzed due to overloading of particulates

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/08/01 12:01 to 2:40  
 Data Validation Date: 11/10/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/ft <sup>3</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S-ft/cc**
11/08/01	RST-00434	L	720	Air	11.45	0.005	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00435	M1	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00436	N	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00437	J	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00448	F	720	Air	11.45	0.005	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00449	Q	720	Air	11.45	0.005	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00440	A	720	Air	11.45	0.005	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00441	B	720	Air	19.11	0.010	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00442	C1	720	Air	7.64	0.004	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00443	H	41	Air	<7.0	<0.005	0	<7.94	<0.0045	<0.0045
11/08/01	RST-00444	I-Duplicate	720	Air	12.74	0.007	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00445	K	720	Air	13.23	0.008	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00446	L	720	Air	10.18	0.005	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00448	U	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00449	V	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00451	S	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00452	P	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00453	E	720	Air	10.19	0.005	0	<8.82	<0.0047	<0.0047
11/08/01	RST-00456	D	720	Air	7.64	0.004	0	<8.82	<0.0047	<0.0047
11/08/01	FB110801	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/08/01	TB110801	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

**Key:**  
 \* Sample volumes (filters) is below recommended limit for the TEM method; volume is based on trip testing  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Day St.  
 C: Trinity (a.k.a. Church) & Liberty St.  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St.  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCGC command post  
 R: TAGA Bus Location  
 S: Reactor & South End  
 U: Pier 6 Helipad  
 V: Pier 6 E&N Z  
 W: Pier 6 Bus Sign

**TEM (AHERA):**  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 NA<sup>(2)</sup> - Not analyzed for TEM

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/04**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/09/01 0001 to 1200  
 Data Validation Date: 11/10/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**	S/fcc**
11/09/01	RST-00454	L	720	Air	8.92	0.005	0	0	<8.82	<0.0047
11/09/01	RST-00455	M	708	Air	<7.0	<0.004	0	0	<8.82	<0.0048
11/09/01	RST-00456	N	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/09/01	RST-00457	J	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/09/01	RST-00458	F	720	Air	8.28	0.004	0	0	<8.82	<0.0047
11/09/01	RST-00459	A	720	Air	8.92	0.005	0	0	<8.82	<0.0047
11/09/01	RST-00460	B	720	Air	17.83	0.0095	1**	0	8.82	0.0047
11/09/01	RST-00461	C1	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/09/01	RST-00462	H	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/09/01	RST-00463	I	720	Air	11.46	0.006	0	0	<8.82	<0.0047
11/09/01	RST-00464	D	684	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/09/01	RST-00465	K	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/09/01	RST-00466	T	720	Air	<7.0	<0.004	1**	0	8.82	0.0050
11/09/01	RST-00467	T-Duplicate	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/09/01	RST-00468	U	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/09/01	RST-00469	V	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/09/01	RST-00470	S	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/09/01	RST-00471	P	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/09/01	RST-00472	E	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/09/01	RST-00473	Q	720	Air	7.64	0.004	0	0	<8.82	<0.0047
11/09/01	FB110901	Field Blank	0	Air	7.64	0.004	0	0	<8.82	<0.0047
11/09/01	TB110901	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysolite  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 N1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Reactor & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Ext 2  
 V: Pier 6 Bus Sign

**TEM (AHERA):**  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 NA<sup>(3)</sup> - Not analyzed for TEM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/09/01 07:19 to 20:12

Data Validation Date: 11/10/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	Structures (#)	f/m <sup>2</sup>	S-f/cc**
11/09/01	L-F0040	P-1	720	Air	<7.0	<0.004	1***	0	8.89	0.0046
11/09/01	L-F0041	P-2	697	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/09/01	L-F0042	P-3	698	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/09/01	L-F0043	P-4	692	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/09/01	L-F0044	P-5	696	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/09/01	L-F0045	P-6	698	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/09/01	L-F0046	P-7	619	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/09/01	L-F0047	S-6	696	Air	<7.0	<0.004	1***	0	8.89	0.0049
11/09/01	L-F0048	S-8A	720	Air	<7.0	<0.004	5***	0	62.22	0.0333
11/09/01	L-F0049	S-8B	720	Air	<7.0	<0.004	2***	0	17.78	0.0095
11/09/01	L-F0046	S-10A	703	Air	<7.0	0.0045	0	0	<8.89	<0.0049
11/09/01	L-F0045	S-10B	703	Air	<7.0	<0.004	2***	0	17.78	0.0095
11/09/01	L-F0042	W-1	694	Air	<7.0	<0.004	6***	1***	26.67	0.0146
11/09/01	L-F0043	W-12A	720	Air	8.92	0.005	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/09/01	L-F0042	W-12B	670	Air	<7.0	<0.004	2***	0	53.33	0.0236
11/09/01	L-F0045	B-13	694	Air	<7.0	<0.004	0	0	24	0.0138
11/09/01	L-F0045	B-14	694	Air	<7.0	<0.004	0	0	<8.89	<0.0049
11/09/01	L-F0045	T-15	720	Air	<7.0	<0.004	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/09/01	L-F0045	T-16	236	Air	<7.0	<0.009	10***	0	80	0.1041
11/09/01	L-F0045	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/09/01	L-F0046	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not applicable for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/08/01 0657 to 11/09/01 1948  
 Data Validation Date: 11/10/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mmm <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S-f/cc**
11/08/01	LF00398	P-1	730	Air	<7.0	<0.004	0	0	0	<0.0047
11/08/01	LF00399	P-2	720	Air	<7.0	<0.004	0	0	0	<0.0048
11/08/01	LF00400	P-3	720	Air	<7.0	<0.004	0	0	0	<0.0048
11/08/01	LF00401	P-4	717	Air	<7.0	<0.004	2***	0	0	0.0095
11/08/01	LF00402	P-5	720	Air	<7.0	<0.004	2***	1***	0	0.0143
11/08/01	LF00403	P-6	720	Air	<7.0	<0.004	0	0	0	<0.0048
11/08/01	LF00404	P-7	720	Air	<7.0	<0.004	0	0	0	<0.0048
11/08/01	LF00405	P-8	674	Air	<7.0	<0.004	0	0	0	<0.0048
11/08/01	LF00406	S-9A	720	Air	<7.0	<0.004	1***	0	0	0.0048
11/08/01	LF00407	S-9B	728	Air	<7.0	<0.004	0	0	0	<0.0047
11/08/01	LF00408	S-10A	720	Air	<7.0	<0.004	1***	0	0	<0.0048
11/08/01	LF00409	S-10B	720	Air	<7.0	<0.004	1***	0	0	0.0048
11/08/01	LF00410	W-11	720	Air	14.01	0.007	1***	0	0	0.0057
11/08/01	LF00411	W-12A	542	Air	<7.0	<0.005	1***	0	0	0.0048
11/08/01	LF00412	W-12B	800	Air	<7.0	<0.004	0	0	0	<0.0048
11/08/01	LF00413	B-13	720	Air	<7.0	<0.004	1***	0	0	<0.0048
11/08/01	LF00414	B-14	720	Air	<7.0	<0.004	0	0	0	0.0048
11/08/01	LF00415	T16	727	Air	<7.0	<0.004	5***	0	0	<0.0047
11/08/01	LF00417	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/08/01	LF00418	Tip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Data Validation Date: 11/10/01

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/08/01 1800 to 11/09/01 0828

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
11/08/01	LFO0419	P-1	720	Air	<7.0	<0.004	17.5	0	17.5	0.0094
11/08/01	LFO0420	P-2	720	Air	<7.0	<0.004	<8.75	0	<8.75	<0.0047
11/08/01	LFO0421	P-3	720	Air	<7.0	<0.004	<8.75	0	<8.75	<0.0047
11/08/01	LFO0422	P-4	720	Air	<7.0	<0.004	<8.75	0	<8.75	<0.0047
11/08/01	LFO0423	P-5	720	Air	<7.0	<0.004	<8.75	0	<8.75	<0.0047
11/08/01	LFO0424	P-6	720	Air	<7.0	<0.004	<8.75	0	<8.75	<0.0047
11/08/01	LFO0425	P-7	720	Air	<7.0	<0.004	<8.75	0	<8.75	<0.0047
11/08/01	LFO0426	P-8	720	Air	<7.0	<0.004	<8.75	0	<8.75	<0.0047
11/08/01	LFO0427	S-9A	720	Air	<7.0	<0.004	<8.75	0	<8.75	<0.0047
11/08/01	LFO0428	S-9B	720	Air	<7.0	<0.004	<8.75	0	<8.75	<0.0047
11/08/01	LFO0429	S-10A	720	Air	<7.0	<0.004	<8.75	0	<8.75	<0.0047
11/08/01	LFO0430	S-10B	720	Air	<7.0	<0.004	<8.75	0	<8.75	<0.0047
11/08/01	LFO0431	W-11	720	Air	25.48	0.014	17.5	0	17.5	0.0094
11/08/01	LFO0432	W-12A	720	Air	15.29	0.008	NA <sup>(1)</sup>	0	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/08/01	LFO0433	W-12B	720	Air	<7.0	<0.004	NA <sup>(1)</sup>	0	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/08/01	LFO0434	B-13	720	Air	<7.0	<0.004	1**	0	8.75	<0.0047
11/08/01	LFO0435	B-14	720	Air	<7.0	<0.004	1**	0	8.75	<0.0047
11/08/01	LFO0436	T-15	720	Air	10.19	0.005	3**	1**	35	0.0187
11/08/01	LFO0437	T-16	720	Air	<7.0	<0.004	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/08/01	LFO0438	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/08/01	LFO0439	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not applicable  
 n/a - Not requested  
 NS - Sample not submitted due to no sample volume  
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NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Tuesday, November 13, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 13, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 39 samples taken in and around ground zero from November 9 through November 10. In addition, EPA sampled for asbestos at three recently added lower Manhattan locations from November 5 to November 7, for a total of 48 samples in this period. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,016, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected from November 5 to November 7 from these locations showed no exceedances of the AHERA re-entry standard.

**Air: Fixed Monitors in New Jersey:**

Asbestos - Five air samples were taken in New Jersey on November 8. All samples showed results less than school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 186, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Fifty-one samples were collected from November 9 through November 11. All of these samples showed results less than the school re-entry standard. During this period, five samples were not analyzed due to filter overloading and one location had sampler pump failures deeming the results invalid.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on November 9, 10 and 12 at the Staten Island Landfill. No levels of significance were reported at five sampling locations.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on November 11 and 12<sup>th</sup> at Pace University, Borough of Manhattan Community College, and the Coast Guard building in Battery Park. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**Particulate Monitoring** - EPA used portable monitors to collect samples on November 12 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on November 12 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene in samples from the North Tower and South Tower debris piles in the plume exceeded the OSHA PEL of 1 part per million (ppm). However, these benzene levels detected at these locations have greatly reduced from elevated reading measured during the previous week. One of two other samples taken at the Washing Tent was non-detect for benzene. EPA has located a new mobile laboratory next to the personnel Washing Tent, located at Murray and the west side of West St. This new laboratory replaces EPA's TAGA unit, the mobile laboratory previously located in lower Manhattan for sample analysis.

**Direct Air Readings** - Direct readings taken on November 12 in and around ground zero showed no levels of significance.

**Corrections to Previous Daily Summaries:**

**November 3** - The summary noted that asbestos samples taken from the expanded ambient air monitoring network were collected on October 29. The sampling date was actually **October 24**.

**November 10** - The summary noted that all 19 samples taken from the Staten Island Landfill and analyzed for asbestos were above the AHERA standard. This should read all **18** samples were **below** the AHERA standard.

**November 12** - The summary noted that all 18 samples taken from the Staten Island Landfill and analyzed for asbestos were below the AHERA standard. This should read all **17** samples were **below** the AHERA standard. One sample was not analyzed due to filter overloading.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Tuesday, November 13, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 6, 0001 - 1200 hrs)
  - **Errata:** Previously reported on Friday, November 9 that PCM results for Locations I and D should be considered suspect and are undergoing further evaluation. **Attached is a revised data table with corrected results. All other analytical results remain the same.**
- NYC / ER (Nov 9, 1200 - 2359 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 10, 0001 - 1200 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 1 locations (S) was not sampled.
- NJ / ER (Nov 5)
  - All 5 samples analyzed (which includes a duplicate) were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 7, 1953 - Nov 8, 0655) - Asbestos
  - **Errata:** Previously reported on Saturday, November 10 that all 19 samples analyzed were above the TEM AHERA standard. Should actually read that **all 18 samples analyzed were below the TEM AHERA standard.**
  - 1 location ("Barge" Location #13) was not sampled.
  - Data not attached.
- Fresh Kills (Nov 8, 1900 - Nov 9, 0828) - Asbestos
  - **Errata:** Previously reported on Monday, November 12 that all 18 samples analyzed were below the TEM AHERA standard. Should actually read that **all 17 samples analyzed were below the TEM AHERA standard. One additional location ("Wash" Location #12A) was not analyzed due to overloading of particulates.**
  - 1 location (Supply "Tent" Location #16) was not analyzed due to overloading of particulates
  - Data not attached.
- Fresh Kills (Nov 9, 1919 - Nov 10, 0809) - Asbestos
  - All 19 samples were below the TEM AHERA standard.

- Fresh Kills (Nov 10, 0702 - 1938) - Asbestos
  - All 14 samples analyzed were below the TEM AHERA standard.
  - 5 samples (“Wash” Location #11, indoor “Wash” Location #12A, perimeter station at “Wash” Location #12B, Mess “Tent” Location #15, and Supply “Tent” Location #16) were not analyzed due to particulate overloading.
- Fresh Kills (Nov 10, 1859 - Nov 11, 0805) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 location (“Wash” Location #11) had a pump failure (results deemed invalid).
  - Note: Low sample volume recorded.
- Fresh Kills (Nov 9) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations based on daily average concentrations.
  - Reduced dataram availability.
- Fresh Kills (Nov 10) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations based on daily average concentrations.
  - Reduced dataram availability.
- Fresh Kills (Nov 12) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations based on daily average concentrations.
  - Reduced dataram availability.

#### Ambient Air Sampling Locations

- NYC / ER (Nov 11) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **10.00 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **10.29 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **6.87 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
  - Data for November 9<sup>th</sup> and 10<sup>th</sup> is undergoing further review due to discrepancies.
- NYC / ER (Nov 12) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 8 hours.
  - Station L values ranged from 0.7 to 470 ug/m<sup>3</sup> with an average of 15.3 ug/m<sup>3</sup>.
  - Station N values ranged from 0.0 to 1,245 ug/m<sup>3</sup> with an average of 16.2 ug/m<sup>3</sup>.
  - Station R values ranged from 0.0 to 17,488 ug/m<sup>3</sup> with an average of 27.6 ug/m<sup>3</sup>.
  - Note: Datarams for Stations R and N were mistakenly left operating as they were transported to the EPA trailer on the ATV. The maximum readings noted above at these two stations were measured in the last few minutes of the logging period during the transport.

- NYC / ER (Oct 24) - Asbestos Monitoring (Particulate Monitoring Stations)
  - **Errata:** Previously reported asbestos monitoring results for the WTC Extended Network (Particulate Monitoring Stations) on Friday, November 2-3 were noted as having been collected on October 29<sup>th</sup>. **The sampling date was actually October 24<sup>th</sup>. Attached is a revised data table with corrected dates. All analytical results remain the same.**
- NYC / ER (Nov 5) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
- NYC / ER (Nov 6) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
- NYC / ER (Nov 7) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.



## 1275

- NYC / ER (Nov 12) - Volatile organics (Mobile laboratory)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) on the debris pile in the plume at ground level.
  - Benzene levels greatly reduced from the elevated levels measured last week.
  - 1 of the 2 other samples ("Washing Tent") did not note any benzene above the detection limit (20 ppbv).
  - TAGA unit is no longer present near Pier 25. An EPA mobile laboratory conducting the VOC analyses is now stationed at the personnel "Washing Tent" located on Murray Street (west of West St.)

### Direct Reading Instruments

- NYC / ER (Nov 12)
  - Nothing of significance reported.

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/06/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					fmm <sup>2</sup>	f/cc	Structures (#)	S-f/cc**
11/06/01	RST-00341	O	720	Air	<7.0	<0.004	0	<8.82
11/06/01	RST-00339	J	720	Air	<7.0	<0.004	0	<0.0047
11/06/01	RST-00336	L	720	Air	<7.0	<0.004	0	<8.82
11/06/01	RST-00337	M1	720	Air	<7.0	<0.004	0	<0.0047
11/06/01	RST-00338	N	720	Air	<7.0	<0.004	0	<8.82
11/06/01	RST-00342	A	475	Air	<7.0	<0.006	0	<0.0047
11/06/01	RST-00343	B	720	Air	<7.0	<0.004	0	<7.94
11/06/01	RST-00344	C1	20.38	Air	<7.0	0.011	0	<8.82
11/06/01	RST-00345	H	599	Air	15.29	0.010	0	<0.0047
11/06/01	RST-00346	I	720	Air	12.74	0.007	0	<8.82
11/06/01	RST-00347	D	618	Air	54.78	0.034	0	<7.94
11/06/01	RST-00348	K	720	Air	11.46	0.006	0	<8.82
11/06/01	RST-00349	T	720	Air	<7.0	<0.004	0	<0.0047
11/06/01	RST-00350	U	720	Air	<7.0	<0.004	0	<8.82
11/06/01	RST-00351	V	720	Air	<7.0	<0.004	0	<0.0047
11/06/01	RST-00353	S	688	Air	<7.0	<0.004	0	<7.94
11/06/01	RST-00354	P	719	Air	<7.0	<0.004	0	<8.82
11/06/01	RST-00355	E	720	Air	<7.0	<0.004	0	<0.0047
11/06/01	RST-00340	F	720	Air	7.64	0.004	0	<8.82
11/06/01	RST-00352	V-Duplicate	720	Air	<7.0	<0.004	0	<8.82
11/06/01	FB110601	Field Blank	0	Air	n/a	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/06/01	TB110601	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>

ccsf 60033 and 60034

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty St.
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- O: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Hellport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

Key:  
\* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysothile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 Slimm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/09/01 19:19 to 11/10/01 08:09  
 Data Validation Date: 11/11/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	Structures (#)	0.5µ-5µ	5µ	S-f/cc**	
11/09/01	LF00461	P-1	674	Air	<7.0	<0.004	0	0	0	<8.75	<0.0050
11/09/01	LF00462	P-2	704	Air	<7.0	<0.004	0	0	0	<8.75	<0.0048
11/09/01	LF00463	P-3	704	Air	<7.0	<0.004	0	0	0	<8.75	<0.0048
11/09/01	LF00464	P-4	704	Air	7.64	0.004	0	0	0	<8.75	<0.0048
11/09/01	LF00465	P-5	703	Air	10.19	0.006	0	0	0	<8.75	<0.0048
11/09/01	LF00466	P-6	703	Air	<7.0	<0.004	0	0	0	<8.75	<0.0048
11/09/01	LF00467	P-7	703	Air	<7.0	<0.004	1***	0	0	8.75	0.0048
11/09/01	LF00468	P-8	701	Air	<7.0	<0.004	0	0	0	<8.75	<0.0048
11/09/01	LF00469	S-9A	720	Air	<7.0	<0.004	0	1***	0	8.75	0.0047
11/09/01	LF00470	S-9B	314	Air	<7.0	<0.004	0	0	0	<8.75	<0.0107
11/09/01	LF00471	S-10A	697	Air	<7.0	<0.004	0	0	0	<8.75	<0.0048
11/09/01	LF00472	S-10B	687	Air	<7.0	<0.004	0	0	0	<8.75	<0.0048
11/09/01	LF00473	W-11	484	Air	19.11	0.015	0	1****	0	7.87	0.0061
11/09/01	LF00474	W-12A	720	Air	16.56	0.009	0	0	0	<8.75	<0.0047
11/09/01	LF00475	W-12B	720	Air	10.19	0.005	0	0	0	<8.75	<0.0047
11/09/01	LF00476	B-13	705	Air	<7.0	<0.004	0	0	0	<8.75	<0.0048
11/09/01	LF00477	B-14	704	Air	<7.0	<0.004	0	0	0	<8.75	<0.0048
11/09/01	LF00478	T-15	720	Air	12.74	0.007	0	1***	0	8.75	0.0048
11/09/01	LF00479	T-16	683	Air	<7.0	<0.004	1****	NA <sup>(2)</sup>	NA <sup>(2)</sup>	26.25	0.0148
11/09/01	LF00480	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/09/01	LF00481	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 \*\*\*\* Amosite  
 \*\*\*\*\* Anthrophyllite  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/10/01 0702 to 1938  
 Data Validation Date: 11/12/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEW (AHERA)			S-f/cc**
					f/mm'	f/cc	Structures (#)	0.5µ-5µ	5µ	f/mm <sup>2</sup>	
11/10/01	LF00482	P-1	720	Air	8.28	0.004	0	0	0	-8.89	<0.0048
11/10/01	LF00483	P-2	720	Air	<7.0	<0.004	1***	0	0	8.89	0.0048
11/10/01	LF00484	P-3	720	Air	6.28	0.004	1***	0	0	17.78	0.0066
11/10/01	LF00485	P-4	718	Air	<7.0	<0.004	0	0	0	8.89	0.0048
11/10/01	LF00486	P-5	718	Air	<7.0	<0.004	0	0	0	-8.89	<0.0048
11/10/01	LF00487	P-6	718	Air	<7.0	<0.004	0	0	0	-8.89	<0.0048
11/10/01	LF00488	P-7	720	Air	<7.0	<0.004	0	0	0	<8.0	<0.0043
11/10/01	LF00489	P-8	650	Air	<7.0	<0.004	0	0	0	<8.0	<0.0047
11/10/01	LF00490	S-9A	692	Air	<7.0	<0.004	0	0	0	<8.0	<0.0045
11/10/01	LF00491	S-9B	450	Air	7.64	0.0065	5***	0	0	40	0.0342
11/10/01	LF00492	S-10A	716	Air	12.10	0.0065	0	0	0	<8.89	<0.0048
11/10/01	LF00493	S-10B	478	Air	13.38	0.011	0	0	0	<8.0	<0.0064
11/10/01	LF00494	W-11	705	Air	26.75	0.015	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/10/01	LF00495	W-12A	660	Air	33.75	0.020	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/10/01	LF00496	W-12B	655	Air	10.19	0.006	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/10/01	LF00497	B-13	718	Air	<7.0	<0.004	1***	0	0	17.78	0.0066
11/10/01	LF00498	B-14	718	Air	<7.0	<0.004	2***	0	0	17.78	0.0095
11/10/01	LF00499	T-15	655	Air	25.48	0.015	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/10/01	LF05500	T-16	720	Air	22.29	0.012	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/10/01	LF05501	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/10/01	LF05502	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 f/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/10/01 1859 to 11/11/01 0805  
 Data Validation Date: 11/12/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400				TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	S/mm <sup>2</sup>	S-fact**	f/m <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ
11/10/01	LF00503	P-1	683	Air	<7.0	<0.004	0	<8.75	<0.0049			
11/10/01	LF00504	P-2	707	Air	<7.0	<0.004	0	<8.75	<0.0048			
11/10/01	LF00505	P-3	710	Air	<7.0	<0.004	0	<8.75	<0.0047			
11/10/01	LF00506	P-4	720	Air	<7.0	<0.004	0	<8.75	<0.0047			
11/10/01	LF00507	P-5	720	Air	<7.0	<0.004	0	<8.75	<0.0047			
11/10/01	LF00508	P-6	33	Air	<7.0	<0.004	0	<8.75	<0.0049			
11/10/01	LF00509	P-7	720	Air	<7.0	<0.004	0	<8.75	<0.0047			
11/10/01	LF00510	P-8	720	Air	<7.0	<0.004	0	<8.75	<0.0047			
11/10/01	LF00511	S-9A	720	Air	<7.0	<0.004	0	<8.75	<0.0047			
11/10/01	LF00512	S-9B	720	Air	<7.0	<0.004	0	<8.75	<0.0047			
11/10/01	LF00513	S-10A	591	Air	<7.0	<0.005	0	<8.75	<0.0051			
11/10/01	LF00514	S-10B	720	Air	<7.0	<0.004	0	<8.75	<0.0047			
11/10/01	LF00515	W-11	0	Air	R	R	R	R	R			
11/10/01	LF00516	W-12A	704	Air	26.11	0.014	0	<8.75	<0.0048			
11/10/01	LF00517	W-12B	696	Air	<7.0	<0.004	0	<8.75	<0.0048			
11/10/01	LF00518	B-13	713	Air	<7.0	<0.004	0	<8.75	<0.0047			
11/10/01	LF00519	B-14	713	Air	<7.0	<0.004	1***	8.75	0.0047			
11/10/01	LF00520	T-15	720	Air	15.92	0.009	0	8.75	<0.0047			
11/10/01	LF00521	T-16	714	Air	14.01	0.008	0	8.75	<0.0047			
11/10/01	LF00522	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>			
11/10/01	LF00523	Trap Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>			

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2. 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/09/01 1200 to 2359  
 Data Validation Date: 11/11/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)			S-f/cc**
					fmm <sup>1</sup>	f/cc	Structures (#)	0.5µ-5µ	5µ	
11/09/01	RST-00474	Q	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00475	L	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00476	M1	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00477	N	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00478	J	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00479	F	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00480	A	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00481	B	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00482	C	720	Air	8.92	0.005	0	0	0	<8.82
11/09/01	RST-00483	H	720	Air	10.19	0.005	0	0	0	<8.82
11/09/01	RST-00484	I	720	Air	11.46	0.006	0	0	0	<8.82
11/09/01	RST-00485	D	720	Air	10.83	0.006	0	0	0	<8.82
11/09/01	RST-00486	I	720	Air	15.92	0.009	0	0	0	<8.82
11/09/01	RST-00487	K	720	Air	9.55	0.005	0	0	0	<8.82
11/09/01	RST-00488	T	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00489	U	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00490	V	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00491	S	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00492	P	720	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	RST-00493	E	705	Air	<7.0	<0.004	0	0	0	<8.82
11/09/01	FBI10901	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/09/01	TB110901	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- CT: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

PCM by NIOSH 7400

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rectory & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/10/01 0001 to 1200  
 Data Validation Date: 11/11/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/ftm <sup>2</sup>	f/cc	Structures (#)	S/m <sup>2</sup>	S/ftcc**	S/ftcc**
11/10/01	RST-00494	L	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00495	M1	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00496	N	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00497	J	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00498	F	720	Air	7.64	0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00499	A	720	Air	9.55	0.005	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00500	B	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00501	C	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00502	H	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00503	I	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00504	D	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00505	K	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00506	K-Duplicate	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00507	T	645	Air	<7.0	<0.004	0	<7.94	<0.0047	<0.0047
11/10/01	RST-00508	U	652	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00509	V	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00510	S	703	Air	NS	NS	NS	NS	NS	NS
11/10/01	RST-00511	P	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00512	E	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	RST-00513	Q	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/10/01	FB11001	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/10/01	TB11001	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Doy St.  
 C: Trinity (a.k.a. Church) & Liberty  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St  
 H: Church and Duane St.  
 I: South side of Chase Manhattan Plaza at Pine St.  
 J: SE corner of Wall St. & Broadway  
 K: NE corner of Warren & West St.  
 L: West St. & Albany in median strip  
 M: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area  
 N: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Asbestos Air Sampling Results NYC ER/NUDEP  
 Sampling Date and Time: 11/08/2001 1020 to 2115  
 Data Validation Date: 11/11/2001

Date Sampled	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S (#)	S/mm <sup>2</sup>	S-f/cc*
11/08/01	1LIB110801	Liberty Park	922**	Air	<7.0	<0.003	0	0	<11.43	<0.0048
11/08/01	2CIT110801	CITGO Terminal	1090**	Air	<7.0	<0.002	0	0	<13.33	<0.0047
11/08/01	3FMC110801	FMC Terminal	1128**	Air	<7.0	<0.002	0	0	<13.33	<0.0046
11/08/01	4SHL110801	Shell Terminal	1042**	Air	<7.0	<0.003	0	0	<13.33	<0.0049
11/08/01	5STA110801	Linden***	1200	Air	<7.0	<0.002	1***	0	13.33	0.0043
11/08/01	6FLD110801	Field Blank	0	Air	<7.0	n/a	n/a	NA	NA	NA
11/08/01	Blank	Trip Blank	0	Air	<7.0	n/a	n/a	NA	NA	NA

COC No. is not available

**Key:**

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading
- \*\*\* Chrysotile
- \*\*\*\* CITGO Duplicate 80
- n/a - Not applicable
- NA - Not analyzed for TEM

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA) Sample volume is below recommended limit of the method.  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location	Sampling Times
Liberty Park	11/08/01 1020 - 1801
CITGO Terminal	11/08/01 1115 - 2020
FMC Terminal	11/08/01 1140 - 2104
Shell Terminal	11/08/01 1200 - 2041
Linden (CITGO Dup 80)	11/08/01 1115 - 2115



NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/06/2001 1200 to 2400  
 Data Validation Date: 11/11/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc*	
							0.5µ - 5µ	5µ	
11/06/01	7093-18-0040	Pace Univ.	1440	Air	NR	NR	0	0	<15.87
11/06/01	7093-19-0040	BMCC	1440	Air	NR	NR	0	0	<15.87
11/06/01	7093-20-0040	Coast Guard	1440	Air	NR	NR	0	0	<15.87
11/06/01	7093-15-0039	Manhattan PS #143	1440	Air	NR	NR	0	0	<15.87
11/06/01	7094-08-0034	Bronx PS #154	1254	Air	NR	NR	0	0	<15.87
11/06/01	7096-12-0036	Queens PS #143	1318	Air	NR	NR	0	0	<15.87
11/06/01	7095-96-0037	Brooklyn PS #274	1390	Air	NR	NR	0	0	<15.87
11/06/01	7097-18-0034	Staten Island PS #44	1440	Air	NR	NR	0	0	<15.87

cc: IVa

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- NR - analysis not requested

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

ext-11-06-01pm.xls

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/07/2001 1230 to 2400  
 Data Validation Date: 11/11/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM ( AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
							0.5µ - 5µ	5µ		
11/07/01	7093-15-0040	Mamhailan PS #143	1340	Air	NR	NR	0	0	<15.87	<0.0046
11/07/01	7094-09-0035	Bronx PS #154	1242	Air	NR	NR	0	0	<15.87	<0.0049
11/07/01	7096-12-0037	Queens PS #143	1102***	Air	NR	NR	0	0	<13.23	<0.0046
11/07/01	7095-98-0038	Brooklyn PS #274	1440	Air	NR	NR	0	0	<15.87	<0.0042
11/07/01	7097-18-0035	Staten Island PS #44	982***	Air	NR	NR	0	0	<11.34	<0.0044
11/07/01	7093-18-0041	Pace Univ.	1150**	Air	NR	NR	0	0	<13.23	<0.0044
11/07/01	7093-20-0041	Coast Guard	1232	Air	NR	NR	0	0	<15.87	<0.0050
11/07/01	7093-19-0041	BMCC	1388	Air	NR	NR	0	0	<15.87	<0.0044

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- NR - analysis not requested

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
November 09, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	49	12:15:00	10	00:15:00	100	0.0	0.0	7.6	325.6
2	-74.198262	40.566883	2295	1	49	12:15:00	10	00:15:00	100	0.0	1.4	26.9	11931.5
3	-74.198685	40.570054	2011	1	46	11:30:00	10	00:15:00	100	0.0	3.2	24.8	8023.1
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	46	11:30:00	10	00:15:00	100	0.0	5.7	13.5	1876.0
8	-74.203019	40.561915	2363	1	46	11:30:00	10	00:15:00	100	0.0	4.6	56.5	5600.2

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 10, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	48	12:00:00	10	00:15:00	100	0.0	1.6	4.7	187.1
2	-74.198262	40.566883	2295	1	48	12:00:00	10	00:15:00	100	0.0	6.2	34.0	1615.9
3	-74.198685	40.570054	2011	1	47	11:45:00	10	00:15:00	100	0.0	9.6	30.7	2039.8
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.203873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	47	11:45:00	10	00:15:00	100	0.0	9.7	21.6	1008.4
8	-74.203019	40.561915	2363	1	47	11:45:00	10	00:15:00	100	0.0	0.0	24.3	1023.5

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 12, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	48	12:00:00	10	00:15:00	100	0.0	2.0	7.2	285.9
2	-74.198262	40.566883	2295	1	48	12:00:00	10	00:15:00	100	0.0	2.4	22.4	1244.7
3	-74.198685	40.570054	2011	1	48	12:00:00	10	00:15:00	100	0.0	4.1	38.4	31278.5
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	48	12:00:00	10	00:15:00	100	0.0	0.0	19.3	7478.9
8	-74.203019	40.561915	2363	1	48	12:00:00	10	00:15:00	100	0.0	6.7	47.1	3931.2

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 10/24/2001 12:00 to 24:00

Date Revised: 11/13/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/imm <sup>2</sup>	f/cc	Structures (#)	S/imm <sup>2</sup>	S-f/cc*
10/24/01	7093-18-0027	Pace U.	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/24/01	7093-19-0027	MBCC	1246	Air	11.46	0.004	0	<15.50	<0.0048
10/24/01	7093-20-0027	Coast Guard	1144	Air	<7.0	<0.002	0	<12.92	<0.0043
10/24/01	7094-09-0022	PS #154	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/24/01	7095-98-0024	PS #274	1440	Air	<7.0	<0.002	0	<15.50	<0.0041
10/24/01	7096-12-0023	PS #199	1206	Air	<7.0	<0.002	0	<15.50	<0.0049
10/24/01	7097-18-0022	PS #44	1440	Air	<7.0	<0.002	0	<15.50	<0.0041

cccf is not available

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for method

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/imm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/05/2001 1200 to 2400

Data Validation Date: 11/10/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM ( AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
							0.5µ - 5µ	5µ	
11/05/01	7093-15-0038	Manhattan PS #143	1278	Air	NR	NR	0	0	<0.0048
11/05/01	7094-09-0033	Bronx PS #154	1206	Air	NR	NR	0	0	<0.0042
11/05/01	7096-12-0035	Queens PS #199	1112***	Air	NR	NR	0	0	<0.0046
11/05/01	7095-98-0036	Brooklyn PS #274	1440	Air	NR	NR	0	0	<0.0042
11/05/01	7097-18-0033	Staten Island PS #44	962***	Air	NR	NR	0	0	<0.0045
11/05/01	7093-18-0039	Pace U	1116***	Air	NR	NR	0	0	<0.0046
11/05/01	7093-19-0039	BMCC	1406	Air	NR	NR	0	0	<0.0043
11/05/01	7093-20-0039	Coast Guard	1170***	Air	NR	NR	0	0	<0.0044

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- NR - Not requested

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: A. Becker

U.S. EPA: Norrell

Date: 11/12/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2643	2646	2648			
Flow Rate (Liters / Minute)	2	2	2			
Start Time	0704	0709	0716			
Stop Time	1459	1457	1504			
Run Time (Minutes)	475	468	468			
Minimum Concentration (ug/m3)	0.0	0.7	0.0			
Maximum Concentration (ug/m3)	17488	470	1245			
Average Concentration (TWA) (ug/m3)	27.6	15.3	16.2			

DATARAMS LOCATED AT STATIONS R AND N WERE RUNNING AS THEY WERE BROUGHT BACK INTO THE TRAILER. THIS EXPLAINS THE ELEVATED READINGS TOWARD THE END OF THE RUN.



NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED WITH DISCRETION

DRAFT GC/MS Results for 11/12/01

File name	NYC126	NYC127	NYC128	NYC129	NYC131	NYC132
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent	North Tower	South Tower	Austin Tobin Plaza
Sample Number			A07093	IA07095	A07094	A07096
Sample Height			breathing	ground	ground	breathing
Volume		1250 mL	250 mL	100 mL	20 mL	1250 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2800 ppbv	RL=20 ppbv
Chlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Dichlorotrifluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	200 ppbv	2000 ppbv	RL=20 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	100 ppbv	RL=50 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	19 ppbv	RL=50 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	54 ppbv	RL=50 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11900 ppbv	3900 ppbv	190 ppbv
Trichlorofluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Dichloroacetylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
MTEB	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
2-Etananone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	310 ppbv	950 ppbv	18 ppbv
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	210 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	126 ppbv	RL=50 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1400 ppbv	17500 ppbv	38 ppbv
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	120 ppbv	RL=20 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	51 ppbv	RL=20 ppbv
Methyl isobutyl ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	125 ppbv	2300 ppbv	26 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	22 ppbv	57 ppbv	RL=20 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dibromochloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	43 ppbv	175 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	64 ppbv	2300 ppbv	35 ppbv
m,p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110 ppbv	136 ppbv	RL=20 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	130 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	23 ppbv	1200 ppbv	24 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	58 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	180 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=50 ppbv	RL=20 ppbv

1292

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/12/01 Early

RST: B. HOFFMAN

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0918	ND			21.3			ND	ND	ND	ND	ND	ND
M1	0921	ND			21.3			ND	ND	ND	ND	ND	ND
N	0926	ND			21.3			ND	ND	ND	ND	ND	ND
J	0930	ND			21.3			ND	ND	ND	ND	ND	ND
F	0935	ND			21.3			ND	ND	ND	ND	ND	ND
A	0940	ND			21.3			ND	ND	ND	ND	ND	ND
S	0947	ND			21.3			ND	ND	ND	ND	ND	ND
C	0950	ND			21.3			ND	ND	ND	ND	ND	ND
H	0900	ND			21.3			ND	ND	ND	ND	ND	ND
I	0906	ND			21.3			ND	ND	ND	ND	ND	ND
D	0914	ND			21.3			ND	ND	ND	ND	ND	ND
K	0918	ND			21.3			ND	ND	ND	ND	ND	ND
T	0928	ND			21.3			ND	ND	ND	ND	ND	ND
U	0936	ND			21.3			ND	ND	ND	ND	ND	ND
V	0943	ND			21.3			ND	ND	ND	ND	ND	ND
S	0956	ND			21.3			ND	ND	ND	ND	ND	ND
P	1002	ND			21.3			ND	ND	ND	ND	ND	ND
E	1010	ND			21.3			ND	ND	ND	ND	ND	ND
Q	1017	ND			21.3			ND	ND	ND	ND	ND	ND

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- C1: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassua and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Heliport)
- V: Pier 6 (Bus Sign)

\* MULTIPLE DID NOT WORK  
PROBABLY TODAY  
(PID, LEL, CO, H<sub>2</sub>S)

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/12/01 *Late*

RST: *B. Hoff*

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1224	ND			21.3		<del>ND</del>	ND	ND	ND	ND	ND	ND
M	1231	ND			21.3		<del>ND</del>	ND	ND	ND	ND	ND	ND
N	1234	ND			21.3			ND	ND	ND	<1.0	ND	ND
J	1240	ND			21.3			ND	ND	ND	<1.0	ND	ND
F	1246	ND			21.3			ND	ND	ND	<1.0	ND	ND
A	1250	ND			21.3			ND	ND	ND	<1.0	ND	ND
B	1300	ND			21.3			ND	ND	ND	<1.0	ND	ND
C	1304	ND			21.4			ND	ND	ND	<1.0	ND	<0.50
H	1313	ND			21.3			ND	ND	ND	<1.0	ND	<0.50
I	1318	ND			21.3			ND	ND	ND	<1.0	ND	<0.50
D	1327	ND			21.3			ND	ND	ND	<1.0	ND	<0.50
K	1335	ND			21.4			ND	ND	ND	<1.0	ND	<0.50
T	1341	ND			21.3			ND	ND	ND	<1.0	ND	<0.50
U	1343	ND			21.3			ND	ND	ND	<1.0	ND	<0.50
V	1346	ND			21.3			ND	ND	ND	<1.0	ND	<0.50
S	1357	ND			21.4			ND	ND	ND	<1.0	ND	<0.50
P	1400	ND			21.4			ND	ND	ND	<1.0	ND	<0.50
E	1402	ND			21.3			ND	ND	ND	<1.0	ND	<0.50
Q	1408	ND			21.3			ND	ND	ND	<1.0	ND	<0.50

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- Cl: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Heliport)
- V: Pier 6 (Bus Sign)

\* multitrace did not work properly today (pid, LEL, CO, H<sub>2</sub>S)  
Page 2 of 2

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Wednesday, November 14, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 14, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 40 samples taken in and around ground zero from November 10 through November 11. In addition, EPA sampled for asbestos at three recently added lower Manhattan locations on November 4 and from November 8 to November 9, for a total of 46 samples in this period. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,062, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected on November 4 and from November 8 to November 9 from these locations showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Nineteen samples were collected on November 11. Two of these samples showed results above the school re-entry standard. Five of the samples were not analyzed due to filter overloading.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on November 11 at the Staten Island Landfill. There was an increase in the daily average readings at Perimeter Location #8.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on November 12 at Pace University, Borough of Manhattan Community College,

and the Coast Guard building in Battery Park. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of  $65 \text{ ug/m}^3$  for all stations. These results were also less than  $40 \text{ ug/m}^3$ , a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**Particulate Monitoring** - EPA used portable monitors to collect samples on November 9 and 11 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on November 4, 9 and 11 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene in two samples from the North Tower (one taken on Nov. 4) and South Tower (one taken on Nov. 9) debris piles in the plume exceeded the OSHA PEL of 1 part per million (ppm). Five of ten other samples taken at the Washing Tent, North Park Pier and Austin Tobin Plaza were non-detect for benzene.

**Direct Air Readings** - Direct readings taken on November 9 through November 11 in and around ground zero showed no levels of significance.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Wednesday, November 14, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 10, 1200 - 2359 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 11, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 11, 0656 - 1946) - Asbestos
  - 2 of 14 samples analyzed were above the TEM AHERA standard.
  - Exceedances of the TEM AHERA standard occurred at "Sift" Location #9A (120 S/mm<sup>2</sup>) and indoor "Wash" Location #12A (195.56 S/mm<sup>2</sup>).
  - 5 samples ("Sift" Location #10A, "Wash" Location #11, perimeter station at "Wash" Location #12B, Mess "Tent" Location #15, and Supply "Tent" Location #16) were not analyzed due to particulate overloading.
- Fresh Kills (Nov 11) - Particulate Monitoring (Dataram)
  - Increased daily average readings noted at Perimeter Location #8.
  - Reduced dataram availability (5 stations).

Ambient Air Sampling Locations

- NYC / ER (Nov 12) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **10.24 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **8.18 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **6.71ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 9) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 8 hours.
  - Station L values ranged from 0 to 245 ug/m<sup>3</sup> with an average of 12.1 ug/m<sup>3</sup>.
  - Station N values ranged from 0 to 860 ug/m<sup>3</sup> with an average of 2.7 ug/m<sup>3</sup>.
  - Station R values ranged from 0 to 130 ug/m<sup>3</sup> with an average of 11.2 ug/m<sup>3</sup>.

- NYC / ER (Nov 11) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 7½ hours.
  - Station L values ranged from 0 to 106.9 ug/m<sup>3</sup> with an average of 3.3 ug/m<sup>3</sup>.
  - Station N values ranged from 0 to 212.9 ug/m<sup>3</sup> with an average of 6.1 ug/m<sup>3</sup>.
  - Station R values ranged from 0 to 59.8 ug/m<sup>3</sup> with an average of 8.1 ug/m<sup>3</sup>.
  
- NYC / ER (Nov 4) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St. Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
  
- NYC / ER (Nov 8-9) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St. Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 16 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
  
- NYC / ER (Nov 4) - Volatile organics (TAGA)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location (South Tower) on the debris pile in the plume at ground level.
  - 2 of the 4 other samples (North Park Pier and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).
  
- NYC / ER (Nov 9) - Volatile organics (Mobile laboratory)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) on the debris pile in the plume at ground level.
  - Benzene concentration at North Tower was 85 ppmv.
  - 2 of the 3 other samples ("Washing Tent" and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

- NYC / ER (Nov 11) - Volatile organics (Mobile laboratory)
  - Benzene did not exceed OSHA TWA PEL (1 ppm) at any locations.
  - 1 of the 3 samples ("Washing Tent") did not note any benzene above the detection limit (20 ppbv).

Direct Reading Instruments

- NYC / ER (Nov 9)
  - Nothing of significance reported.
- NYC / ER (Nov 10)
  - Nothing of significance reported.
- NYC / ER (Nov 11)
  - Nothing of significance reported.



NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/10/01 12:30 to 2:35  
 Date Validation Date: 11/12/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					fibre? / fibres	Structures (µ)	fibre? / fibres	Structures (µ)
11/10/01	RST-00514	M1	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00515	N	720	Air	10.83	0.006	0	<8.82
11/10/01	RST-00516	J	720	Air	8.92	0.005	0	<8.82
11/10/01	RST-00517	F	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00518	A	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00520	B	720	Air	24.20	0.013	0	<8.82
11/10/01	RST-00521	C	720	Air	10.19	0.005	0	<8.82
11/10/01	RST-00522	H	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00523	I	720	Air	7.01	0.004	0	<8.82
11/10/01	RST-00524	D	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00525	K	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00526	T	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00527	T-Duplicate	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00528	U	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00529	V	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00530	S	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00531	P	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00532	E	720	Air	<7.0	<0.004	0	<8.82
11/10/01	RST-00533	Q	720	Air	<7.0	<0.004	0	<8.82

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dev St  
 C: Trinity (s.k.a. Church) & Liberty  
 D: SW corner of Broadway & Liberty St  
 E: East end of Albany St. at Greenwich St  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St  
 H: Church and Duane St  
 I: South side of Chase Manhattan Plaza at Pine St  
 J: SE corner of Wall St. & Broadway  
 K: NE corner of Warren & West St  
 L: West St. & Albany in median strip  
 M: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St (on lea next to bulkhead)  
 M1: West St. 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rectox & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign

**TEM (AHERA):**  
 M: Western end of Harrison St. at West St (on lea next to bulkhead)  
 M1: West St. 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rectox & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on ready  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chromatite  
 NA<sup>(f)</sup>: Not analyzed due to overloading of particulates  
 NA<sup>(S)</sup>: Not analyzed for TEM  
 n/a: Not applicable  
 NR: Not requested  
 NS: Sample not submitted

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/11/01 0001 To 1200  
 Data Validation Date: 11/12/01

Sampling Date	Sample No.	Sampling Location	Sample Volume <sup>a</sup>	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S <sup>-</sup> /cc <sup>++</sup>	S <sup>+</sup> /cc <sup>++</sup>
11/11/01	RST-00534	L	698	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00535	M1	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00536	N	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00537	J	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00538	F	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00540	H	720	Air	9.55	0.005	0	0	<8.82	<0.0047
11/11/01	RST-00541	I	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00542	K	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00543	D	713	Air	7.91	0.004	0	0	<8.82	<0.0047
11/11/01	RST-00544	C	625	Air	7.84	0.005	0	0	<7.94	<0.0049
11/11/01	RST-00545	B	720	Air	12.10	0.006	0	0	<8.82	<0.0047
11/11/01	RST-00546	A	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00547	T	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00548	U	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00549	V	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00550	V-Duplicate	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00551	S	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00552	P	696	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	RST-00553	E	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/11/01	FB111101	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/11/01	TB111101	Tripl. Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Sampling Locations:**

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- CT: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Recor & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysothale  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples, via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM), EPA-40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/11/01 0636 to 1946  
 Data Validation Date: 11/12/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
11/11/01	LF00524	P-1	720	Air	6.20	0.004	0	5**	61.22	0.0333
11/11/01	LF00525	P-2	720	Air	<7.0	<0.004	0	1***	<8.89	<0.0048
11/11/01	LF00526	P-3	709	Air	<7.0	<0.004	0	1***	8.89	0.0048
11/11/01	LF00527	P-4	720	Air	7.64	0.004	0	0	<8.89	<0.0048
11/11/01	LF00528	P-5	720	Air	7.01	0.004	0	0	<8.89	<0.0048
11/11/01	LF00529	P-6	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/11/01	LF00530	P-7	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/11/01	LF00531	P-8	630	Air	22.29	0.014	1***	0	8	0.0049
11/11/01	LF00532	S-9A	665	Air	10.83	0.006	12***	3***	120	0.0695
11/11/01	LF00533	S-9B	690	Air	10.19	0.006	8***	0	64	0.0357
11/11/01	LF00534	S-10A	712	Air	15.29	0.008	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/11/01	LF00535	S-10B	720	Air	22.29	0.012	3***	0	26.67	0.0143
11/11/01	LF00536	W-11	711	Air	26.75	0.0145	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/11/01	LF00537	W-12A	720	Air	28.66	0.015	22***	0	195.56	0.1046
11/11/01	LF00538	W-12B	665	Air	10.83	0.006	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/11/01	LF00539	B-13	720	Air	14.01	0.007	1***	0	8.89	0.00475
11/11/01	LF00540	B-14	720	Air	<7.0	<0.004	2***	0	17.78	0.0095
11/11/01	LF00541	T-15	707	Air	7.01	0.004	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/11/01	LF00542	T-16	720	Air	12.74	0.007	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/11/01	LF00543	Lot Blank	0	Air	<7.0	0.007	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/11/01	LF00544	Tip Blank	0	Air	<7.0	0.007	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key: \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples Via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/04/2001 1200 to 2400  
 Data Validation Date: 11/12/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
11/04/01	7093-15-0037	Manhattan PS #143	1440	Air	NR	NR	0	0	<15.87	<0.0042
11/04/01	7094-09-0032	Bronx PS #154	1212	Air	NR	NR	0	0	<13.23	<0.0042
11/04/01	7096-12-0034	Queens PS #143	1386	Air	NR	NR	0	0	<15.87	<0.0044
11/04/01	7095-98-0035	Brooklyn PS #274	1380	Air	NR	NR	0	0	<15.87	<0.0044
11/04/01	7097-18-0032	Staten Island PS #44	1350	Air	NR	NR	0	0	<15.87	<0.0045
11/04/01	7093-19-0038	BMCC	1440	Air	NR	NR	0	0	<15.87	<0.0042
11/04/01	7093-20-0038	Coast Guard	1440	Air	NR	NR	0	0	<15.87	<0.0042
11/04/01	7093-18-0038	Pace Univ.	1440	Air	NR	NR	0	0	<15.87	<0.0042

coc n/a

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- NR - analysis not requested

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/08/2001 1200 to 2400

Data Validation Date: 11/12/01

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
11/08/01	7093-18-0042	Pace U.	1440	Air	NR	NR	0	0	<15.87	<0.0042
11/08/01	7093-20-0042	Coast Guard	1440	Air	NR	NR	0	0	<15.87	<0.0042
11/08/01	7093-19-0042	BMCC	1440	Air	NR	NR	0	0	<15.87	<0.0042
11/08/01	7097-18-0036	Staten Island PS #44	1392	Air	NR	NR	0	0	<15.87	<0.0044
11/08/01	7095-98-0039	Brooklyn PS #274	1344	Air	NR	NR	0	0	<15.87	<0.0045
11/08/01	7096-12-0038	Queens PS #199	1320	Air	NR	NR	0	0	<15.87	<0.0046
11/08/01	7094-09-0036	Bronx PS #143	1260	Air	NR	NR	0	0	<15.87	<0.0049
11/08/01	7093-15-0041	Manhattan PS #143	1440	Air	NR	NR	0	0	<15.87	<0.0042

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- NR - Analysis not requested

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/09/2001 1200 to 2400  
 Data Validation Date: 11/13/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L) <sup>1</sup>	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
11/09/01	7093-15-0042	Manhattan PS #143	1222	Air	NR	NR	0	<13.23	<0.0042
11/09/01	7094-08-0037	Brox PS #154	1084***	Air	NR	NR	0	<13.23	<0.0047
11/09/01	7096-12-0039	Queens PS #199	1066***	Air	NR	NR	0	<13.23	<0.0048
11/09/01	7095-98-0040	Brooklyn PS #274	1440	Air	NR	NR	0	<15.87	<0.0042
11/09/01	7093-20-0043	Coast Guard	1218	Air	NR	NR	0	<13.23	<0.0042
11/09/01	7093-18-0043	Pace Univ.	1440	Air	NR	NR	0	<15.87	<0.0042
11/09/01	7097-18-0037	Staten Is. PS #44	912***	Air	NR	NR	0	<11.34	<0.0048
11/09/01	7093-19-0043	BMCC	1342	Air	NR	NR	0	<15.87	<0.0046

cdc 1/14

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- NR - analysis not requested

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 11, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	48	12:00:00	10	00:15:00	100	0.0	0.0	5.5	178.9
2	-74.198262	40.566883	2295	1	48	12:00:00	10	00:15:00	100	0.0	0.4	26.8	1767.8
3	-74.198685	40.570054	2011	1	48	12:00:00	10	00:15:00	100	0.0	0.0	10.3	2417.0
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	47	11:45:00	10	00:15:00	100	0.0	0.0	17.0	3792.9
8	-74.203019	40.561915	2363	1	47	11:45:00	10	00:15:00	100	0.0	4.8	117.6	3625.9

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/11/01

File name	NYC117	NYC118	NYC119	NYC122	NYC123
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	South Tower Plume	North Tower Plume
Sample Number			A07069	A07091	A07090
Sample Height			breathing zone	ground	ground
Sample Volume		250 mL	250 mL	250 mL	250 mL
Sample Conc.	ppbv	ppbv	ppbv	ppbv	ppbv
Propane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	110	RL=20 ppbv
Freon 22	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	74	RL=20 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Isocetyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	20	260	220
Trichlorofluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
3-Chloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methylenecyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
MTEB	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	39	30
cis-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Cyclohexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	280	44
Heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloropropane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Methyl isobutyl ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
cis-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	37	RL=20 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
2-Hexanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrachloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Dibromochloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dibromoethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
m&p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
o-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv



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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

EARLY

DATE: 11/10/01

RST: B. Hoffman

Location	Time	FID (units)	FID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl	HF	COCl <sub>2</sub>
S	0820	ND						ND	ND	ND	ND	ND	ND
L	0835	ND			21.3			ND	ND	ND	ND	ND	ND
M1	0840	ND						ND	ND	ND	ND	ND	ND
N	0844	ND			21.3			ND	ND	ND	ND	ND	ND
J	0850	ND			21.3			ND	ND	ND	ND	ND	ND
F	0855	ND			21.4			ND	ND	ND	ND	ND	ND
A	0901	ND			21.3			ND	ND	ND	ND	ND	ND
B	0906	ND			21.3			ND	ND	ND	ND	ND	ND
C	0913	ND			21.3			ND	ND	ND	ND	ND	ND
H	0924	ND			21.3			ND	ND	ND	ND	ND	ND
I	0930	ND			21.3			ND	ND	ND	ND	ND	ND
D	0933	ND			21.3			ND	ND	ND	ND	ND	ND
K	0944	ND			21.3			ND	ND	ND	ND	ND	ND
T	0953	ND			21.3			ND	ND	ND	ND	ND	ND
U	1000	ND			21.3			ND	ND	ND	ND	ND	ND
V	1004	ND			21.3			ND	ND	ND	ND	ND	ND
S	1010	ND			21.3			ND	ND	ND	ND	ND	ND
P	1019	ND			21.2			ND	ND	ND	ND	ND	ND
E	1024	ND			21.2			ND	ND	ND	ND	ND	ND

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- Cl: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Helipad)
- V: Pier 6 (Bus Sign)

1308

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

LATE

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/10/01

RST: B. Huffman

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1359	ND	ND	ND	21.2	1	ND	ND	ND	ND	ND	ND	ND
M1	1302	ND	ND	ND	21.2	ND	ND	ND	ND	ND	ND	ND	ND
N	1306	ND	ND	ND	21.2	1	ND	ND	ND	ND	ND	ND	ND
J	1310	ND	ND	ND	21.2	2	ND	ND	ND	ND	ND	ND	ND
F	1314	ND	ND	ND	21.2	1	ND	ND	ND	ND	ND	ND	ND
A	1317	ND	ND	ND	21.2	1	ND	ND	ND	ND	ND	ND	ND
B	1320	ND	ND	ND	21.2	1	ND	ND	ND	ND	<1.00	ND	ND
C	1329	ND	ND	ND	21.2	1	ND	ND	ND	ND	4.00	ND	ND
H	1338	ND	ND	ND	21.2	2	ND	ND	ND	ND	<1.00	ND	ND
I	1342	ND	ND	ND	21.2	2	ND	ND	ND	ND	<1.00	ND	ND
V	1349	ND	ND	ND	21.2	4	ND	ND	ND	ND	<1.00	ND	ND
K	1353	ND	ND	ND	21.2	1	ND	ND	ND	ND	<1.00	ND	ND
T	1406	ND	ND	ND	21.2	1	ND	ND	ND	ND	<1.00	ND	ND
U	1411	ND	ND	ND	21.2	1	ND	ND	ND	ND	<1.00	ND	ND
V	1415	ND	ND	ND	21.2	ND	ND	ND	ND	ND	<1.00	ND	ND
S	1420	ND	ND	ND	21.2	ND	ND	ND	ND	ND	<1.00	ND	ND
P	1425	ND	ND	ND	21.3	ND	ND	ND	ND	ND	<1.00	ND	ND
E	1428	ND	ND	ND	21.3	1	ND	ND	ND	ND	<1.00	ND	ND
Q	1436	ND	ND	ND	21.1	1	ND	ND	ND	ND	<1.00	ND	ND

**Air Monitoring Locations**

- 1: Barclay and Broadway
- 3: Church and Dey
- 21: Liberty and Broadway
- 2: Greenwich and Albany
- 3: Liberty and South End
- 2: West and Vesey
- 3: No Monitoring At This Location

- H: Chase Plaza (Fine Street between Nassua and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Helipod)
- V: Pier 6 (Bus Sign)

1309

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/11/01 - EARLY

RST: B. Hoffman

Location	Time	FD (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCl (ppm)	HCl	HF	COCl <sub>2</sub>
L	0805	ND	ND	ND	20.7	ND	ND	ND	ND	ND	<1.00	ND	<0.50
M1	0814	ND	ND	ND	20.6	ND	ND	ND	ND	ND	<1.00	ND	<0.50
N	0818	ND	ND	ND	20.7	1	ND	ND	ND	ND	<1.00	ND	<0.50
J	0824	ND	ND	ND	20.7	2	ND	ND	ND	ND	ND	ND	<0.50
F	0829	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	<0.50
A	0839	ND	ND	ND	20.7	1	ND	ND	ND	ND	ND	ND	<0.50
B	0844	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	<0.50
C	0848	ND	ND	ND	20.7	3	ND	ND	ND	ND	ND	ND	<0.50
H	0856	ND	ND	ND	20.7	1	ND	ND	ND	ND	ND	ND	<0.50
I	0900	ND	ND	ND	20.7	ND	ND	ND	ND	ND	ND	ND	<0.50
D	0908	ND	ND	ND	20.7	3	ND	ND	ND	ND	ND	ND	<0.50
K	0914	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	<0.50
T	0924	ND	ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	<0.50
W	0929	ND	ND	ND	20.7	ND	ND	ND	ND	ND	ND	ND	<0.50
V	0933	ND	ND	ND	20.6	2	ND	ND	ND	ND	ND	ND	<0.50
S	0941	ND	ND	ND	20.7	2	ND	ND	ND	ND	ND	ND	<0.50
P	0944	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	<0.50
E	0944	ND	ND	ND	20.7	ND	ND	ND	ND	ND	ND	ND	<0.50
Q1	0954	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	<0.50

**Air Monitoring Locations**

- B: Barclay and Broadway
- C: Church and Dey
- L: Liberty and Broadway
- N: Greenwich and Albany
- S: Liberty and South End
- W: West and Vesey
- : No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Heliport)
- V: Pier 6 (Bus Sign)

KATHY CALLAHAN

Pg 22

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/11/01 - LATE

RST: B. Herman

Location	Time	FD (units)	PD (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1223	ND	ND	ND	20.7	1	ND	ND	ND	ND	<1.00	ND	ND
M	1227	ND	ND	ND	20.7	ND	ND	ND	ND	ND	<1.00	ND	ND
N	1231	ND	ND	ND	20.7	3	ND	ND	ND	ND	<1.00	ND	ND
V	1236	ND	ND	ND	20.7	1	ND	ND	ND	ND	<1.00	ND	ND
H	1344	ND	ND	ND	20.6	1	ND	ND	ND	ND	<1.00	ND	ND
Q	1300	ND	ND	ND	20.7	ND	ND	ND	ND	ND	<1.00	ND	ND
F	1325	ND	ND	ND	20.7	ND	ND	ND	ND	ND	<1.00	ND	ND
T	1344	ND	ND	ND	20.9	2	ND	ND	ND	ND	<1.00	ND	ND
K	1400	ND	ND	ND	20.6	1	ND	ND	ND	ND	<1.00	ND	ND
D	1412	ND	ND	ND	20.6	ND	ND	ND	ND	ND	<1.00	ND	ND
C	1414	ND	ND	ND	20.7	ND	ND	ND	ND	ND	<1.00	ND	ND
G	1433	ND	ND	ND	20.7	ND	ND	ND	ND	ND	<1.00	ND	ND
P	1438	ND	ND	ND	20.7	ND	ND	ND	ND	ND	<1.00	ND	ND
I	1444	ND	ND	ND	20.7	1	ND	ND	ND	ND	<1.00	ND	ND
U	1446	ND	ND	ND	20.6	1	ND	ND	ND	ND	<1.00	ND	ND
V	1450	ND	ND	ND	20.6	2	ND	ND	ND	ND	<1.00	ND	ND
S	1450	ND	ND	ND	20.7	1	ND	ND	ND	ND	<1.00	ND	ND
R	1501	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	ND
E	1506	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	ND

Air Monitoring Locations

Barclay and Broadway  
Church and Dey  
I: Liberty and Broadway  
Greenwich and Albany  
Liberty and South End  
West and Vesey  
No Monitoring At This Location

H: Chase Plaza (Pine Street between Nassau and Williams)  
J: Wall Street and Broadway  
K: West and Warren  
L: High School  
M: B-10 Wash Station on West Street  
N: Pier 25

Q: No Location Established  
P: Albany and South End  
Q: West and Murray  
R: No Monitoring At This Location  
S: Rector and South End  
T: Pier 6 (Light Pole)  
U: Pier 6 (Heliport)  
V: Pier 6 (Bus Sign)

**United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet**

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113


Site: World Trade Center

Sampler: E.Z.T C.M.

U.S. EPA: Norrell

Date: 11/9/01

RST Site Project Manager Brennan

Location	L	R	N			
DataRAM ID No.	2043	2046	2048			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	0712	0714	0719			
Stop Time	1503	1500	1506			
Run Time (Minutes)	471	466	467			
Minimum Concentration (ug/m3)	0.0	0.0	0.0			
Maximum Concentration (ug/m3)	245.0	130.0	260.0			
Average Concentration (TWA) (ug/m3)	12.1	11.2	2.7			

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade CenterSampler: Ed T. Charles M.U.S. EPA: NorrellDate: 11/11/01RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2643	2646	2648			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	0650	0654	0657			
Stop Time	1422	1428	1426			
Run Time (Minutes)	452	450	449			
Minimum Concentration (ug/m3)	0.0	0.0	0.0			
Maximum Concentration (ug/m3)	59.8	106.9	212.9			
Average Concentration (TWA) (ug/m3)	8.1	3.3	6.1			



NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED WITH DISCRETION

DRAFT GC/MS Results for 11/09/01 DRAFT

File name	NYC091	NYC092	NYC093	NYC095	NYC096	NYC094
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent	North Tower Plume	South Tower Plume	Austin Toon Plaza
Sample Number			07081	07082	07083	07084
Sample Height			breathing	ground	ground	breathing
Volume		1250 mL	1250 mL	110 mL	200 mL	1100 mL
Propylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	42000 ppbv	310 ppbv	RL=20 ppbv
Chlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorodifluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Dichlorotetrafluoroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Chloromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	7300 ppbv	1340 ppbv	RL=20 ppbv
Vinyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	300 ppbv	RL=20 ppbv	RL=20 ppbv
1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Bromomethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1500 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	670 ppbv	RL=20 ppbv	RL=20 ppbv
Trichlorofluoromethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Isopropyl Alcohol	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Acetone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	11000 ppbv	620 ppbv	170 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
2-Chloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,1-Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
trans-1,2-Dichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
hexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	12900 ppbv	RL=20 ppbv	RL=20 ppbv
1,1-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Vinyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
2-Butanone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	880 ppbv	110 ppbv	RL=20 ppbv
2,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Ethyl Acetate	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Chloroform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2000 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	800 ppbv	27 ppbv	RL=20 ppbv
1,1,1-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
2-Methylhexane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Carbon Tetrachloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	450 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Benzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	85000 ppbv	590 ppbv	RL=20 ppbv
heptane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2000 ppbv	RL=20 ppbv	RL=20 ppbv
Trichloroethene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1300 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dioxane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	400 ppbv	31 ppbv	59 ppbv
Methyl isobutyl Ketone	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	220 ppbv	RL=20 ppbv	RL=20 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Toluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	13100 ppbv	180 ppbv	RL=20 ppbv
trans-1,3-Dichloropropene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2-Trichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
2-Methoxyethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Tetrahydrofuran	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	950 ppbv	RL=20 ppbv	RL=20 ppbv
butylmethoxybenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
Chlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	1900 ppbv	180 ppbv	RL=20 ppbv
Ethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	23000 ppbv	130 ppbv	21 ppbv
m&p-Xylenes	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2000 ppbv	RL=20 ppbv	RL=20 ppbv
O-Xylene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	2000 ppbv	RL=20 ppbv	RL=20 ppbv
Styrene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	6900 ppbv	97 ppbv	RL=20 ppbv
Bromoform	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
1,1,2,2-Tetrachloroethane	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv
4-Ethyltoluene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	670 ppbv	RL=20 ppbv	RL=20 ppbv
1,3,5-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	980 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trimethylbenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	380 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	770 ppbv	RL=20 ppbv	RL=20 ppbv
1,4-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	780 ppbv	RL=20 ppbv	RL=20 ppbv
Benzyl Chloride	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	460 ppbv	RL=20 ppbv	RL=20 ppbv
1,2-Dichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	620 ppbv	RL=20 ppbv	RL=20 ppbv
1,2,4-Trichlorobenzene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	63 ppbv
Hexachloro-1,3-Butadiene	RL=20 ppbv	RL=20 ppbv	RL=20 ppbv	RL=200 ppbv	RL=20 ppbv	RL=20 ppbv



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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/9/01 (Early)

RST: JLT

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl	HF	COCl <sub>2</sub>
L	0800	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
M1	0807	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
N	0817	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
J	0817	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
E	0821	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
Q	0824	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
A	0844	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
B	0850	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
CI	0857	ND	ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
H	0905	ND	ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
I	0915	ND	ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
J	0928	ND	ND	ND	20.4	4*	ND	ND	ND	ND	ND	ND	ND
K	0955	ND	ND	ND	20.4	ND	ND	ND	ND	ND	<1	ND	ND
T	1007	ND	ND	ND	20.5	ND	ND	ND	ND	ND	<1	ND	ND
U	1013	ND	ND	ND	20.5	ND	ND	ND	ND	ND	<1	ND	ND
V	1016	ND	ND	ND	20.5	ND	ND	ND	ND	ND	<1	ND	ND
S	1022	ND	ND	ND	20.5	1	ND	ND	ND	ND	<1	ND	ND
F	1028	ND	ND	ND	20.6	ND	ND	ND	ND	ND	<1	ND	ND
E	1035	N/A	ND	ND	20.5	1	ND	ND	ND	ND	<1	ND	ND

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Day
- CI: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Heliport)
- V: Pier 6 (Bus Sign)

\*1 Trucks, down wind of pier.

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/9/01 Late

RST: A Decker

Location	Time	FID (units)	FID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1259	*	ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
M1	1301		ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
N	1305		ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
J	1308		ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
F	1312		ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
A	1316		ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
B	1318		ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
C1	1324		ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
H	1331		ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
I	1335		ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
D	1345		ND	ND	20.6	2	ND	ND	ND	ND	ND	ND	ND
K	1350		ND	ND	20.6	2	ND	ND	ND	ND	ND	ND	ND
T	1357		ND	ND	20.6	2	ND	ND	ND	ND	ND	ND	ND
U	1401		ND	ND	20.6	0	ND	ND	ND	ND	ND	ND	ND
V	1404		ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
S	1410		ND	ND	20.6	1	ND	ND	ND	ND	ND	ND	ND
P	1412		ND	ND	20.7	1	ND	ND	ND	ND	ND	ND	ND
E	1415		ND	ND	20.7	1	ND	ND	ND	ND	ND	ND	ND
													ND

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- C1: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Helisport)
- V: Pier 6 (Bus Sign)

\* FID malfunction

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Thursday, November 15, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 15, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 37 samples taken in and around ground zero from November 11 through November 12. In addition, EPA sampled for asbestos at three recently added lower Manhattan locations on November 10, for a total of 40 samples in this period. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,102, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected on November 10 from four of these locations showed no exceedances of the AHERA re-entry standard. The location in the Bronx was not sampled.

**Staten Island Landfill:**

**Air (Asbestos)** - Thirty-eight samples were collected on November 11 and 12. One of these samples, taken on November 12, showed results above the school re-entry standard. One sample was not analyzed due to filter overloading. All other 36 samples were below the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on November 13 and 14 at the Staten Island Landfill. Nothing of significance reported at all five stations.

**PM 10** - Monitoring for particulate matter (particles less than 10 micrometers in diameter) was conducted from October 25 through November 5 at Pace University, Borough of Manhattan Community College, the Coast Guard building, Public School (P.S.) 274 in Brooklyn, and the

Canal Street Post Office. All 24-hour average values were below the National Ambient Air Quality Standard of 150 ug/m<sup>3</sup> for all available stations.

**Particulate Monitoring** - EPA used portable monitors to collect samples on November 13 and 14 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on November 13 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene in one sample from plume of the North Tower debris pile exceeded the OSHA PEL of 1 part per million (ppm). Two of three other samples taken at the Washing Tent, located at Murray and West St., and Austin Tobin Plaza were non-detect for benzene.

**Ambient Air Sampling:**

**Metals** - Ten samples were collected on October 18. Analysis for all metals were either non-detect or below applicable standards, guidelines and permissible levels established by EPA and OSHA. Final analysis of these samples for chromium showed that chromium is not present.

**PCBs** - Ten samples were collected on October 18, with an additional ten collected on October 26 - all were analyzed for PCBs. Trace amounts were detected in two samples, one from each of these sampling days. All other 18 samples were non-detect for PCBs.

**Silicates** - Ten samples were collected on October 26, with an additional ten collected on November 2 - all were analyzed for silicates. No silicates were detected in any of these samples.

**Bulk/Dust: Metals** - Two dust samples obtained from rooftops in the vicinity of ground zero (22 Cortlandt and 600 Gateway Plaza) were levels of concern based on EPA's guidelines for taking action to reduce exposure.

**Direct Air Readings** - Direct readings taken on November 13 through November 14 in and around ground zero showed no levels of significance.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))**  
**Air / Bulk / Wipe / Water Sampling Situation Report**  
**Thursday, November 15, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 11, 1200 - 2359 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location E) was not sampled due to a pump fault.
- NYC / ER (Nov 12, 0001 - 1159 hrs)
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 2 samples (Locations B and V) were not sampled due to pump faults.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 11, 1857 - Nov 12, 0755) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Nov 12, 0653 - 1937) - Asbestos
  - 1 of 18 samples analyzed was above the TEM AHERA standard.
  - Exceedance of the TEM AHERA standard occurred at indoor "Wash" Location #12A (80 S/mm<sup>2</sup>)
  - 1 sample (Supply "Tent" Location #16) was not analyzed due to overloading of particulates.
- Fresh Kills (Nov 13) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations based on daily average concentrations.
- Fresh Kills (Nov 14) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations based on daily average concentrations.

Ambient Air Sampling Locations

- NYC / ER (Oct 18) - Metals
  - Ten samples collected.
  - All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.
  - Note: QA/QC review of chromium in air analytical data has revealed that chromium is not present in these samples.

- NYC / ER (Oct 18) - PCBs
  - Trace amounts detected in 1 of 10 samples well below levels of concern.
  - 9 samples did not detect any PCBs.
  - All levels are below the EPA Removal Action level guidelines.
- NYC / ER (Oct 26) - PCBs
  - Trace amounts detected in 1 of 10 samples well below levels of concern.
  - 9 samples did not detect any PCBs.
  - All levels are below the EPA Removal Action level guidelines.
- NYC / ER (Oct 26) - Silicates
  - All 10 samples did not detect any silicates.
- NYC / ER (Nov 2) - Silicates
  - All 10 samples did not detect any silicates.
- NYC / ER (Oct 25) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *114.5 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *61.5 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *41.6 ug/m<sup>3</sup>*.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was *44.6 ug/m<sup>3</sup>*.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *32.2 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Oct 26) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *133.5 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *44.6 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *29.4 ug/m<sup>3</sup>*.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was *24.5 ug/m<sup>3</sup>*.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *25.2 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

- NYC / ER (Oct 27) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *62.4 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *16.2 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - No data available.
  - Canal Street Post Office (Site 4) - No data available.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *14.9 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Oct 28) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *14.3 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *14.0 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *11.2 ug/m<sup>3</sup>*.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was *8.9 ug/m<sup>3</sup>*.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *11.8 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Oct 29) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *32.9 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *41.1 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *67.8 ug/m<sup>3</sup>*.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was *30.3 ug/m<sup>3</sup>*.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *36.3 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Oct 30) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *45.1 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *47.3 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *42.7 ug/m<sup>3</sup>*.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was *25.3 ug/m<sup>3</sup>*.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *29.2 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

- NYC / ER (Oct 31) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **27.3 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hr average concentration for this period was **31.2 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **36.0 ug/m<sup>3</sup>**.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **26.9 ug/m<sup>3</sup>**.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentrations for this period was **18.9 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Nov 1) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - No data available.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **62.1 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **47.7 ug/m<sup>3</sup>**.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **60.6 ug/m<sup>3</sup>**.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentrations for this period was **38.7 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Nov 2) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hour average concentration for this period was **46.5 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **51.6 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **42.1 ug/m<sup>3</sup>**.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **54.2 ug/m<sup>3</sup>**.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - No data available.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Nov 3) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hour average concentration for this period was **37.4 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **31.8 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **29.0 ug/m<sup>3</sup>**.
  - Canal Street Post Office (Site 4) - No data available.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentrations for this period was **22.8 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).



- NYC / ER (Nov 4) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hour average concentration for this period was **47.3 ug/m<sup>3</sup>**
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **24.3 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - No data available.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **27.3 ug/m<sup>3</sup>**.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **17.5 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Nov 5) - Particulate Monitoring (PM<sub>10</sub>)
  - Pace University (Site 1) - 24-hour average concentration for this period was **21.9 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **25.4 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **28.0 ug/m<sup>3</sup>**.
  - Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **19.6 ug/m<sup>3</sup>**.
  - P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **16.2 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).
- NYC / ER (Nov 13) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 8 hours.
  - Station L values ranged from 0.0 to 351.7 ug/m<sup>3</sup> with an average of 38.3 ug/m<sup>3</sup>.
  - Station N values ranged from 10.7 to 163.9 ug/m<sup>3</sup> with an average of 29.4 ug/m<sup>3</sup>.
  - Station R values ranged from 0.0 to 128.7 ug/m<sup>3</sup> with an average of 31.7 ug/m<sup>3</sup>.
- NYC / ER (Nov 14) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 8 hours.
  - Station L values ranged from 0.4 to 204.6 ug/m<sup>3</sup> with an average of 60.7 ug/m<sup>3</sup>.
  - Station N values ranged from 0.0 to 375.4 ug/m<sup>3</sup> with an average of 45.2 ug/m<sup>3</sup>.
  - Station R values ranged from 0.2 to 426.5 ug/m<sup>3</sup> with an average of 54.7 ug/m<sup>3</sup>.

- NYC / ER (Nov 10) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 7 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
  - One location in the Bronx was not sampled.
- NYC / ER (Nov 13) - Volatile organics (Mobile laboratory)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) on the debris pile in the plume at ground level.
  - 2 of the 3 other samples ("Washing Tent" and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

#### Bulk/Dust Samples

- NYC / ER (Oct 8) - Metals
  - 2 dust samples obtained from rooftops in the vicinity of the WTC (22 Cortlandt, 7<sup>th</sup> fl. and 600 Gateway Plaza, 34<sup>th</sup> fl.).
  - All samples below levels of concern based on EPA Removal Action level guidelines.

#### Direct Reading Instruments

- NYC / ER (Nov 13)
  - Nothing of significance reported.
- NYC / ER (Nov 14)
  - Nothing of significance reported.

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/11/01 1657 to 11/12/01 0755  
 Data Validation Date: 11/13/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					fmm <sup>2</sup>	fibc	Structures (#)	S-1mm <sup>2</sup>	S-5µm	S-fibc**
11/11/01	LF00545	P-1	687	Air	<7.0	<0.004	0	<8.75	<0.0049	<0.0049
11/11/01	LF00546	P-2	705	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/11/01	LF00547	P-3	666	Air	<7.0	<0.004	0	<8.75	<0.0051	<0.0051
11/11/01	LF00548	P-4	707	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/11/01	LF00549	P-5	708	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/11/01	LF00550	P-6	707	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/11/01	LF00551	P-7	707	Air	<7.0	<0.004	1***	8.75	0.0048	0.0048
11/11/01	LF00552	P-8	711	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/11/01	LF00553	S-8A	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/11/01	LF00554	S-8B	712	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/11/01	LF00555	S-10A	687	Air	<7.0	<0.004	0	<8.75	<0.0049	<0.0049
11/11/01	LF00556	S-10B	710	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/11/01	LF00557	W-11	267	Air	14.01	0.020	0	<8.75	<0.0126	<0.0126
11/11/01	LF00558	W-12A	720	Air	16.56	0.009	0	<8.75	<0.0047	<0.0047
11/11/01	LF00559	W-12B	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/11/01	LF00560	B-13	707	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/11/01	LF00561	B-14	708	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/11/01	LF00562	T-15	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/11/01	LF00563	T-16	720	Air	14.01	0.025	0	<8.75	<0.0047	<0.0047
11/11/01	LF00564	Lot Blank	0	Air	<7.0	n/a	0	<8.75	n/a	n/a
11/11/01	LF00565	Trip Blank	0	Air	<7.0	n/a	0	<8.75	n/a	n/a

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/12/01 0653 to 1937  
Data Validated on Date: 11/13/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (f)	S/mm <sup>2</sup>	S-f/cc**	
11/12/01	LF00565	P-1	720	Air	<7.0	<0.004	0	0	0	0.0048
11/12/01	LF00565	P-2	720	Air	<7.0	<0.004	1***	0	0	0.0048
11/12/01	LF00568	P-3	720	Air	<7.0	<0.004	0	0	0	<0.0048
11/12/01	LF00568	P-4	705	Air	<7.0	<0.004	0	0	0	<0.0048
11/12/01	LF00570	P-5	720	Air	<7.0	<0.004	0	0	0	<0.0048
11/12/01	LF00571	P-6	720	Air	<7.0	<0.004	0	0	0	<0.0048
11/12/01	LF00572	P-7	720	Air	<7.0	<0.004	0	0	0	<0.0048
11/12/01	LF00573	P-8	633	Air	<7.0	<0.004	0	0	0	<0.0049
11/12/01	LF00574	S-9A	695	Air	<7.0	<0.004	0	0	0	<0.0045
11/12/01	LF00575	S-9B	495	Air	<7.0	<0.005	8***	0	64	0.0468
11/12/01	LF00576	S-10A	715	Air	<7.0	<0.004	4***	0	35.56	0.0191
11/12/01	LF00577	S-10B	720	Air	<7.0	<0.004	4***	0	35.56	0.0190
11/12/01	LF00578	W-11	714	Air	9.55	0.009	5***	0	44.44	0.0240
11/12/01	LF00579	W-12A	695	Air	13.38	0.0075	10***	0	80	0.0480
11/12/01	LF00580	W-12B	652	Air	<7.0	<0.004	3***	0	24	0.0142
11/12/01	LF00581	B-13	641	Air	<7.0	<0.004	1***	0	8	0.0048
11/12/01	LF00582	B-14	720	Air	<7.0	<0.004	2***	0	17.78	0.0095
11/12/01	LF00583	T-15	705	Air	<7.0	<0.004	1***	0	8.69	0.0049
11/12/01	LF00584	T-16	720	Air	<7.0	<0.004	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/12/01	LF00585	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/12/01	LF00586	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

- Key:
- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
  - \*\* Structure (S) is roughly equivalent to fiber (f)
  - \*\*\* Chrysotile
  - \*\*\*\* one Chrysotile and one Anthophyllite
  - NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
  - NA<sup>(2)</sup> - Not analyzed for TEM
  - n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/16/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
Standard criteria: EPA 40 CFR Part 763 (AHERA); 0.01 fiber/cc (PCM); 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/11/01 1200 to 2359

Data Validation Date: 11/13/01

Sampling Date	Sample No.	Location	Sampling Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					fibre?/cc	fibre?/ft <sup>3</sup>	fibre?/m <sup>3</sup>	Structures (#)	S/mm <sup>2</sup>	S-ftec**
11/11/01	RST-00562	Air	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/11/01	RST-00563	M1	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/11/01	RST-00564	N1	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/11/01	RST-00565	N1	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/11/01	RST-00566	F	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/11/01	RST-00567	A	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/11/01	RST-00568	B	720	Air	13.38	0.007	0	0	<8.89	<0.0048
11/11/01	RST-00569	C	720	Air	26.75	0.014	0	0	<8.89	<0.0048
11/11/01	RST-00570	H	637	Air	12.74	0.008	1***	0	6	0.0048
11/11/01	RST-00562	I	720	Air	18.47	0.010	2***	0	17.78	0.0095
11/11/01	RST-00564	D	601	Air	9.55	0.006	0	0	<8.0	<0.0051
11/11/01	RST-00565	K	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/11/01	RST-00566	T	643	Air	<7.0	<0.004	0	0	<8.0	<0.0048
11/11/01	RST-00567	U	720	Air	<7.0	<0.004	2***	0	<8.89	<0.0048
11/11/01	RST-00568	V	720	Air	<7.0	<0.004	0	0	17.78	0.0095
11/11/01	RST-00569	S	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/11/01	RST-00570	P	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/11/01	RST-00571	P-Duplicate	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/11/01	RST-00572	E	NS	NS	NS	NS	NS	NS	NS	NS
11/11/01	FB111201	Field Blank	0	Air	<7.0	<0.004	2	0	17.78	0.0095
11/11/01	TB111201	Trip Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

Key:  
\* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Cityville  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
NA<sup>(3)</sup> - Not applicable  
NR - Not requested  
NS - Sample not submitted

M: Western end of Harrison St. at West St. (on line next to bulletin board)  
M1: West St. 1/2 way south of Harrison St. at bulkhead  
N: South side of Park Ave. (between ct)  
N1: NE corner of South End Ave. & Albany  
O: Barclay & West St. (center island) in proximity to USCG Command post  
R: TACA Bus Location  
S: Rec. South End  
T: Pier 6 Bulkhead  
U: Pier 6 Exit 2  
V: Pier 6 Bus Sign

Sampling Locations:  
A: NE corner of West Broadway & Barclay  
B: SE corner of Church & Day St.  
C: Trinity (a.k.a. Church) & Liberty St.  
D: SW corner of Broadway & Liberty St.  
E: East end of Albany St. at Greenwich St.  
F: Western end of Liberty St. at South End Ave  
G: Northern median strip of Vesey & West St.  
H: Church and Duane St.  
I: South side of Chase Manhattan Plaza at Pine St.  
J: SE corner of Wall St. & Broadway  
K: NE corner of Warren & Light St.  
L: West St. & Albany median strip  
M: On walkway toward North Park rec area (north side of Suyvesant High), access to TACA bus area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/12/01 0001 to 1159

Data Validation Date: 11/13/01

Sampling Date	Sample No.	Location	Sampling Volume*	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
						f/cc	f/m <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
11/12/01	RST-00573	L	617	720	Air	<7.0	<0.004	<48.3	0	<8.89	<0.0050
11/12/01	RST-00574	M1	720	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00575	N	720	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00576	J	720	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00577	F	720	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00578	B	NS	NS	NS	NS	NS	NS	NS	NS	NS
11/12/01	RST-00579	C	720	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00580	H	558	542	Air	<7.0	<0.005	0	1***	7.27	0.0049
11/12/01	RST-00581	I	574	574	Air	<7.0	<0.005	0	0	<6.67	<0.0047
11/12/01	RST-00582	D	720	720	Air	<7.0	<0.004	0	0	<7.27	<0.0048
11/12/01	RST-00583	K	720	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00584	T	720	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00585	U	591	591	Air	<7.0	<0.005	0	0	<7.27	<0.0047
11/12/01	RST-00586	V	NS	NS	NS	NS	NS	NS	NS	NS	NS
11/12/01	RST-00587	S	720	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00588	P	720	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00589	E	720	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00590	Q-Duplicate	720	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	FB111201	Field Blank	0	0	Air	n/a	n/a	1***	0	0.69	0.0048
11/12/01	TB111201	Trip Blank	0	0	Air	<7.0	<0.004	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- D: SW corner of Broadway & Liberty St.
- E: East end of Albany St. at Greenwich St.
- F: Western end of Liberty St. at South End Ave
- G: Northern median strip of Vesey & West St
- H: Church and Duane St.
- I: South side of Church & Broadway
- J: SE corner of West & West St
- K: West St & Albany in median strip
- L: On walkway toward North Park rec. area (north side of Suyvesant High), access to TAGA bus area

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Crystalline
- NA<sup>(1)</sup>: Not analyzed due to overloading of particulates
- NA<sup>(2)</sup>: Not analyzed for TEM
- NA<sup>(3)</sup>: Not applicable
- NR: Not requested
- NS: Sample not submitted

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball c)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (corner island) in proximity to USCG command post
- R: TAGA bus location
- S: Pier 6 South End
- T: Pier 6 East
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 1, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM); 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/10/2001 1200 to 2400

Data Validation Date: 11/13/2001  
 Revision Date: 11/15/01

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
11/10/01	7093-15-0043	Manhattan PS #143	1378	Air	NR	NR	0	<16.00	<0.0045
11/10/01	7096-12-0040	Queens PS #199	1434	Air	NR	NR	0	<16.00	<0.0043
11/10/01	7095-98-0041	Brooklyn PS #274	1440	Air	NR	NR	0	<16.00	<0.0043
11/10/01	7093-18-0044	Pace Univ.	1440	Air	NR	NR	0	<16.00	<0.0043
11/10/01	7093-19-0044	BMCC	1186***	Air	NR	NR	0	13.33	0.0043
11/10/01	7093-20-0044	Coast Guard	1440	Air	NR	NR	0	<16.00	<0.0043
11/10/01	7097-18-0038	Staten Is. PS #44	1400	Air	NR	NR	0	<16.00	<0.0044
-	-	Bronx PS #154	NS	NS	NS	NS	NS	NS	NS

000 n/a

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysotile
- NR - analysis not requested
- NS - Sample not submitted for analysis

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 13, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	48	12:00:00	10	00:15:00	100	0.0	0.0	5.9	626.4
2	-74.198262	40.566883	2295	1	48	12:00:00	10	00:15:00	100	0.0	6.7	30.1	1711.4
3	-74.198685	40.570054	2011	1	48	12:00:00	10	00:15:00	100	0.0	3.2	39.2	3698.3
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	49	12:15:00	10	00:15:00	100	0.0	0.0	26.9	554.8
8	-74.203019	40.561915	2363	1	49	12:15:00	10	00:15:00	100	0.0	0.0	41.1	11480.9



**Daily DataRam Particulate Monitoring Summary Sheet**  
 Staten Island Landfill  
 November 14, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	48	12:00:00	10	00:15:00	100	0.0	4.3	9.0	183.5
2	-74.198262	40.566883	2295	1	35	08:45:00	10	00:15:00	100	0.0	19.5	47.6	2440.6
3	-74.198685	40.570054	2011	1	48	12:00:00	10	00:15:00	100	0.0	14.3	51.7	1709.1
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	50	12:30:00	10	00:15:00	100	0.0	15.0	43.9	770.2
8	-74.203019	40.561915	2363	1	50	12:30:00	10	00:15:00	100	0.0	11.2	43.5	1942.7

Table 1 Results of the Analysis for Metals in Air  
WTC New York ER site

Client ID Location	01058 TAGA	01059 A-BARCLAY ST. & WEST BROADWAY 970	01060 B-CHURCH & DEV ST. 972	02851 3A BETWEEN WTC 4 + 5 972	02852 C+LIBERTY ST. & BROADWAY 874.8	02853 D-GREENWICH & ALBANY ST. 962	Air Volume (L) Date Collected	960 10/18/01	10/18/01	10/18/01	10/18/01	10/18/01	10/18/01	Conc		MDL	
														µg/m³	µg/m³	µg/m³	µg/m³
Parameter	Analysis Method	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
Aluminum	ICAP	U	1.3	U	1.3	U	1.3	7.9	1.3	U	1.3	U	1.3	1.4	1.4	U	1.3
Antimony	AA-Fur	U	0.052	U	0.051	U	0.051	0.085	0.051	U	0.051	U	0.051	U	0.057	U	0.052
Arsenic	AA-Fur	U	0.052	U	0.052	U	0.051	U	0.051	U	0.051	U	0.051	U	0.057	U	0.052
Barium	ICAP	U	0.13	U	0.13	U	0.13	0.14	0.13	U	0.13	U	0.13	U	0.14	U	0.13
Beryllium	ICAP	U	0.052	U	0.052	U	0.051	U	0.051	U	0.051	U	0.051	U	0.057	U	0.052
Cadmium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.13
Calcium	ICAP	U	2.6	16	2.6	18	2.6	120	2.6	U	0.13	U	0.13	27	2.9	17	2.6
Chromium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.13
Cobalt	ICAP	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.29	U	0.26
Copper	ICAP	U	0.26	U	0.26	U	0.26	0.91	0.26	U	0.26	U	0.26	0.52	0.29	0.42	0.26
Iron	ICAP	4.6	0.65	2.8	0.64	2.4	0.64	14	0.64	U	0.64	U	0.64	5.3	0.71	6.4	0.65
Lead	AA-Fur	U	0.052	0.065	0.052	0.16	0.051	0.66	0.051	U	0.051	U	0.051	0.56	0.057	0.32	0.052
Magnesium	ICAP	U	13	U	13	U	13	U	13	U	13	U	13	U	14	U	13
Manganese	ICAP	U	0.13	U	0.13	0.16	0.13	0.33	0.13	U	0.13	U	0.13	0.14	0.14	U	0.13
Nickel	ICAP	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.29	U	0.26
Potassium	ICAP	U	52	U	52	U	51	U	51	U	51	U	51	U	57	U	52
Selenium	AA-Fur	U	0.052	U	0.052	U	0.051	U	0.051	U	0.051	U	0.051	U	0.057	U	0.052
Silver	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.13
Sodium	ICAP	U	13	U	13	U	13	U	13	U	13	U	13	U	14	U	13
Thallium	AA-Fur	U	0.052	U	0.052	U	0.051	U	0.051	U	0.051	U	0.051	U	0.057	U	0.052
Vanadium	ICAP	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.29	U	0.26
Zinc	ICAP	1.1	0.26	U	0.26	0.85	0.26	2.3	0.26	U	0.26	U	0.26	1.3	0.29	1.6	0.26

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration (≠MDL) subtracted from all sample results

NYC Emergency Response  
 Silica - Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/26/01 0855to 1700

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
10/26/01	11577	A	1000	Air	<0.01	<0.02	<0.02
10/26/01	11578	B	1000	Air	<0.01	<0.02	<0.02
10/26/01	11580	C-1	1000	Air	<0.01	<0.02	<0.02
10/26/01	11581	D	1000	Air	<0.01	<0.02	<0.02
10/26/01	11584	E	1000	Air	<0.01	<0.02	<0.02
10/26/01	11592	F	1000	Air	<0.01	<0.02	<0.02
10/26/01	11593	S	1000	Air	<0.01	<0.02	<0.02
10/26/01	11575	TAGA	1000	Air	<0.01	<0.02	<0.02
10/26/01	11576	TAGA	1000	Air	<0.01	<0.02	<0.02
10/26/01	11579	Loc 3A Between WTC 4& 5	1000	Air	<0.01	<0.02	<0.02

cccf 0402

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vessey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St
- K: West St. & Albany /in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TACA Bus Location
- S: Rector & South End

NS: Not sampled

ERT 11/13/01 2:50 PM

NIOSH 7500: Silica crystalline by XRD

NYC Emergency Response  
 Silica- Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/02/01 0800 to 1630

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
11/2/01	11661	A	1000	Air	<0.01	<0.02	<0.02
11/2/01	11662	B	1000	Air	<0.01	<0.02	<0.02
11/2/01	11664	C	1000	Air	<0.01	<0.02	<0.02
11/2/01	11665	D	1000	Air	<0.01	<0.02	<0.02
11/2/01	11668	E	1000	Air	<0.01	<0.02	<0.02
11/2/01	11666	P	1000	Air	<0.01	<0.02	<0.02
11/2/01	11667	S	1000	Air	<0.01	<0.02	<0.02
11/2/01	11669	TAGA	1000	Air	<0.01	<0.02	<0.02
11/2/01	11660	TAGA	1000	Air	<0.01	<0.02	<0.02
11/2/01	11663	Loc-3A Between WTC 4, 5	1000	Air	<0.01	<0.02	<0.02

cc# 04057

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

NS: Not sampled

ERT 11/14/01 9:50 AM

NIOSH 7500: Silica crystalline by XRD

WQS Emergency Response  
 Au-Selenium Method 800 PCB results  
 Sampling Date 10/28/01

Sample No.	11551		11552		11553		11554		11557		11558		11559		11560		11562											
	W22628	Methyl	7300	7427	7390	7360	7360	7360	7239	7239	7290	7200	7200	7200	7200	7200	7200	7200	7200									
Analyte	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL		
709 TCBB	U	10.0	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	10.0	U	10.0
Sum of PCBs	U	60.0	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	100.0	U	100.0
Sum of PCBs	U	10.0	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	100.0	U	100.0
Sum of PCBs	U	10.0	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	100.0	U	100.0
Sum of PCBs	U	10.0	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	100.0	U	100.0
Sum of PCBs	U	10.0	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	100.0	U	100.0
Sum of PCBs	U	10.0	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	100.0	U	100.0
Sum of PCBs	U	10.0	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	100.0	U	100.0
Sum of PCBs	U	10.0	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	100.0	U	100.0
Sum of PCBs	U	10.0	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	1.35	U	100.0	U	100.0
Total		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0

WQS Emergency Response  
 Au-Selenium Method 800 PCB results  
 Sampling Date 10/28/01

- A: Sampling Location
  - B: SE corner of Church & Day St.
  - C: 1st Ave. & Church & Day St.
  - D: East end of Albany St. at Greenwich St.
  - E: Northeast corner of Church & West St.
  - F: Northeast intersection of West & West St.
  - G: Church and Duane St.
  - H: NE corner of Warren & West St.
  - I: SE corner of West St. & Broadway.
  - J: NE corner of Warren & West St.
  - K: NE corner of West St. & Broadway.
  - L: Overlaping toward North Park, in area north side of Shuylent High, access to TACA bus area
  - M: Overlaping toward North Park, in area north side of Shuylent High, access to TACA bus area
  - N: NE corner of Church & West St. (on fire next to ballfield)
  - O: NE corner of South End Ave. & Albany
  - P: NE corner of South End Ave. & Albany
  - Q: TACA Bus Location
  - R: TACA Bus Location
  - S: Reck's & South End
- ERT: 11/4/01 9:50 AM

Sample No.	11531	11532	11533	11534	11535	11536	11537	11538	11539	11540	11541	11542	11543	11544	11545	11546	11547	11548	11549	11550
Sample Location	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank	Method Bank
Analysed	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
209 DCH	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sum of MOCBs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sum of TCsBs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sum of HCcBs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sum of HOCBs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sum of MOCBs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00

Sampling Locations:  
A. NW corner of Church & Dyre St.  
B. SE corner of Church & Dyre St.  
C. NW corner of Church & Dyre St.  
D. East end of Albany St. at Greenwich St.  
E. Middle of Albany St. at Broadway  
F. Middle of Albany St. at West St.  
G. Church and Dyre St.  
H. NE corner of West St & Broadway  
I. SE corner of West St & Broadway  
J. NE corner of West & West St.  
K. Middle of Broadway  
L. On walking board (North Park) on area (north side of Shubert St) north of West St (see tree next to building)  
M. Station and intersection at West St (see tree next to building)  
N. Station and intersection at West St (see tree next to building)  
P. NE corner of South End Ave & Albany  
Q. Station and intersection at West St  
R. TWA Bus Location  
S. Ripper & South End

EPT: 11/16/01 8:50 AM

10-28-01(10)20-16



NYC Emergency Response  
 Air Samples - Modified Method Site PCB results  
 Sampling Date: 01/01/01

Sample No.	WGS037 Method Blank	01045		01046		01047		01048		01049		01050		01051		01052		01053		01054		01055	
		Result	MCL	Result	MCL	Result	MCL	Result	MCL	Result	MCL	Result	MCL	Result	MCL	Result	MCL	Result	MCL	Result	MCL	Result	MCL
01045	U	10.0	U	1.48	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U
01046	U	10.0	U	1.48	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U
01047	U	10.0	U	1.48	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U
01048	U	10.0	U	1.48	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U
01049	U	10.0	U	1.48	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U
01050	U	10.0	U	1.48	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U
01051	U	10.0	U	1.48	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U
01052	U	10.0	U	1.48	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U
01053	U	10.0	U	1.48	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U
01054	U	10.0	U	1.48	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U
01055	U	10.0	U	1.48	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U

01045 01046 01047 01048 01049 01050 01051 01052 01053 01054 01055

Sampling Locations:  
 A: SE corner of West 8th St. & Chr. St.  
 B: SE corner of West 8th St. & Chr. St.  
 C: Train (aka. Church & Liberty St.)  
 D: East end of Liberty St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave.  
 F: Eastern end of Liberty St. at West St.  
 G: Church and Duane St.  
 H: South side of Church Manhattan Plaza at Pine St.  
 I: SE corner of Church & West St.  
 J: NE corner of Church & West St.  
 K: NE corner of Church & West St.  
 L: NE corner of Church & West St.  
 M: Western end of Hamilton St. at West St. (on line next to building)  
 N: Eastern end of Hamilton St. at West St. (on line next to building)  
 O: NE corner of South End Ave. & Albany St.  
 P: NE corner of South End Ave. & Albany St.  
 Q: Bowline & West St. (corner behind in proximity to USCG command post)  
 R: Bowline & West St.  
 S: Proctor & South End

01045 01046 01047 01048 01049 01050 01051 01052 01053 01054 01055

01045 01046 01047 01048 01049 01050 01051 01052 01053 01054 01055

01045 01046 01047 01048 01049 01050 01051 01052 01053 01054 01055

01045 01046 01047 01048 01049 01050 01051 01052 01053 01054 01055

01045 01046 01047 01048 01049 01050 01051 01052 01053 01054 01055

01045 01046 01047 01048 01049 01050 01051 01052 01053 01054 01055

10-110-01045-01055



Table 1 Results of the Analysis for Metals in Dust  
WTC New York ER site  
Results Based on Samples as Received

Client ID	Method Blank	03814	03815				
Location	Lab	600 Gateway 34th	22 Cortland 7th				
% Solids	NA	94.40	95.30				
Date Sampled	-	10/08/01	10/08/01				
Parameter	Analysis Method	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg
Aluminum	ICAP	U	19	19000	19	20000	19
Antimony	ICAP	U	6.0	U	6.2	11	6.3
Arsenic	AA-Fur	U	0.60	3.5	2.5	4.0	2.5
Barium	ICAP	U	1.0	200	1.0	220	1.0
Beryllium	ICAP	U	0.50	2.1	0.52	2.6	0.52
Cadmium	ICAP	U	0.50	2.9	0.52	3.4	0.52
Calcium	ICAP	U	50	150000	52	150000	52
Chromium	ICAP	U	0.50	73	0.52	110	0.52
Cobalt	ICAP	U	1.0	7.6	1.0	7.6	1.0
Copper	ICAP	U	1.0	81	1.0	820	1.0
Iron	ICAP	U	10	16000	10	21000	52
Lead	ICAP	U	4.0	91	4.2	160	4.2
Magnesium	ICAP	U	60	21000	52	21000	52
Manganese	ICAP	U	1.0	900	1.0	960	1.0
Mercury	Cold Vapor	U	0.04	0.15	0.04	0.26	0.04
Nickel	ICAP	U	1.0	22	1.0	22	1.0
Potassium	ICAP	U	200	2400	210	2600	210
Selenium	AA-Fur	U	0.50	U	1.0	U	1.0
Silver	ICAP	U	0.50	U	0.52	0.62	0.52
Sodium	ICAP	U	50	1300	52	1400	52
Thallium	AA-Fur	U	0.50	U	1.0	U	1.0
Vanadium	ICAP	U	2.0	22	2.1	21	2.1
Zinc	ICAP	U	2.0	1200	2.1	1400	2.1

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)

**United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet**

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: Metzger

U.S. EPA: Norrell

Date: 11/3/01

RST Site Project Manager Brennan

Location	L	R	N			
DataRAM ID No.	2846	2848	2843			
Flow Rate (Liters / Minute)	2	2	2			
Start Time	0715	0717	0720			
Stop Time						
Run Time (Minutes)	477	477	476			
Minimum Concentration (ug/m3)	0.0	0.0	10.7			
Maximum Concentration (ug/m3)	351.7	128.7	163.9			
Average Concentration (TWA) (ug/m3)	38.3	31.7	29.4			

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: Metzger

U.S. EPA: Norrell

Date: 11/14/81

RST Site Project Manager Brennan

Location	R	ATN	L			
DataRAM ID No.	2643	2646	2648			
Flow Rate (Liters / Minute)	2	2	2			
Start Time	0711	0716	0710			
Stop Time	1509	1513	1512			
Run Time (Minutes)	468	467	472			
Minimum Concentration (ug/m3)	0.2	0.0	0.4			
Maximum Concentration (ug/m3)	426.5	375.4	204.6			
Average Concentration (TWA) (ug/m3)	54.7	45.2	60.7			



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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/13/01

RST: A. GRENZER

Location	Time	FID (ug/s)	PID (ug/s)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0825	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	<0.05
M-1	0840	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	<0.05
N	0845	ND	ND	ND	20.4	1	ND	ND	ND	ND	<1	ND	<0.05
J	0850	ND	ND	ND	20.4	1	ND	ND	ND	ND	<1	ND	<0.05
F	0905	ND	ND	ND	20.3	2	ND	ND	ND	ND	<1	ND	<0.05
A	0910	ND	ND	ND	20.3	1	ND	ND	ND	ND	<1	ND	<0.05
B	0920	ND	ND	ND	20.3	2	ND	ND	ND	ND	<1	ND	<0.05
C	0925	ND	ND	1	20.3	2	ND	ND	ND	ND	<1	ND	<0.05
H	0935	ND	ND	1	20.3	4	ND	ND	ND	ND	<1	ND	<0.05
I	0945	ND	ND	1	20.3	3	ND	ND	ND	ND	<1	ND	<0.05
D	0955	ND	ND	1	20.3	4	ND	ND	ND	ND	<1	ND	<0.05
K	1005	ND	ND	1	20.3	3	ND	ND	ND	ND	<1	ND	<0.05
T	1015	ND	ND	1	20.3	5	ND	ND	ND	ND	<1	ND	<0.05
U	1020	ND	ND	ND	20.3	2	ND	ND	ND	ND	<1	ND	<0.05
V	1025	ND	ND	ND	20.3	ND	ND	ND	ND	ND	<1	ND	<0.05
S	1035	ND	ND	ND	20.4	ND	ND	ND	ND	ND	<1	ND	<0.05
P	1040	ND	ND	ND	20.5	ND	ND	ND	ND	ND	<1	ND	<0.05
E	1045	ND	ND	ND	20.5	2	ND	ND	ND	ND	<1	ND	<0.05
Q	1050	ND	ND	ND	20.5	1	ND	ND	ND	ND	<1	ND	<0.05

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- C1: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Varsity
- G: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Helipad)
- V: Pier 6 (Bus Sign)

\* starting station L use Drager for COCl<sub>2</sub>  
\* \* starting station N use Drager for HCl

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/13/01

RST: A. Gienze

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
Q	1235	ND			21.3			ND	ND	ND	<1	ND	<0.05
L	1250	1.8			21.3			ND	ND	ND	<1	ND	<0.05
M-1	1255	ND			21.3			ND	ND	ND	<1	ND	<0.05
N	1305	ND			21.3			ND	ND	ND	<1	ND	<0.05
J	1310	ND			21.3			ND	ND	ND	<1	ND	<0.05
F	1315	ND			21.2			ND	ND	ND	<1	ND	<0.05
A	1320	ND			21.3			ND	ND	ND	<1	ND	<0.05
Z	1325	ND			21.3			ND	ND	ND	<1	ND	<0.05
C	1330	ND			21.2			ND	ND	ND	<1	ND	<0.05
H	1350	ND			21.3			ND	ND	ND	<1	ND	<0.05
I	1355	ND			21.3			ND	ND	ND	<1	ND	<0.05
D	1400	ND			21.4			ND	ND	ND	<1	ND	<0.05
K	1405	ND			21.3			ND	ND	ND	<1	ND	<0.05
T	1415	ND			21.4			ND	ND	ND	<1	ND	<0.05
U	1420	ND			21.3			ND	ND	ND	<1	ND	<0.05
V	1425	ND			21.4			ND	ND	ND	<1	ND	<0.05
S	1435	ND			21.4			ND	ND	ND	<1	ND	<0.05
P	1440	ND			21.3			ND	ND	ND	<1	ND	<0.05
E	1445	ND			21.3			ND	ND	ND	<1	ND	<0.05

MultirAE battery failure after morning air sampling AG

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- C1: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vaux
- G: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Helipad)
- V: Pier 6 (Bus Sign)

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/14/ Early

RST: A. Belter

Location	Time	FID (ppb)	PID (mla)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl	HF	COCl <sub>2</sub>
L	0805	2.7	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.050
M1	0814	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.050
N	0820	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.050
J	0825	0.1	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.050
F	0840	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.050
A	0850	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.050
B	0802	0.4	ND	ND	20.9	2	ND	ND	ND	ND	<1.00	ND	<0.050
C	0906	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.050
H	0913	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.050
I	0927	ND	ND	ND	20.9	4*	ND	ND	ND	ND	<1.00	ND	<0.050
D	0928	ND	ND	ND	20.9	4*	ND	ND	ND	ND	<1.00	ND	<0.050
K	0945	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.050
T	0952	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.050
U	0957	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.050
V	1008	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.050
S	1014	ND	0.4	ND	20.8	4*	ND	ND	ND	ND	<1.00	ND	<0.050
P	1025	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00	ND	<0.050
E	1031	ND	ND	ND	20.8	1	ND	ND	ND	ND	<1.00	ND	<0.050
Q	1044	ND	ND	ND	20.8	3	ND	ND	ND	ND	<1.00	ND	<0.050
													ND

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- C1: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Helipad)
- V: Pier 6 (Bus Sign)

\* HCl + COCl<sub>2</sub> concentrations measured w/ Dräger tubes  
\* 1 high + alt.2 area

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/14/01 Late

RST: A. Becker

Location	Time	FID (ppm)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1247	ND	ND	ND	20.9	2	ND	ND	ND	ND	<1.00	ND	<0.050
M1	1246	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.050
N	1248	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.050
J	1257	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.050
F	1305	ND	0.1	ND	20.9	3	ND	ND	ND	ND	<1.00	ND	<0.050
A	1310	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.050
B	1316	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.050
C	1319	ND	ND	ND	21.1	ND	ND	ND	ND	ND	<1.00	ND	<0.050
H1	1320	ND	ND	ND	21.1	2	ND	ND	ND	ND	<1.00	ND	<0.050
I	1325	ND	ND	ND	21.1	2	ND	ND	ND	ND	<1.00	ND	<0.050
D	1325	ND	ND	ND	21.1	2	ND	ND	ND	ND	<1.00	ND	<0.050
K	1350	ND	ND	ND	21.1	1	ND	ND	ND	ND	<1.00	ND	<0.050
T	1357	ND	ND	ND	21.1	ND	ND	ND	ND	ND	<1.00	ND	<0.050
U	1300	ND	ND	ND	21.1	ND	ND	ND	ND	ND	<1.00	ND	<0.050
V	1404	ND	ND	ND	21.1	1	ND	ND	ND	ND	<1.00	ND	<0.050
S	1408	ND	ND	ND	21.3	ND	ND	ND	ND	ND	<1.00	ND	<0.050
P	1414	ND	0.3*	ND	21.2	ND	ND	ND	ND	ND	<1.00	ND	<0.050
E	1418	ND	0.2*	ND	21.2	2	ND	ND	ND	ND	<1.00	ND	<0.050
Q	1424	ND	0.2	ND	21.2	ND	ND	ND	ND	ND	<1.00	ND	<0.050

**Air Monitoring Locations**

- A: Barclay and Broadway
- B: Church and Dey
- C: Liberty and Broadway
- D: Greenwich and Albany
- E: Liberty and South End
- F: West and Vesey
- G: No Monitoring At This Location

- H: Chase Plaza (Pine Street between Nassau and Williams)
- I: Wall Street and Broadway
- J: West and Warren
- K: West and Albany
- L: High School
- M: B-10 Wash Station on West Street
- N: Pier 25

- O: No Location Established
- P: Albany and South End
- Q: West and Murray
- R: No Monitoring At This Location
- S: Rector and South End
- T: Pier 6 (Light Pole)
- U: Pier 6 (Helipad)
- V: Pier 6 (Bus Sign)

\* high traffic area



**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Friday, November 16, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 16, 2001 at 4:30 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 37 samples taken in and around ground zero from November 12 through November 13. In addition, EPA sampled for asbestos at three recently added lower Manhattan locations on November 11, for a total of 63 samples in this period. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,165, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors in New Jersey:**

**Asbestos** - Five air samples were taken in New Jersey on November 12. All samples showed results less than school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 191, with zero above the standard.

**Air: Fixed Monitors outside lower Manhattan:**

**Asbestos** - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected on November 11 from the Manhattan and Brooklyn stations, as well as one collected on November 10 from the Staten Island station showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Fifty-seven samples were collected on November 12 and 13. Two of these samples, taken on November 13, showed results above the school re-entry standard. All other 55 samples were below the school re-entry standard.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on November 9, 10 and 13<sup>th</sup> at Pace University, Borough of Manhattan Community College, and the Coast Guard building in Battery Park. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Friday, November 16, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 12, 1200 - 2359 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 13, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 13, 1200 - 2359 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NJ / ER (Nov 12)
  - All 5 samples analyzed (including duplicate) were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 12, 1855 - Nov 13, 0747) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Nov 13, 0650 - 1937) - Asbestos
  - 2 of 19 samples analyzed was above the TEM AHERA standard.
  - Exceedance of the TEM AHERA standard occurred at indoor "Wash" Location #12A (72 S/mm<sup>2</sup>) and "Barge" Location #13 (97.78 S/mm<sup>2</sup>).
- Fresh Kills (Nov 13, 1900 - Nov 14, 0750) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.

Ambient Air Sampling Locations

- NYC / ER (Nov 9) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *9.77 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *10.54 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *8.08ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

- NYC / ER (Nov 10) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *16.63 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *8.18 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *13.47 ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 13) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was *17.20 ug/m<sup>3</sup>*.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *16.52 ug/m<sup>3</sup>*.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *11.63ug/m<sup>3</sup>*.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 10) - Asbestos Monitoring (Particulate Monitoring Stations)
  - One additional monitoring site (Bronx) included with results for November 11.
  - The one sample was below the TEM AHERA standard.
- NYC / ER (Nov 11) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St, Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St, Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 5 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
  - Note: Data not received for two locations (Queens and Staten Island).

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/12/01 1855 to 11/13/01 0747  
 Data Validation Date: 11/13/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/cc	f/mm <sup>2</sup>	f/cc**	Structures (#)	S-1/cc**	
11/12/01	LF00597	P-1	698	Air	<7.0	<0.004	0	0	<8.75	<0.0049
11/12/01	LF00598	P-2	714	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00599	P-3	713	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00600	P-4	714	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00591	P-5	712	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00592	P-6	711	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00593	P-7	710	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00594	P-8	709	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/12/01	LF00595	S-9A	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00596	S-9B	717	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00597	S-10A	713	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00598	S-10B	704	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/12/01	LF00599	S-11	713	Air	29.30	0.016	0	0	17.5	0.0094
11/12/01	LF00600	W-12A	720	Air	31.65	0.017	1**	0	8.75	0.0047
11/12/01	LF00601	W-12B	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00602	B-13	714	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00603	T-14	710	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00604	T-15	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/12/01	LF00605	T-16	720	Air	14.01	0.0075	0	0	<8.75	<0.0047
11/12/01	LF00606	Lot Blank	0	Air	<7.0	n/a	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>
11/12/01	LF00607	Trip Blank	0	Air	<7.0	n/a	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Crystallite  
 NA<sup>(a)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(b)</sup> - Not analyzed for TEM  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1,200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/13/01 0650 to 1937  
 Data Validation Date: 11/14/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>3</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>
11/13/01	LF00608	P-3	720	Air	<7.0	<0.004	0	17.78
11/13/01	LF00609	P-2	720	Air	<7.0	<0.004	3***	35.48
11/13/01	LF00610	P-2	720	Air	<7.0	<0.004	4***	35.95
11/13/01	LF00611	P-5	656	Air	<7.0	<0.004	2***	8
11/13/01	LF00612	P-5	720	Air	<7.0	<0.004	2***	17.78
11/13/01	LF00613	P-2	720	Air	<7.0	<0.004	0	<8.89
11/13/01	LF00614	P-5	720	Air	<7.0	<0.004	0	<8.89
11/13/01	LF00615	P-5	634	Air	<7.0	<0.004	1***	<8.89
11/13/01	LF00616	S-9A	717	Air	<7.0	<0.004	2***	8
11/13/01	LF00617	S-9B	483	Air	<7.0	<0.006	1***	26.67
11/13/01	LF00618	S-10A	720	Air	<7.0	<0.004	0	8
11/13/01	LF00619	S-10B	478	Air	<7.0	<0.006	0	<8.89
11/13/01	LF00620	W-11	720	Air	<7.0	<0.004	1***	<8.89
11/13/01	LF00621	W-12A	720	Air	11.21	0.006	6***	8.89
11/13/01	LF00622	W-12B	667	Air	<7.0	<0.004	2***	72
11/13/01	LF00623	B-13	720	Air	<7.0	<0.004	11***	16
11/13/01	LF00624	B-14	720	Air	<7.0	<0.004	3***	97.78
11/13/01	LF00625	T-15	720	Air	8.28	0.004	3***	26.67
11/13/01	LF00626	T-16	720	Air	18.47	0.010	5***	26.67
11/13/01	LF00627	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	44.44
11/13/01	LF00628	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key: \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 \*\*\*\* Amphibyllite  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/13/01 1900 to 11/14/01 0750  
 Data Validation Date: 11/15/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
11/13/01	LF00829	P-1	681	Air	<7.0	<0.004	0	0	<0.0048
11/13/01	LF00830	P-2	708	Air	<7.0	<0.004	0	0	<0.0048
11/13/01	LF00831	P-3	707	Air	<7.0	<0.004	0	0	<0.0048
11/13/01	LF00832	P-4	708	Air	<7.0	<0.004	2***	0	0.0065
11/13/01	LF00833	P-5	707	Air	<7.0	<0.004	0	0	<0.0048
11/13/01	LF00834	P-6	707	Air	<7.0	<0.004	1***	0	0.0048
11/13/01	LF00835	P-7	703	Air	<7.0	<0.004	0	0	<0.0048
11/13/01	LF00836	P-8	707	Air	<7.0	<0.004	0	0	<0.0048
11/13/01	LF00837	S-9A	720	Air	<7.0	<0.004	0	0	<0.0047
11/13/01	LF00838	S-9B	709	Air	<7.0	<0.004	0	0	<0.0048
11/13/01	LF00839	S-10A	707	Air	<7.0	<0.004	0	0	<0.0048
11/13/01	LF00840	S-10B	697	Air	<7.0	<0.004	0	0	<0.0048
11/13/01	LF00841	W-11	702	Air	16.56	0.009	1***	0	8.75
11/13/01	LF00842	W-12A	720	Air	42.04	0.022	2***	0	17.5
11/13/01	LF00843	W-12B	720	Air	<7.0	<0.004	1***	0	8.75
11/13/01	LF00844	B-13	706	Air	<7.0	<0.004	0	0	<0.0048
11/13/01	LF00845	B-14	706	Air	<7.0	<0.004	0	0	<0.0048
11/13/01	LF00846	T-15	720	Air	28.03	0.015	0	0	<0.0047
11/13/01	LF00847	T-16	720	Air	17.20	0.009	0	0	<0.0047
11/13/01	LF00848	Lot Blank	0	Air	<7.0	n/a	0	0	n/a
11/13/01	LF00849	Trip Blank	0	Air	<7.0	n/a	0	0	n/a

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/12/01 1200 to 2359  
 Data Validation Date: 11/14/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	Structures (#)	Simm <sup>2</sup>	S-f/cc**
11/12/01	RST-00591	L	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00592	M1	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00593	N	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00594	J	132	Air	<7.0	<0.020	1**	0	8.00	0.0233
11/12/01	RST-00595	F	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00596	A	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00597	B	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00598	C	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00599	H	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00600	H-Dup	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00601	I	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00602	D	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00603	K	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00604	T	720	Air	<7.0	<0.004	1**	0	8.89	0.0048
11/12/01	RST-00605	U	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00606	V	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00607	S	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00608	P	720	Air	<7.0	<0.004	1**	0	8.89	0.0048
11/12/01	RST-00609	E	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	RST-00610	Q	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/12/01	FB111301	Field Blank	0	Air	n/a	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/12/01	TB111301	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Not sampled

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: West end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Phe St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USOC command post

**TEM (AHERA):**  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign

**MOSH 7400: Fiber Analysis of Air Samples via MOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 Simm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**



NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/13/01 0001 to 1200  
 Data Validation Date: 11/14/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (NIHERA)		
					f/m <sup>2</sup>	f/cc	Structures (M)	Structures (M)	S/mm <sup>2</sup>	S/fcc**
11/13/01	RST-00611	Q	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00612	L	590	Air	<7.0	<0.005	0	<8.00	<0.0052	
11/13/01	RST-00613	M1	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00614	N	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00615	J	673	Air	<7.0	<0.004	0	<8.00	<0.0045	
11/13/01	RST-00616	F	655	Air	<7.0	<0.004	2****	16	<0.0095	
11/13/01	RST-00617	A	712	Air	7.01	0.004	0	<8.89	<0.0048	
11/13/01	RST-00618	C	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00619	C	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00620	H	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00621	I	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00622	D	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00623	K	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00624	T	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00625	U	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00626	U-Dup	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00627	V	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00628	W	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00629	X	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00630	P	635	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	RST-00630	E	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/13/01	FB111301	Field Blank	0	Air	<7.0	0/6	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	
11/13/01	TB111301	Tap Blank	0	Air	<7.0	0/6	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	

**Key:**  
 \* Sample volume (filters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 \*\*\*\* Chrysotile fiber and 1 Actinolite fiber  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 NA - Not analyzed  
 NR - Not requested  
 NS - Not sampled

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Day St.  
 C: Trinity (a.k.a. Church) & Liberty  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Albany St. at South End Ave  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball of)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in promenade  
 R: TAGA bus command post  
 S: Rector & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign

**TEM (NIHERA):**  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 NA - Not analyzed  
 NR - Not requested  
 NS - Not sampled

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AMERA)  
 Standard criteria: EPA 40CFR Part 763 (AMERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/13/01 12:00 to 2:59  
 Date Validation Date: 11/15/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/cc	f/m <sup>3</sup>	Structures (#)	Structures (#)	5µ	S-1/cc**	
11/13/01	RST-00631	L	507	Air	10.19	0.008	0	0	0	<8.0	<0.0061
11/13/01	RST-00632	M1	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/13/01	RST-00633	N	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/13/01	RST-00634	N-Duplicate	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/13/01	RST-00635	J	720	Air	7.01	0.004	0	0	0	<8.89	<0.0048
11/13/01	RST-00636	F	720	Air	11.46	0.006	0	0	0	<8.89	<0.0048
11/13/01	RST-00637	A	720	Air	7.64	0.004	0	0	0	<8.89	<0.0048
11/13/01	RST-00638	B	720	Air	8.28	0.004	0	0	0	<8.89	<0.0048
11/13/01	RST-00639	C	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/13/01	RST-00640	H	720	Air	12.10	0.006	0	0	0	<8.89	<0.0048
11/13/01	RST-00641	I	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/13/01	RST-00642	D	720	Air	<7.0	<0.004	1**	0	0	3.89	0.0048
11/13/01	RST-00643	K	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/13/01	RST-00644	U	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/13/01	RST-00645	V	974	Air	<7.0	<0.004	0	0	0	<8.0	<0.0048
11/13/01	RST-00646	S	720	Air	<7.0	<0.004	2*	0	0	26.97	0.0143
11/13/01	RST-00647	P	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/13/01	RST-00648	E	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/13/01	RST-00650	Q	720	Air	15.29	0.008	0	0	0	<8.89	<0.0048

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park ice area (north side of Suyvesant High), access to TAGA bus area

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysothale  
 NA<sup>(1)</sup>: Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup>: Not analyzed for TEM  
 NS: Not applicable  
 NR: Not requested  
 NS: Not sampled

**PCM by NIOSH 7400**  
 f/cc: Western end of Harrison St. at West St.  
 f/m<sup>3</sup>: (on tree next to bulkhead)  
 Structures (#): M: West St. - 50 yards south of Harrison St. at bulkhead  
 Structures (S): N: South side of Pier 25 (next to volleyball C)  
 Structures (f): P: NE corner of South End Ave. & Albany  
 Structures (S): Q: Barclay & West St. (center island) in proximity to USCS command post  
 Structures (f): R: TAGA Bus Location  
 Structures (S): S: Becker & South End  
 Structures (f): T: Pier 6 Helipad  
 Structures (S): U: Pier 6 Exit 2  
 Structures (f): V: Pier 6 Bus Sign

**TEM (AHERA)**  
 Structures (#): M: Western end of Harrison St. at West St.  
 Structures (S): N: South side of Pier 25 (next to volleyball C)  
 Structures (f): P: NE corner of South End Ave. & Albany  
 Structures (S): Q: Barclay & West St. (center island) in proximity to USCS command post  
 Structures (f): R: TAGA Bus Location  
 Structures (S): S: Becker & South End  
 Structures (f): T: Pier 6 Helipad  
 Structures (S): U: Pier 6 Exit 2  
 Structures (f): V: Pier 6 Bus Sign

**NIOSH 7400: Filter Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/10/01 1200 to 2245 and 11/11/01 1200 to 2400  
 Data Validation Date: 11/14/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
							0.5µ-5µ	5µ		
11/10/01	7094-09-0038	Bronx PS #154	1290	Air	NR	NR	0	0	<16.00	<0.0048
11/11/01	7095-98-0042	Brooklyn PS #274	1440	Air	NR	NR	0	0	<16.00	<0.0043
11/11/01	7093-15-0044	Manhattan PS #143	1280	Air	NR	NR	0	0	<16.00	<0.0048
11/11/01	7093-18-0045	Pace Univ.	1440	Air	NR	NR	0	0	<16.00	<0.0043
11/11/01	7093-19-0045	BMCC	1374	Air	NR	NR	0	0	<16.00	<0.0045
11/11/01	7093-20-0045	Coast Guard	868***	Air	NR	NR	0	0	<10.00	<0.0044
-	-	Staten Is. PS #44	NS	NS	NS	NS	NS	NS	NS	NS
-	-	Queens PS #199	NS	NS	NS	NS	NS	NS	NS	NS

Key:  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis  
 NR - analysis not requested  
 NS - Sample not submitted for analysis

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Asbestos Air Sampling Results NYC ER/NJ/DEP  
 Sampling Date and Time: 11/12/2001 1033 to 2155  
 Data Validation Date: 11/15/2001

Date Sampled	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S (#)	S/mm <sup>2</sup>	S-f/cc*
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ	5µ			
11/12/01	1LIB11201	Liberty Park	1034**	Air	<7.0	<0.003	0	<13.33	0	<13.33	<0.0050
11/12/01	2CIT11201	CITGO Terminal	1084**	Air	<7.0	<0.002	0	<13.33	0	<13.33	<0.0047
11/12/01	3FMC11201	FMC Terminal	994**	Air	<7.0	<0.003	0	<11.43	0	<11.43	<0.0044
11/12/01	4SHL11201	Shell Terminal	1100**	Air	<7.0	<0.002	0	<13.33	0	<13.33	<0.0047
11/12/01	6STA11201	Edison***	1200	Air	<7.0	<0.002	0	<13.33	0	<13.33	<0.0043
11/12/01	5FLD11201	Field Blank	0	Air	<7.0	n/a	NA	NA	NA	NA	NA
11/12/01	-	Trip Blank	NS	NS	NS	NS	NS	NS	NS	NS	NS

COC No. is not available

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading
- \*\*\* Chrysothile
- \*\*\*\* 3FMC11201 Duplicate
- n/a - Not applicable
- NA - Not analyzed for TEM
- NS - Sample not submitted

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location	Sampling Times
Liberty Park	11/12/01 1033 - 1910
CITGO Terminal	11/12/01 1120 - 2022
FMC Terminal	11/12/01 1155 - 2012
Shell Terminal	11/12/01 1215 - 2125
Edison (FMC Terminal Dup)	11/12/01 1155 - 2155

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Saturday, November 17, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 16, 2001 at 6:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 20 samples taken in and around ground zero on November 14. In addition, EPA sampled for asbestos at three recently added lower Manhattan locations on November 12 and 13, for a total of 23 samples in this period. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,191, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected on November 11, 12 and 13 showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

Air (Asbestos) - Nineteen samples were collected on November 14 and 15 - all were below the school re-entry standard.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Air / Bulk / Wipe / Water Sampling Situation Report  
Saturday, November 17, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 14, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 14, 1904 - Nov 15, 0737) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.

Ambient Air Sampling Locations

- NYC / ER (Nov 11) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Two additional monitoring sites (Queens and Staten Island) included with results for November 12.
  - Both samples were below the TEM AHERA standard.
- NYC / ER (Nov 12) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St, Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 6 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
- NYC / ER (Nov 13) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St, Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/14/01 1904 to 11/15/01 0737  
 Data Validation Date: 11/16/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	5µ	3/mm <sup>2</sup>	S-f/cc**
11/14/01	LF00671	P-1	698	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/14/01	LF00672	P-2	700	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/14/01	LF00673	P-3	699	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/14/01	LF00674	P-4	704	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/14/01	LF00675	P-5	704	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/14/01	LF00676	P-6	694	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/14/01	LF00677	P-7	690	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/14/01	LF00678	P-8	695	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/14/01	LF00679	S-9A	720	Air	9.55	0.005	0	0	8.75	0.0047
11/14/01	LF00680	S-9B	712	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/14/01	LF00681	S-10A	692	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/14/01	LF00682	S-10B	703	Air	<7.0	<0.004	0	1***	8.75	0.0048
11/14/01	LF00683	W-11	683	Air	NA (1)	NA (1)	0	0	<8.75	<0.0048
11/14/01	LF00684	W-12A	720	Air	NA (1)	NA (1)	0	0	<8.75	<0.0047
11/14/01	LF00685	W-12B	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/14/01	LF00686	B-13	701	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/14/01	LF00687	B-14	699	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/14/01	LF00688	T-15	720	Air	22.93	0.012	0	0	<8.75	<0.0047
11/14/01	LF00689	T-16	257	Air	<7.0	<0.005	0	0	<8.75	<0.0131
11/14/01	LF00690	Lot Blank	0	Air	<7.0	n/a	NA (2)	NA (2)	NA (2)	NA (2)
11/14/01	LF00691	Trip Blank	0	Air	<7.0	n/a	NA (2)	NA (2)	NA (2)	NA (2)

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA (1) - Not analyzed due to overloading of particulates  
 NA (2) - Not analyzed for TEM  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/14/01 0001 to 1200  
Data Validation Date: 11/15/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
11/14/01	RST-00631	L	636	Air	-7.0	-0.004	0	0	-8.89	-0.0048
11/14/01	RST-00632	M1	720	Air	-7.0	-0.004	0	0	-8.89	-0.0048
11/14/01	RST-00653	N	388	Air	-7.0	-0.004	0	0	-8.89	-0.0048
11/14/01	RST-00654	N	388	Air	7.64	0.004	0	0	-8.89	-0.0048
11/14/01	RST-00655	J-Duplicate	575	Air	-7.0	-0.005	0	0	-8.89	-0.0048
11/14/01	RST-00656	L	720	Air	40.13	0.007	0	1**	8.89	0.0048
11/14/01	RST-00657	A	720	Air	12.74	0.007	0	0	-8.89	-0.0048
11/14/01	RST-00658	B	720	Air	36.94	0.020	0	0	-8.89	-0.0048
11/14/01	RST-00659	C	720	Air	19.11	0.010	0	0	8.89	0.0048
11/14/01	RST-00660	D	720	Air	15.29	0.008	1***	0	8.89	0.0048
11/14/01	RST-00661	H	720	Air	20.38	0.011	0	0	-8.89	-0.0048
11/14/01	RST-00662	I	720	Air	7.01	0.004	0	0	-8.89	-0.0048
11/14/01	RST-00663	K	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	0	-8.89	-0.0048
11/14/01	RST-00664	U	720	Air	-7.0	-0.004	0	0	-8.89	-0.0048
11/14/01	RST-00665	U	720	Air	7.64	0.004	0	0	-8.89	-0.0048
11/14/01	RST-00666	V	684	Air	7.01	0.004	0	0	-8.89	-0.0048
11/14/01	RST-00667	S	720	Air	11.46	0.006	0	0	-8.89	-0.0048
11/14/01	RST-00668	P	720	Air	-7.0	-0.004	0	0	-8.89	-0.0048
11/14/01	RST-00669	E	709	Air	8.92	0.005	0	0	-8.89	-0.0048
11/14/01	RST-00670	O	720	Air	17.83	0.0095	0	0	-8.89	-0.0048
11/14/01	FB111401	Field Blank	0	Air	-7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
-	TB111401	Tip Blank	NS	Air	NS	NS	NS	NS	NS	NS

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Not submitted

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: West end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St  
 K: West St & Albany in median strip  
 L: On walkway toward North Park rec. area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 O: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign

**TEM (AHERA)**  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Not submitted

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**



NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/11/01 1200 to 2133 and 11/12/01 1200 to 2400  
 Data Validation Date: 11/15/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
11/12/01	7093-15-0045	Manhattan PS #143	1368	Air	NR	NR	0	0	<16.00	<0.0045
11/12/01	7094-09-0039	Bronx PS #154	1242	Air	NR	NR	0	0	<13.33	<0.0041
11/11/01	7096-12-0041	Queens PS #199	1146***	Air	NR	NR	0	0	<13.33	<0.0045
11/12/01	7095-98-0043	Brooklyn PS #274	1352	Air	NR	NR	0	0	<16.00	<0.0046
11/11/01	7097-18-0039	Staten Is. PS #44	934***	Air	NR	NR	0	0	<11.43	<0.0047
11/12/01	7093-18-0046	Pace Univ.	1440	Air	NR	NR	0	0	<16.00	<0.0043
11/12/01	7093-19-0046	BMCC	1440	Air	NR	NR	0	0	<16.00	<0.0043
11/12/01	7093-20-0046	Coast Guard	1440	Air	NR	NR	0	0	<16.00	<0.0043

Key:  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis  
 NR - analysis not requested  
 NS - Sample not submitted for analysis

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/13/2001 1200 to 2400  
 Data Validation Date: 11/16/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
11/13/01	7093-15-0046	Manhattan PS #143	1186***	Air	NR	NR	0	0	<13.33	<0.0043
11/13/01	7094-09-0040	Bronx PS #154	1190***	Air	NR	NR	0	0	<13.33	<0.0043
11/13/01	7096-12-0042	Queens PS #199	1440	Air	NR	NR	0	0	<13.33	<0.0036
11/13/01	7095-98-0044	Brooklyn PS #274	1440	Air	NR	NR	0	0	<13.33	<0.0036
11/13/01	7097-18-0040	Staten Is. PS #44	1360	Air	NR	NR	0	0	<13.33	<0.0038
11/13/01	7093-18-0047	Pace Univ.	1440	Air	NR	NR	0	0	<16.00	<0.0043
11/13/01	7093-19-0047	BMCC	1440	Air	NR	NR	0	0	<16.00	<0.0043
11/13/01	7093-20-0047	Coast Guard	1388	Air	NR	NR	0	0	<16.00	<0.0044

coc n/a

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysotile
- NR - analysis not requested
- NS - Sample not submitted for analysis
- n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Monday, November 19, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 19, 2001 at 6:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 39 samples taken in and around ground zero on November 14 and 15. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,230, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Staten Island Landfill:**

**Air (Asbestos)** - Fifty-seven samples were collected on November 14 and 15 - all samples analyzed were below the school re-entry standard. One sample was not analyzed due to filter overloading.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates from November 15 through 18 at the Staten Island Landfill. There were increased readings for particulates on both November 15 and 16, with a significant reduction on November 17. No levels of significance were reported on November 18.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted from November 14 through November 17 at Pace University, Borough of Manhattan Community College, and the Coast Guard building in Battery Park. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Monday, November 19, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 14, 1200 - 2359 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 15, 0001 - 1200 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location S) was not submitted for analysis.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 14, 0651 - 1932) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 sample ("Wash" Location #11) was not analyzed due to overloading of particulates.
- Fresh Kills (Nov 15, 0648 - 1935) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Nov 15, 1907 - Nov 16, 0800) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Nov 15) - Particulate Monitoring (Dataram)
  - Increased daily average readings as compared to previous day.
- Fresh Kills (Nov 16) - Particulate Monitoring (Dataram)
  - Increased daily average readings as compared to previous day at Perimeter Location #8.
- Fresh Kills (Nov 17) - Particulate Monitoring (Dataram)
  - Significantly reduced daily average readings as compared to previous day.
- Fresh Kills (Nov 18) - Particulate Monitoring (Dataram)
  - Nothing of significance reported based on daily average concentrations.

Ambient Air Sampling Locations

- NYC / ER (Nov 14) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **24.85 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **19.58 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **17.01 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 15) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **35.00 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **29.00 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **31.67 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 16) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **30.13 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **20.50 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **27.86 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
  - Note: Readings for Site 2 only covered the period after 1:00 PM.
- NYC / ER (Nov 17) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **6.38 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **8.66 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **7.58 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/14/01 0631 to 1532  
 Data Validation Date: 11/15/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**	
11/14/01	LF00650	P-1	720	Air	<7.0	<0.004	0	0	<8.93	<0.0048
11/14/01	LF00651	P-2	720	Air	<7.0	<0.004	0	0	<8.93	<0.0048
11/14/01	LF00652	P-3	720	Air	<7.0	<0.004	0	0	<8.93	<0.0048
11/14/01	LF00653	P-4	720	Air	<7.0	<0.004	1**	0	0.69	0.0048
11/14/01	LF00654	P-5	720	Air	<7.0	<0.004	0	0	<8.96	<0.0048
11/14/01	LF00655	P-7	720	Air	<7.0	<0.004	0	0	<8.96	<0.0048
11/14/01	LF00656	S-6A	695	Air	9.55	0.005	2***	0	16	0.0048
11/14/01	LF00657	S-6B	694	Air	10.19	0.005	4***	0	35.56	0.0150
11/14/01	LF00658	S-10A	720	Air	<7.0	<0.004	1***	0	8.69	0.0048
11/14/01	LF00659	S-10B	720	Air	<7.0	<0.004	1***	0	8.69	0.0048
11/14/01	LF00662	W-11	720	Air	14.65	0.009	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/14/01	LF00663	W-12A	720	Air	47.13	0.025	2***	0	17.78	0.0095
11/14/01	LF00664	W-12B	679	Air	<7.0	<0.004	2***	0	16	0.0095
11/14/01	LF00665	B-13	720	Air	<7.0	<0.004	2***	0	17.78	0.0095
11/14/01	LF00666	B-14	720	Air	<7.0	<0.004	3***	0	8.69	0.0048
11/14/01	LF00667	T-15	656	Air	40.76	0.0225	3***	0	24	0.0133
11/14/01	LF00668	T-16	666	Air	34.39	0.019	0	0	<8	<0.0045
11/14/01	LF00669	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/14/01	LF00670	Top Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structures (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
 Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	FCM by NIOSH 7400			TEM (AHERA)			S-f/cc**
					f/m <sup>2</sup>	f/cc	Structures (#)	0.5µ-5µ	5µ	S/m <sup>2</sup>	
11/15/01	LF00692	P-1	720	Air	<7.0	<0.004	0	1***	0	8.89	0.0048
11/15/01	LF00693	P-2	720	Air	<7.0	<0.004	2***	0	0	17.78	0.0095
11/15/01	LF00694	P-3	720	Air	<7.0	<0.004	1***	0	0	8.89	0.0048
11/15/01	LF00695	P-4	692	Air	<7.0	<0.004	0	0	0	<8.00	<0.0045
11/15/01	LF00696	P-5	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/15/01	LF00697	P-6	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/15/01	LF00698	P-7	720	Air	<7.0	<0.004	0	0	0	<8.89	0.0048
11/15/01	LF00699	P-8	617	Air	<7.0	<0.004	0	0	0	<8.00	<0.0050
11/15/01	LF00700	S-9A	701	Air	<7.0	<0.004	0	0	0	<8.89	<0.0049
11/15/01	LF00701	S-9B	701	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/15/01	LF00702	S-10A	720	Air	8.92	0.005	0	0	0	<8.89	<0.0049
11/15/01	LF00703	S-10B	699	Air	<7.0	<0.004	3***	1***	0	35.56	0.0196
11/15/01	LF00704	W-11	720	Air	<7.0	<0.004	4***	0	0	26.57	0.0143
11/15/01	LF00705	W-12A	698	Air	<7.0	<0.004	2***	0	0	35.56	0.0196
11/15/01	LF00706	W-12B	701	Air	<7.0	<0.004	2***	0	0	17.78	0.0098
11/15/01	LF00707	B-13	692	Air	<7.0	<0.004	0	0	0	<8.00	<0.0045
11/15/01	LF00708	B-14	720	Air	<7.0	<0.004	4***	0	0	35.56	0.0196
11/15/01	LF00709	T-15	703	Air	7.84	0.004	0	0	0	62.89	<0.0049
11/15/01	LF00710	T-16	701	Air	<7.0	<0.004	17**	0	0	82.89	0.0042
11/15/01	LF00711	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/15/01	LF00712	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/15/01 1907 to 11/16/01 0800  
 Data Validation Date: 11/17/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**	
11/15/01	LF00713	P-1	720	Air	7.64	0.004	0	0	<8.75	<0.0047
11/15/01	LF00714	P-2	720	Air	7.64	0.004	0	0	<8.75	<0.0047
11/15/01	LF00715	P-3	720	Air	11.46	0.006	1***	0	8.75	0.0047
11/15/01	LF00716	P-4	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/15/01	LF00717	P-5	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/15/01	LF00718	P-6	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/15/01	LF00719	P-7	720	Air	7.64	0.004	0	0	<8.75	<0.0047
11/15/01	LF00720	P-8	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/15/01	LF00721	S-9A	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/15/01	LF00722	S-9B	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/15/01	LF00723	S-10A	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/15/01	LF00724	S-10B	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/15/01	LF00725	W-11	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	0	<8.75	<0.0047
11/15/01	LF00726	W-12A	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	0	<8.75	<0.0047
11/15/01	LF00727	W-12B	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/15/01	LF00728	B-13	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/15/01	LF00729	B-14	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/15/01	LF00730	T-15	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/15/01	LF00731	T-16	707	Air	11.46	0.006	0	0	<8.75	<0.0047
11/15/01	LF00732	Lot Blank	0	Air	<7.0	N/A	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/15/01	LF00733	Trip Blank	0	Air	<7.0	N/A	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not applicable for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/14/01 1200 to 2359  
 Data Validation Date: 11/16/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	f/m <sup>2</sup>	f/cc	S-fiber**
11/14/01	RST-00671	L	720	Air	7.64	0.004	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00672	L-Dup	720	Air	10.19	0.005	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00673	MI	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00674	J	694	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00675	F	720	Air	33.12	0.018	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00676	A	720	Air	14.01	0.007	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00677	B	720	Air	30.57	0.016	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00678	C	720	Air	19.11	0.010	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00679	H	212	Air	<7.0	<0.013	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00680	I	720	Air	25.48	0.014	1**	<8.89	<0.0048	<0.0048
11/14/01	RST-00681	D	720	Air	8.92	0.005	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00682	E	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00683	Y	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00684	U	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00685	V	720	Air	7.01	0.004	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00686	S	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00687	P	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00688	E	720	Air	10.19	0.005	0	<8.89	<0.0048	<0.0048
11/14/01	RST-00689	Q	720	Air	25.48	0.014	0	<8.89	<0.0048	<0.0048
11/15/01	FB111501	Field Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/15/01	TB111501	Trip Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>

**Sampling Locations:**  
 A: SE corner of Church & Broadway  
 B: SE corner of Church & Day St  
 C: Trinity (a.k.a. Church) & Liberty  
 D: SW corner of Broadway & Liberty St  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St  
 H: Church and Duane St.  
 I: South side of Chase Manhattan Plaza at Pine St.  
 J: SE corner of Wall St. & Broadway  
 K: NE corner of Warren & West St.  
 L: Onrampway (near North area) (north side of Suyvesant High), access to TACA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volley/ball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TACA Bus Location  
 S: Rector & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Ext 2  
 V: Pier 6 bus Sign

**TEM (AHERA):**  
 NA<sup>(1)</sup>: Not analyzed for TEM particulates  
 NA<sup>(2)</sup>: Not analyzed for TEM  
 n/a: Not applicable  
 NS: Not requested  
 NS: Not sampled

**NYC:**  
 \* Sample volume (filters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup>: Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup>: Not analyzed for TEM  
 n/a: Not applicable  
 NS: Not requested  
 NS: Not sampled

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/15/01 0001 to 1200  
Data Validation Date: 11/16/01

Sample No.	Sample Date	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/cc	f/mm <sup>2</sup>	Structures (#)	\$-f/cc**
RST-00691	11/15/01	L	720	Air	<0.004	<0.0048	0	<0.0048
RST-00692	11/15/01	M1	720	Air	7.64	8.39	0	<0.0048
RST-00693	11/15/01	N	720	Air	<0.004	<0.0048	0	<0.0048
RST-00694	11/15/01	J	720	Air	<0.004	<0.0048	0	<0.0048
RST-00695	11/15/01	F	720	Air	28.03	8.89	1***	0.0048
RST-00696	11/15/01	A	720	Air	21.56	8.89	0	<0.0048
RST-00697	11/15/01	A-Dup	720	Air	12.10	8.89	0	<0.0048
RST-00698	11/15/01	B	720	Air	11.46	8.89	0	<0.0048
RST-00699	11/15/01	C	720	Air	9.55	8.89	0	<0.0048
RST-00700	11/15/01	H	720	Air	7.64	8.89	0	<0.0048
RST-00701	11/15/01	I	720	Air	<0.004	<0.0048	0	<0.0048
RST-00702	11/15/01	D	720	Air	<0.004	8.89	1***	0.0048
RST-00703	11/15/01	K	720	Air	8.92	8.89	0	<0.0048
RST-00704	11/15/01	T	720	Air	<0.004	8.89	0	<0.0048
RST-00705	11/15/01	U	720	Air	<0.004	8.89	0	<0.0048
RST-00706	11/15/01	V	720	Air	<0.004	8.89	0	<0.0048
RST-00707	11/15/01	S	NS	NS	NS	NS	NS	NS
RST-00708	11/15/01	P	720	Air	<0.004	8.89	0	<0.0048
RST-00709	11/15/01	E	720	Air	7.01	8.89	0	<0.0048
FB11501	11/15/01	Field Blank	0	Air	7.64	8.89	0	<0.0048
TB11501	11/15/01	Tripp Blank	0	Air	<0.004	8.89	0	<0.0048

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Not sampled

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 N: West St. - 50 yards south of Harrison St. at bulkhead  
 O: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**

Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
November 18, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	44	11:00:00	10	00:15:00	100	0.0	0.0	6.0	210.4
2	-74.198262	40.566883	2295	1	49	12:15:00	10	00:15:00	100	0.0	7.8	27.1	466.7
3	-74.198685	40.570054	2011	1	49	12:15:00	10	00:15:00	100	0.0	9.9	32.9	9854.3
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	49	12:15:00	10	00:15:00	100	0.0	9.8	28.5	179.9
8	-74.203019	40.561915	2363	1	49	12:15:00	10	00:15:00	100	0.0	0.0	30.1	336.0

Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
November 17, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	49	12:15:00	10	00:15:00	100	0.0	0.9	3.3	236.3
2	-74.198262	40.566883	2295	1	49	12:15:00	10	00:15:00	100	0.0	0.0	7.3	180.8
3	-74.198685	40.570054	2011	1	49	12:15:00	10	00:15:00	100	0.0	0.0	12.2	440.4
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	49	12:15:00	10	00:15:00	100	0.0	0.0	21.8	1663.0
8	-74.203019	40.561915	2363	1	49	13:00:00	10	00:15:00	100	0.0	0.0	17.7	5546.0

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 16, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	48	12:00:00	10	00:15:00	100	0.0	5.0	12.3	249.7
2	-74.198262	40.566883	2295	1	49	12:15:00	10	00:15:00	100	0.0	15.6	60.3	1765.5
3	-74.198685	40.570054	2011	1	49	12:15:00	10	00:15:00	100	0.0	17.1	72.7	3448.1
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	52	13:00:00	10	00:15:00	100	0.0	18.4	64.2	2924.8
8	-74.203019	40.561915	2363	1	52	13:00:00	10	00:15:00	100	0.0	0.8	100.8	16,091

Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
November 15, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	49	12:15:00	10	00:15:00	100	0.0	6.1	11.3	152.0
2	-74.198262	40.566883	2295	1	49	12:15:00	10	00:15:00	100	0.0	30.4	63.0	1016.7
3	-74.198685	40.570054	2011	1	49	12:15:00	10	00:15:00	100	0.0	16.4	85.3	1215.6
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	49	12:15:00	10	00:15:00	100	0.0	25.1	56.7	409.8
8	-74.203019	40.561915	2363	1	49	12:15:00	10	00:15:00	100	0.0	27.6	59.0	1038.0

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Tuesday, November 20, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 20, 2001 at 4:30 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 40 samples taken in and around ground zero on November 15 and 16. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,270, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors in New Jersey:**

Asbestos - Four air samples were taken in New Jersey on November 15. All samples showed results less than school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 195, with zero above the standard.

**Staten Island Landfill:**

Air (Asbestos) - Forty-nine samples were collected on November 16 and 17. Two samples, one from each day, were not analyzed due to filter overloading. All but one of the 47 samples analyzed were below the school re-entry standard. One analyzed sample, taken on November 17 at Wash Location #11, was above the school re-entry standard.

**Particulate Monitoring** - EPA used portable monitors to collect samples from November 15 through November 19 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). Particulate levels at all locations were below the OSHA time-weighted permissible exposure limit.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted from November 14 through 19 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible

exposure limit (PEL) averaged over an 8-hour day. Benzene in samples from the North Tower (one taken on Nov. 14, 16 and 19) and South Tower (one taken on Nov. 14, 16, 18 and 19) debris piles in the plume exceeded the OSHA PEL of 1 part per million (ppm). Ten of thirteen other samples taken at the Washing Tent, North Park Pier and Austin Tobin Plaza were non-detect for benzene. EPA detected vinyl acetate above the NIOSH permissible exposure limit in a sample taken in the plume at the South Tower on Nov. 16. EPA detected 1,3-Butadiene in samples taken in the plume at the South Tower on Nov. 14, 16 and 18 at levels above the OSHA permissible exposure limit and standard. There was no detection of 1,3-Butadiene in the other nine samples taken on these days.

**Note:** EPA also detected 1,3-Butadiene above the OSHA permissible exposure limit in the debris pile plume at ground zero on Oct. 24 and Nov. 10. It was not detected in seven other samples taken on these two days.

**Direct Air Readings** - Direct readings taken from November 15 through 19 in and around ground zero showed no levels of significance.



U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Tuesday, November 20, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 15, 1200 - 2359 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 16, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
- NJ / ER (Nov 15)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 16, 0710 - 2010) - Asbestos
  - All 16 samples analyzed were below the TEM AHERA standard.
  - Sampling location O-17 represents an off-site point located near the intersection of Arden Avenue and Arthur Kill Road.
  - Note: Collection of samples within the sift area has been discontinued.
- Fresh Kills (Nov 16, 1705 - Nov 17, 0920) - Asbestos
  - All 15 samples analyzed were below the TEM AHERA standard.
  - 1 location ("Perimeter" #8) had a pump failure (results deemed invalid).
- Fresh Kills (Nov 17, 0652 - 1952) - Asbestos
  - 1 of 16 samples analyzed was above the TEM AHERA standard.
  - Exceedance of the TEM AHERA standard occurred at "Wash" Location #11 (80 S/mm<sup>2</sup>)
  - 1 location ("Perimeter" #2) was not sampled due to a pump fault.
  - Sampling location O-18 represents an off-site point located on Hugenout Avenue and Arthur Kill Road.
- Fresh Kills (Nov 17, 1755 - Nov 18, 0900) - Asbestos
  - All 16 samples analyzed were below the TEM AHERA standard.
  - 1 location (Mess "Tent" #15) had a pump failure (results deemed invalid).

Ambient Air Sampling Locations

- NYC / ER (Nov 15) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 4 hours due to rain.
  - Station L values ranged from 0.0 to 1,250  $\mu\text{g}/\text{m}^3$  with an average of 90.5  $\mu\text{g}/\text{m}^3$ .
  - Station N values ranged from 0.0 to 143.8  $\mu\text{g}/\text{m}^3$  with an average of 65.3  $\mu\text{g}/\text{m}^3$ .
  - Station R values ranged from 0.0 to 182.2  $\mu\text{g}/\text{m}^3$  with an average of 72.7  $\mu\text{g}/\text{m}^3$ .
- NYC / ER (Nov 16) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 7 hours.
  - Station L values ranged from 46.0 to 312.9  $\mu\text{g}/\text{m}^3$  with an average of 79.1  $\mu\text{g}/\text{m}^3$ .
  - Station N values ranged from 43.8 to 221.2  $\mu\text{g}/\text{m}^3$  with an average of 74.7  $\mu\text{g}/\text{m}^3$ .
  - Station R values ranged from 0.0 to 423.8  $\mu\text{g}/\text{m}^3$  with an average of 76.8  $\mu\text{g}/\text{m}^3$ .
- NYC / ER (Nov 17) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 7 hours.
  - Station L values ranged from 0.0 to 188.1  $\mu\text{g}/\text{m}^3$  with an average of 11.7  $\mu\text{g}/\text{m}^3$ .
  - Station N values ranged from 0.0 to 187.0  $\mu\text{g}/\text{m}^3$  with an average of 9.7  $\mu\text{g}/\text{m}^3$ .
  - Station R values ranged from 0.0 to 186.7  $\mu\text{g}/\text{m}^3$  with an average of 12.7  $\mu\text{g}/\text{m}^3$ .
- NYC / ER (Nov 18) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 6½ to 7 hours.
  - Station L values ranged from 0.0 to 225.1  $\mu\text{g}/\text{m}^3$  with an average of 39.1  $\mu\text{g}/\text{m}^3$ .
  - Station N values ranged from 12.8 to 119.6  $\mu\text{g}/\text{m}^3$  with an average of 26.9  $\mu\text{g}/\text{m}^3$ .
  - Station R values ranged from 17.0 to 97.9  $\mu\text{g}/\text{m}^3$  with an average of 33.3  $\mu\text{g}/\text{m}^3$ .
- NYC / ER (Nov 19) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 7 hours.
  - Station L values ranged from 0.0 to 337.8  $\mu\text{g}/\text{m}^3$  with an average of 94.9  $\mu\text{g}/\text{m}^3$ .
  - Station N values ranged from 0.2 to 228.8  $\mu\text{g}/\text{m}^3$  with an average of 78.0  $\mu\text{g}/\text{m}^3$ .
  - Station R values ranged from 6.7 to 253.6  $\mu\text{g}/\text{m}^3$  with an average of 92.1  $\mu\text{g}/\text{m}^3$ .
- NYC / ER (Nov 14) - Volatile organics (Mobile laboratory)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) on the debris pile in the plume at ground level.
  - Highest benzene value (36 ppmv) is estimated due to results exceeding highest calibration standard.
  - Both of the other samples ("Washing Tent" and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).
  - 1,3-Butadiene exceeded OSHA PEL (1 ppm) and OSHA ST (5 ppm) at one location (South Tower) on the debris pile in the plume at ground level.

- 1,3-Butadiene was not detected above the detection limit (20 ppbv) in the other 3 samples.
- **Note:** 1,3-Butadiene exceeded OSHA PEL (1 ppm) and OSHA ST (5 ppm) at one location (North Tower) on the debris pile in the plume at ground level on November 10<sup>th</sup>.
- 1,3-Butadiene was not detected above the detection limit (20 ppbv) in the other 3 samples during this sampling event.
- **Note:** 1,3-Butadiene exceeded OSHA PEL (1 ppm) at one location (North Tower) on the debris pile in the plume at ground level on October 24<sup>th</sup>.
- 1,3-Butadiene was not detected above the detection limit (20 ppbv) in the other 4 samples during this sampling event.
- NYC / ER (Nov 15) - Volatile organics (Mobile laboratory)
  - Benzene did not exceed OSHA TWA PEL (1 ppm) at any locations.
  - 1 of 2 samples ("Washing Tent") did not note any benzene above the detection limit (20 ppbv).
  - Samples were not collected at the South Tower and Austin Tobin Plaza since these areas were not accessible.
- NYC / ER (Nov 16) - Volatile organics (Mobile laboratory)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) on the debris pile in the plume at ground level.
  - Both of the other samples ("Washing Tent" and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).
  - Vinyl acetate exceeded NIOSH Ceiling REL (4 ppm) at one location (South Tower) on the debris pile in the plume at ground level.
  - Vinyl acetate was not detected above the respective detection limit (20 ppbv/250 ppbv) in 2 of the other 3 samples.
  - 1,3-Butadiene exceeded OSHA PEL (1 ppm) and OSHA ST (5 ppm) at one location (South Tower) on the debris pile in the plume at ground level.
  - 1,3-Butadiene was not detected above the respective detection limit (20 ppbv/250 ppbv) in the other 3 samples.
- NYC / ER (Nov 17) - Volatile organics (Mobile laboratory)
  - Benzene did not exceed OSHA TWA PEL (1 ppm) at any locations.
  - Both of the other samples ("Washing Tent" and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).
- NYC / ER (Nov 18) - Volatile organics (Mobile laboratory)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location (South Tower) on the debris pile in the plume at ground level.
  - 2 of the 3 other samples ("Washing Tent" and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).
  - 1,3-Butadiene exceeded OSHA PEL (1 ppm) and OSHA ST (5 ppm) at one location (South Tower) on the debris pile in the plume at ground level.
  - 1,3-Butadiene was not detected above the detection limit (20 ppbv) in the other 3 samples.

- NYC / ER (Nov 19) - Volatile organics (Mobile laboratory)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) on the debris pile in the plume at ground level.
  - 1 of the 2 other samples ("Washing Tent") did not note any benzene above the detection limit (20 ppbv).

Direct Reading Instruments

- NYC / ER (Nov 15)
  - Nothing of significance reported.
- NYC / ER (Nov 16)
  - Nothing of significance reported.
- NYC / ER (Nov 17)
  - Nothing of significance reported.
- NYC / ER (Nov 18)
  - Nothing of significance reported.
- NYC / ER (Nov 19)
  - Nothing of significance reported.

NYC Emergency Response  
 Asbestos Air Sampling Results NYC ER/NJ/DEP  
 Sampling Date and Time: 11/15/2001 1050 to 2315  
 Data Validation Date: 11/18/2001

Date Sampled	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S (#)	S/mm <sup>2</sup>	S-f/cc*
11/15/01	1LIB111501	Liberty Park	1108**	Air	<7.0	<0.002	0	0	<13.33	<0.0046
11/15/01	2CIT111501	CITGO Terminal	1138**	Air	7.64	0.003	0	0	<13.33	<0.0045
11/15/01	3FMC111501	FMC Terminal	1128**	Air	<7.0	<0.002	1***	0	13.33	0.0046
11/15/01	4SHL111501	Shell Terminal	1200	Air	<7.0	<0.002	0	0	<13.33	<0.0043
11/15/01	5FLD111501	Field Blank	0	Air	<7.0	n/a	NA	NA	NA	NA

**Key:** \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\*\* Chrysotile  
 n/a - Not applicable  
 NA - Not analyzed for TEM

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 Simm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

**Sampling Location**  
 Liberty Park  
 CITGO Terminal  
 FMC Terminal  
 Shell Terminal

**Sampling Times**  
 11/15/01 1050 - 2004  
 11/15/01 1130 - 2059  
 11/15/01 1125 - 2049  
 11/15/01 1315 - 2315

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/16/01 0710 to 2010  
 Data Validation Date: 11/17/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	5µ	S/mm <sup>2</sup>	S-f/cc**	
11/16/01	LF00734	P-1	710	Air	8.92	0.005	0	0	0	<8.89	<0.0048
11/16/01	LF00735	P-2	710	Air	11.46	0.006	0	0	0	<8.89	<0.0048
11/16/01	LF00736	P-3	600	Air	8.28	0.005	0	0	0	<8.00	<0.0051
11/16/01	LF00737	P-4	605	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/16/01	LF00738	P-5	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/16/01	LF00739	P-6	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/16/01	LF00740	P-7	720	Air	7.64	0.005	0	0	0	<8.89	<0.0048
11/16/01	LF00741	P-8	636	Air	22.93	0.012	0	0	0	<8.89	<0.0048
11/16/01	LF00742	W-11	720	Air	12.74	0.007	0	1***	0	8.89	0.0048
11/16/01	LF00743	W-12A	720	Air	10.83	0.006	0	0	0	<8.00	<0.0048
11/16/01	LF00744	W-12B	696	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/16/01	LF00745	B-13	720	Air	12.74	0.007	0	0	0	<8.89	<0.0048
11/16/01	LF00746	B-14	720	Air	14.01	0.008	1***	0	0	16	0.0089
11/16/01	LF00747	T-15	689	Air	7.01	0.004	0	0	0	<8.89	<0.0048
11/16/01	LF00748	T-16	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/16/01	LF00750-A	O-17	400	Air	<7.0	n/a	NR <sup>(3)</sup>	NR <sup>(3)</sup>	NR <sup>(3)</sup>	0.077	NA <sup>(1)</sup>
11/16/01	LF00749	Lot Blank	0	Air	<7.0	n/a	NR <sup>(3)</sup>	NR <sup>(3)</sup>	NR <sup>(3)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/16/01	LF00750	Trip Blank	0	Air	<7.0	n/a	NR <sup>(3)</sup>	NR <sup>(3)</sup>	NR <sup>(3)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/19/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 nm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/16/01 1705 to 11/17/01 0920  
 Data Validation Date: 11/18/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					fmm <sup>2</sup>	f/cc	Structures (#)	5µ	1µ	S-f/cc**	
11/16/01	LF00751	P-1	703	Air	<7.0	<0.004	0	1**	0	8.75	0.0048
11/16/01	LF00752	P-2	702	Air	<7.0	<0.004	0	0	0	<8.75	<0.0048
11/16/01	LF00753	P-3	699	Air	<7.0	<0.004	0	0	0	<8.75	<0.0048
11/16/01	LF00754	P-4	693	Air	<7.0	<0.004	0	0	0	<8.75	<0.0049
11/16/01	LF00755	P-5	693	Air	<7.0	<0.004	0	0	0	<8.75	<0.0049
11/16/01	LF00756	P-6	693	Air	<7.0	<0.004	0	0	0	<8.75	<0.0049
11/16/01	LF00757	P-7	693	Air	<7.0	<0.004	0	0	0	<8.75	<0.0049
11/16/01	LF00758	P-8	0	Air	R	R	R	R	R	R	R
11/16/01	LF00759	W-11	691	Air	10.19	0.006	0	0	0	<8.75	<0.0049
11/16/01	LF00760	W-12A	720	Air	8.92	0.005	1**	0	0	8.75	0.0047
11/16/01	LF00761	W-12B	734	Air	7.94	0.004	0	0	0	<8.75	<0.0046
11/16/01	LF00762	B-13	699	Air	<7.0	<0.004	0	0	0	<8.75	<0.0046
11/16/01	LF00763	B-14	697	Air	<7.0	<0.004	0**	0	0	8.75	0.0048
11/16/01	LF00764	T-15	733	Air	<7.0	<0.004	0	0	0	<8.75	<0.0046
11/16/01	LF00765	T-16	736	Air	<7.0	<0.004	0	0	0	<8.75	<0.0046
11/16/01	LF00766	O-17	720	Air	8.92	0.005	0	0	0	<8.75	<0.0047
11/16/01	LF00767	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/16/01	LF00768	Trip Blank	0	Air	22.93	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/17/01 0652 to 1952  
Data Validation Date: 11/19/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/ftm <sup>2</sup>	f/cc	0.5µ - 5µ	Structures (#)	5µ	S/mm <sup>2</sup>	S-f/cc**
11/17/01	LF00769	P-1	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/17/01	LF00770	P-2	720	NS	NS	NS	NS	NS	NS	NS	NS
11/17/01	LF00771	P-3	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/17/01	LF00772	P-4	620	Air	<7.0	<0.004	0	0	0	<8.0	<0.0050
11/17/01	LF00773	P-5	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/17/01	LF00774	P-6	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/17/01	LF00775	P-7	740	Air	<7.0	<0.004	0	1***	0	8.89	0.0046
11/17/01	LF00776	P-8	600	Air	<7.0	<0.004	0	0	0	<8.0	<0.0051
11/17/01	LF00777	W-11	720	Air	16.56	0.009	9***	0	0	80	0.0428
11/17/01	LF00778	W-12A	720	Air	<7.0	<0.004	5***	0	0	44.44	0.0238
11/17/01	LF00779	W-12B	679	Air	11.46	0.0065	0	0	0	<8.89	<0.0050
11/17/01	LF00780	B-13	696	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/17/01	LF00781	B-14	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/17/01	LF00782	T-15	683	Air	31.85	0.018	0	0	0	<8.89	<0.0050
11/17/01	LF00783	T-16	690	Air	25.48	0.014	2***	0	0	17.78	0.0099
11/17/01	LF00784	O-17	515	Air	<7.0	<0.005	0	0	0	<8.0	<0.0060
11/17/01	LF00785	O-18	515	Air	<7.0	<0.005	0	0	0	<8.0	<0.0060
11/17/01	LF00786	Lot Blank	0	Air	<7.0	n/a	NA (b)	NA (b)	NA (b)	NA (b)	NA (b)
11/17/01	LF00786	Trip Blank	0	Air	<7.0	n/a	NA (b)	NA (b)	NA (b)	NA (b)	NA (b)

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA (1) - Not analyzed due to overloading of particulates  
 NA (2) - Not analyzed for TEM  
 n/a - Not applicable  
 NS - Sample not submitted due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/17/01 1735 to 11/18/01 0900  
 Data Validation Date: 11/19/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					fmm <sup>2</sup>	f/cc	Structures (#)	Slmm <sup>2</sup>	S-f/cc**	SJ
11/17/01	LF00787	P-1	702	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/17/01	LF00788	P-2	701	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/17/01	LF00789	P-3	701	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/17/01	LF00790	P-4	697	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/17/01	LF00791	P-5	697	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/17/01	LF00792	P-6	695	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/17/01	LF00793	P-7	694	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/17/01	LF00794	P-8	691	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/17/01	LF00795	W-11	694	Air	NA (1)	0.095	0	0	<8.75	<0.0048
11/17/01	LF00796	W-12A	720	Air	NA (1)	<0.004	2**	0	17.5	<0.0049
11/17/01	LF00797	W-12B	720	Air	NA (1)	<0.004	0	0	<8.75	<0.0047
11/17/01	LF00798	B-13	698	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/17/01	LF00799	B-14	699	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/17/01	LF00800	T-15	0	Air	R	0.006	R	R	NA	<0.0047
11/17/01	LF00801	T-16	720	Air	11.46	0.006	0	0	<8.75	<0.0047
11/17/01	LF00802	O-17	695	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/17/01	LF00803	O-18	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/17/01	LF00804	Lot Blank	0	Air	<7.0	na	0	0	<8.75	na
11/17/01	LF00805	Top Blank	0	Air	<7.0	na	0	0	<8.75	na

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Unviable  
 NA (1) - Not analyzed due to overloading of particulates  
 na - Not applicable  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 Slmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/15/01 1200 to 2359

Data Validation Date: 11/17/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	f/m <sup>2</sup>	f/cc	S-fiber**
11/15/01	RST-00710	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00711	M1	720	Air	11.46	0.006	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00712	N	720	Air	7.64	0.004	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00713	O	720	Air	26.03	0.015	1***	8.89	0.0048	0.0048
11/15/01	RST-00714	F	720	Air	25.48	0.014	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00715	A	720	Air	35.67	0.019	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00716	B	720	Air	9.55	0.005	0	8.89	0.0048	0.0048
11/15/01	RST-00717	C	720	Air	7.64	0.004	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00718	H	720	Air	8.92	0.005	1***	8.89	0.0048	0.0048
11/15/01	RST-00719	I	720	Air	12.10	0.006	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00720	D-Dup	720	Air	10.19	0.005	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00721	J	720	Air	7.64	0.004	1***	8.89	0.0048	0.0048
11/15/01	RST-00722	K	720	Air	7.64	0.004	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00723	G	720	Air	10.83	0.006	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00724	U	720	Air	15.92	0.009	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00725	V	720	Air	14.01	0.0075	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00726	S	720	Air	8.92	0.005	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00727	P	720	Air	12.10	0.0065	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00728	E	720	Air	15.29	0.008	0	<8.89	<0.0048	<0.0048
11/15/01	RST-00729	Q	720	Air	<7.0	n/a	NA <sup>3)</sup>	NA <sup>3)</sup>	NA <sup>3)</sup>	NA <sup>3)</sup>
11/15/01	FB111601	Field Blank	0	Air	<7.0	n/a	NA <sup>3)</sup>	NA <sup>3)</sup>	NA <sup>3)</sup>	NA <sup>3)</sup>
11/15/01	TB111601	Trip Blank	0	Air	<7.0	n/a	NA <sup>3)</sup>	NA <sup>3)</sup>	NA <sup>3)</sup>	NA <sup>3)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Not sampled

Sampling Locations:  
 A: corner of Broadway & Barclay  
 B: SE corner of Church & Duane St.  
 C: Trinity (a.k.a. Church & Liberty)  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St.  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North area (north side of Subways) High, access to TACA bus area

PCM by NIOSH 7400  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TACA Bus Location  
 S: Rector & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Ext 2  
 V: Pier 6 bus Sign

TEM (AHERA)  
 NA<sup>3)</sup> - Not analyzed

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/16/01 0001 to 1200

Data Validation Date: 11/17/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fiber/100 fibers
					f/m <sup>2</sup>	f/cc	Structures (f)	Structures (f)	
11/16/01	RST-00730	M	720	Air	<7.0	<0.004	0	0	<0.0045
11/16/01	RST-00732	N	720	Air	<7.0	<0.004	2**	0	0.0095
11/16/01	RST-00733	J	720	Air	<7.0	<0.004	0	0	<0.0045
11/16/01	RST-00734	F	720	Air	<7.0	<0.004	0	0	<0.0045
11/16/01	RST-00735	Q	720	Air	<7.0	<0.004	2***	0	0.0095
11/16/01	RST-00737	A	720	Air	<7.0	<0.004	1***	0	0.0048
11/16/01	RST-00739	B	720	Air	12.10	0.005	0	0	<0.0048
11/16/01	RST-00740	C	699	Air	<7.0	<0.004	0	0	<0.0045
11/16/01	RST-00741	H	720	Air	<7.0	<0.004	0	0	<0.0045
11/16/01	RST-00742	D	720	Air	<7.0	<0.004	1***	0	0.0048
11/16/01	RST-00743	K	719	Air	<7.0	<0.004	0	0	<0.0045
11/16/01	RST-00744	T	720	Air	<7.0	<0.004	0	0	<0.0045
11/16/01	RST-00745	V	720	Air	<7.0	<0.004	0	0	<0.0045
11/16/01	RST-00746	S	720	Air	<7.0	<0.004	1***	0	0.0048
11/16/01	RST-00748	P	720	Air	<7.0	<0.004	0	0	<0.0045
11/16/01	RST-00749	E	720	Air	<7.0	<0.004	2**	0	0.0095
11/16/01	FB111601	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/16/01	FB111601	Top Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: Western end of North Park rec area  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**Sampling Locations:**  
 M: Western end of Harrison St. at West St.  
 (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Recor & South End  
 T: Pier 6 Heliport  
 U: Pier 8  
 V: Pier 8 Bus Sign

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NS - Not requested  
 NS - Not sampled

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA).  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NO QC EVALUATION HAS BEEN PERFORMED  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/19/01

File Name	NYC192	NYC193	NYC194	NYC195	NYC200	NYC195
Sample Location	Influent Blank	Tedlar Bag Blank	Washing Tank	North Tower	South Tower	Authn Techn Plaza
Sample Number			AD719	AD720	AD722	AD721
Sample Weight			Breathing Level	Ground Level	Ground Level	Breathing Level
Sample Volume		250 mL	250 mL	25 mL	100 mL	250 mL
Reporting Limit (FRL)	20	20	20	350	50	20
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propane	RL	RL	RL	5500	14000	41
Propan-2-ol	RL	RL	RL	RL	RL	RL
Diethylpropanoate	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	14000	1500	73
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	140	30	RL
Chloroform	RL	RL	RL	310	30	RL
Tetrachloroethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	21	RL	RL	RL
Acetone	RL	RL	RL	6200	13000	130
Tetrachloroethene	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloroaniline	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	410	440	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	1600	5000	70
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	1100	1100	38
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	14000	1800	150
Heptane	RL	RL	RL	280	250	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	130	90	120
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Styrene	RL	RL	RL	8600	2500	110
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	300	RL
Tetrachloroethane	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromomethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	8900	2200	200
m,p-Xylene	RL	RL	RL	270	500	RL
o-Xylene	RL	RL	RL	RL	140	RL
Solvent	RL	RL	RL	1800	2500	74
Bromofarm	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	550	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	80	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	220	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/16/01 Early

RST: A. Becker

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0811	ND	ND	ND	20.9	ND	ND	ND	ND	ND	ND	ND	<0.050
M1	0820	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00	ND	<0.050
N	0826	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.050
J	0834	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.050
F	0840	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.050
A	0846	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1.00	ND	<0.050
B	0856	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1.00	ND	<0.050
C	0858	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1.00	ND	<0.050
H	0902	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1.00	ND	<0.050
I	0915	ND	ND	ND	21.0	3*	ND	ND	ND	ND	<1.00	ND	<0.050
D	0927	ND	0.1	ND	21.0	3*	ND	ND	ND	ND	<1.00	ND	<0.050
K	0931	ND	ND	ND	21.0	2*	ND	ND	ND	ND	<1.00	ND	<0.050
T	0940	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1.00	ND	<0.050
U	0941	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1.00	ND	<0.050
V	0946	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1.00	ND	<0.050
S	1000	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1.00	ND	<0.050
P	1004	ND	ND	ND	21.1	2	ND	ND	ND	ND	<1.00	ND	<0.050
E	1007	ND	ND	ND	21.1	1	ND	ND	ND	ND	<1.00	ND	<0.050
Q	1015	ND	ND	ND	21.1	1	ND	ND	ND	ND	<1.00	ND	<0.050

\* high traffic area

Location A: Barkley and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Stuyvesant High School  
Location M1: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/16/01 PM

RST: R. Tichauer

Location	Time	FID (units)	FID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1155	ND	ND	ND	21.3	3	ND	ND	ND	ND	<1	ND	<0.05
M	1200	ND	ND	ND	21.3	1	ND	ND	ND	ND	<1	ND	<0.05
N	1203	ND	ND	ND	21.2	4	ND	ND	ND	ND	<1	ND	<0.05
J	1217	ND	ND	ND	21.2	3	ND	ND	ND	ND	<1	ND	<0.05
F	1223	ND	ND	ND	21.3	2	ND	ND	ND	ND	<1	ND	<0.05
Q	1228	ND	ND	ND	21.3	3	ND	ND	ND	ND	<1	ND	<0.05
A	1235	ND	ND	ND	21.3	4	ND	ND	ND	ND	<1	ND	<0.05
R	1242	ND	ND	ND	21.3	ND	ND	ND	ND	ND	<1	ND	<0.05
C	1247	ND	ND	ND	21.3	ND	ND	ND	ND	ND	<1	ND	<0.05
H	1305	ND	ND	ND	21.2	1	ND	ND	ND	ND	<1	ND	<0.05
I	1312	*	ND	ND	21.2	3	ND	ND	ND	ND	<1	ND	<0.05
D	1324		ND	ND	21.3	4	ND	ND	ND	ND	<1	ND	<0.05
K	1329		ND	ND	21.3	3	ND	ND	ND	ND	<1	ND	<0.05
T	1336		ND	ND	21.3	3	ND	ND	ND	ND	<1	ND	<0.05
U	1338		ND	ND	21.3	3	ND	ND	ND	ND	<1	ND	<0.05
V	1341		ND	ND	21.3	2	ND	ND	ND	ND	<1	ND	<0.05
S	1349		ND	ND	21.3	2	ND	ND	ND	ND	<1	ND	<0.05
P	1351		ND	ND	21.4	1	ND	ND	ND	ND	<1	ND	<0.05
E	1356	↓	ND	ND	21.2	7	ND	ND	ND	ND	<1	ND	<0.05

\* FID - Hydrogen gas out.

- Location A: Barklay and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South East
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

EARLY

DATE: 11/17/01

RST: B. Hoffman

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0802	ND	ND	ND	19.8	ND	ND	ND	ND	ND	<1.00	ND	<0.50
M1	0810	ND	ND	ND	19.8	ND	ND	ND	ND	ND	<1.00	ND	<0.50
N	0819	ND	ND	ND	19.7	ND	ND	ND	ND	ND	<1.00	ND	<0.50
T	0826	ND	ND	ND	19.8	2	ND	ND	ND	ND	<1.00	ND	<0.50
F	0836	ND	ND	ND	19.8	2	ND	ND	ND	ND	<1.00	ND	<0.50
Q	0840	ND	ND	ND	19.8	1	ND	ND	ND	ND	<1.00	ND	<0.50
A	0840	ND	ND	ND	19.8	3	ND	ND	ND	ND	<1.00	ND	<0.50
E	0851	ND	ND	ND	19.8	6	ND	ND	ND	ND	<1.00	ND	<0.50
C	0855	ND	ND	ND	19.8	2	ND	ND	ND	ND	<1.00	ND	<0.50
H	0916	ND	ND	ND	19.8	1	ND	ND	ND	ND	<1.00	ND	<0.50
I	0926	ND	ND	ND	19.8	ND	ND	ND	ND	ND	<1.00	ND	<0.50
D	0938	ND	ND	ND	19.8	4	ND	ND	ND	ND	<1.00	ND	<0.50
K	0944	ND	ND	ND	19.8	3	ND	ND	ND	ND	<1.00	ND	<0.50
T	0953	ND	ND	ND	19.8	2	ND	ND	ND	ND	<1.00	ND	<0.50
U	0956	ND	ND	ND	19.8	ND	ND	ND	ND	ND	<1.00	ND	<0.50
V	1000	ND	ND	ND	19.8	2	ND	ND	ND	ND	<1.00	ND	<0.50
S	1009	ND	ND	ND	19.7	ND	ND	ND	ND	ND	<1.00	ND	<0.50
P	1012	ND	ND	ND	19.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
E	1017	ND	ND	ND	19.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50

Location A: Barkley and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Shoyvezat High School  
Location M1: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Helipad  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

LATE

DATE: 11/17/01

RST: E. Hoffman

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1218	ND	ND	ND	20.0	ND	ND	ND	ND	ND	<1.00	ND	<0.50
M1	1221	ND	ND	ND	20.0	2	ND	ND	ND	ND	<1.00	ND	<0.50
N	1224	ND	ND	ND	20.0	1	ND	ND	ND	ND	<1.00	ND	<0.50
J	1232	ND	ND	ND	20.1	3	ND	ND	ND	ND	<1.00	ND	<0.50
F	1238	ND	ND	ND	20.1	2	ND	ND	ND	ND	<1.00	ND	<0.50
B	1239	ND	ND	ND	20.0	ND	ND	ND	ND	ND	<1.00	ND	<0.50
A	1244	ND	ND	ND	19.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
B	1250	ND	ND	ND	20.0	5	ND	ND	ND	ND	<1.00	ND	<0.50
C	1252	ND	ND	ND	20.1	3	ND	ND	ND	ND	<1.00	ND	<0.50
H	1302	ND	ND	ND	20.0	2	ND	ND	ND	ND	<1.00	ND	<0.50
J	1309	ND	ND	ND	20.0	6	ND	ND	ND	ND	<1.00	ND	<0.50
D	1323	ND	ND	ND	20.1	2	ND	ND	ND	ND	<1.00	ND	<0.50
K	1329	ND	ND	ND	19.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
T	1334	ND	ND	ND	19.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
U	1336	ND	ND	ND	20.0	ND	ND	ND	ND	ND	<1.00	ND	<0.50
V	1338	ND	ND	ND	20.0	ND	ND	ND	ND	ND	<1.00	ND	<0.50
S	1352	ND	ND	ND	20.0	ND	ND	ND	ND	ND	<1.00	ND	<0.50
P	1354	ND	ND	ND	20.1	ND	ND	ND	ND	ND	<1.00	ND	<0.50
E	1400	ND	ND	ND	20.0	ND	ND	ND	ND	ND	<1.00	ND	<0.50

- Location A: Barkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M1: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location



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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



EARLY

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/18/01

RST: E. Hoffman

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0754	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
M	0800	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.50
H	0805	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
J	0813	ND	ND	ND	20.9	9	ND	ND	ND	ND	<1.00	ND	<0.50
F	0822	ND	ND	ND	20.9	3	ND	ND	ND	ND	<1.00	ND	<0.50
Q	0830	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
A	0835	ND	ND	ND	20.9	2	ND	ND	ND	ND	<1.00	ND	<0.50
B	0840	ND	ND	ND	20.9	3	ND	ND	ND	ND	<1.00	ND	<0.50
C	0844	ND	ND	ND	20.9	4	ND	ND	ND	ND	<1.00	ND	<0.50
H	0855	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
I	0900	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
D	0910	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00	ND	<0.50
K	0918	ND	ND	ND	20.9	5	ND	ND	ND	ND	<1.00	ND	<0.50
T	0927	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
V	0930	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
V	0935	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
S	0944	ND	ND	ND	20.9	2	ND	ND	ND	ND	<1.00	ND	<0.50
P	0948	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
E	0951	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50

Location A: Barkley and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Sunnyside High School  
Location M: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



LATE

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/18/01

RST: B. Hoffman

Location	Time	FID (units)	FID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	1211	ND	ND	ND	20.9	2	ND	ND	ND	ND	<1.00	ND	<0.50
M1	1214	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
N	1218	ND	ND	ND	20.9	5	ND	ND	ND	ND	<1.00	ND	<0.50
J	1225	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.00	ND	<0.50
F	1231	ND	ND	ND	21.1	2	ND	ND	ND	ND	<1.00	ND	<0.50
Q	1233	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1.00	ND	<0.50
A	1246	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1.00	ND	<0.50
B	1244	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1.00	ND	<0.50
C	1246	ND	ND	ND	21.1	ND	ND	ND	ND	ND	<1.00	ND	<0.50
H	1258	ND	ND	ND	21.2	4	ND	ND	ND	ND	<1.00	ND	<0.50
I	1307	ND	ND	ND	21.2	5	ND	ND	ND	ND	<1.00	ND	<0.50
D	1322	ND	ND	ND	21.1	2	ND	ND	ND	ND	<1.00	ND	<0.50
K	1328	ND	ND	ND	21.1	6	ND	ND	ND	ND	<1.00	ND	<0.50
T	1337	ND	ND	ND	21.2	3	ND	ND	ND	ND	<1.00	ND	<0.50
U	1339	ND	ND	ND	21.2	2	ND	ND	ND	ND	<1.00	ND	<0.50
V	1341	ND	ND	ND	21.1	1	ND	ND	ND	ND	<1.00	ND	<0.50
S	1350	ND	ND	ND	21.2	ND	ND	ND	ND	ND	<1.00	ND	<0.50
P	1353	ND	ND	ND	21.2	1	ND	ND	ND	ND	<1.00	ND	<0.50
E	1356	ND	ND	ND	21.2	2	ND	ND	ND	ND	<1.00	ND	<0.50

- Location A: Barklay and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Verrey
- Location G: No location
- Location H: Chate Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Shyvesant High School
- Location M1: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/19/01 A.M.

RST: JAT AB CM

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L *	0817	0.4	0.4	ND	21.0	1	ND	0.2	ND	ND	<1	ND	0.05
M *	0824	0.2	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	0.05
N *	0830	0.4	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	0.05
J *	0835	0.3	ND	ND	21.0	1	ND	0.2	ND	ND	<1	ND	0.05
F	0841	0.6	ND	ND	21.0	3	ND	ND	ND	ND	<1	ND	0.05
Q	0847	ND	ND	ND	21.0	ND	ND	0.2	ND	ND	<1	ND	0.05
A	0857	0.3	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	0.05
B	0902	0.1	0.4*	ND	21.0	9*	ND	ND	ND	ND	<1	ND	0.05
C	0906	ND	0.4*	ND	21.0	2	ND	0.2	ND	ND	<1	ND	0.05
H	0919	ND	ND	ND	21.0	2	ND	0.2	ND	ND	<1	ND	0.05
I	0928	ND	ND	ND	21.0	4	ND	0.3	ND	ND	<1	ND	0.05
D	0939	ND	ND	ND	21.0	2	ND	0.2	ND	ND	<1	ND	0.05
K	0947	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	0.05
T	0955	ND	ND	ND	21.0	4	ND	0.2	ND	ND	<1	ND	0.05
U	0959	ND	ND	ND	21.0	3	ND	0.2	ND	ND	<1	ND	0.05
V	1005	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	0.05
S	1012	ND	ND	ND	21.0	4	ND	ND	ND	ND	<1	ND	0.05
P	1016	ND	ND	ND	21.0	4	ND	ND	ND	ND	<1	ND	0.05
E	1021	ND	ND	ND	21.0	3	ND	0.3	ND	ND	<1	ND	0.05

\* Heavy fog/night mist  
\* Trucks in area

- Location A: Barkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Sunnysant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Helipad
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Stop
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/19/01 late

RST: JRT, AB, CM

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	1222	ND	NA	3	21.0	3	ND	ND	ND	ND	<1	ND	<0.05
M	1224	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
N	1227	ND	ND	ND	21.0	1	ND	0.2	ND	ND	<1	ND	<0.05
J	1234	ND	ND	ND	21.0	2	ND	0.3	ND	ND	<1	ND	<0.05
F	1241	ND	NA	ND	21.0	ND	ND	0.2	ND	ND	<1	ND	<0.05
O	1244	ND	ND	ND	21.0	ND	ND	0.2	ND	ND	<1	ND	<0.05
A	1248	ND	ND	ND	21.0	3	ND	0.2	ND	ND	<1	ND	<0.05
B	1255	ND	ND	ND	21.0	4	ND	0.3	ND	ND	<1	ND	<0.05
C	1257	ND	ND	ND	21.0	2	ND	0.2	ND	ND	<1	ND	<0.05
H	1307	ND	ND	ND	21.0	4	ND	0.2	ND	ND	<1	ND	<0.05
E	1317	ND	ND	ND	21.0	3	ND	0.2	ND	ND	<1	ND	<0.05
D	1326	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
K	1332	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
U	1340	ND	ND	ND	21.0	2	ND	0.2	ND	ND	<1	ND	<0.05
Y	1342	ND	ND	ND	21.0	2	ND	0.2	ND	ND	<1	ND	<0.05
V	1345	ND	ND	ND	21.0	ND	ND	0.3	ND	ND	<1	ND	<0.05
S	1352	ND	ND	ND	21.0	ND	ND	0.3	ND	ND	<1	ND	<0.05
P	1354	ND	ND	ND	21.0	2	ND	0.3	ND	ND	<1	ND	<0.05
E	1357	ND	ND	ND	21.0	2	ND	0.3	ND	ND	<1	ND	<0.05

Location A: Backlav and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Stuyvesant High School  
Location M: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: A. Becker

U.S. EPA: Norrell

Date: 11/20/01  
<sub>15</sub>

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2643	2646	2648			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	1038	1040	1048			
Stop Time	1450	1453	1456			
Run Time (Minutes)	252	253	249			
Minimum Concentration (ug/m3)	0.0	0.0	0.0			
Maximum Concentration (ug/m3)	182.2	<sup>(0.14)</sup> <del>1250.00</del> 1258.9	143.8			
Average Concentration (TWA) (ug/m3)	72.7	90.5	65.3			AR

\* DATA RAMS WERE NOT STARTED UNTIL AFTER 1030 DUE TO RAIN

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: A. Becker

U.S. EPA: Norrell

Date: 4/16/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2646	2648	2647			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	0711	0715	0714			
Stop Time	1425	1430	1435			
Run Time (Minutes)	434	435	436			
Minimum Concentration (ug/m <sup>3</sup> )	0.0	46.0	43.8			
Maximum Concentration (ug/m <sup>3</sup> )	423.8	312.9	221.2			
Average Concentration (TWA) (ug/m <sup>3</sup> )	76.8	79.1	74.7			

United States Environmental Protection Agency  
 Removal Support Team  
 DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
 EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: A. Becker

U.S. EPA: Norrell

Date: 11/17/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2643	2646	2648			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	0757	0803	0820			
Stop Time	1417	1423	1428			
Run Time (Minutes)	620 (D.M.) 381	620 (D.M.) 381	608 (D.M.) 369			
Minimum Concentration (ug/m <sup>3</sup> )	0.0	0.0	0.0			
Maximum Concentration (ug/m <sup>3</sup> )	186.7	188.1	182.0			
Average Concentration (TWA) (ug/m <sup>3</sup> )	12.7	11.7	9.7			AB

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: A. Becker

U.S. EPA: Norrell

Date: 11/18/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2643	2646	2648			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	0749	0756	0808			
Stop Time	1439	1440	1437			
Run Time (Minutes)	410	403	390			
Minimum Concentration (ug/m <sup>3</sup> )	17.0 $\mu\text{g}/\text{m}^3$	6.0 $\mu\text{g}/\text{m}^3$	12.8 $\mu\text{g}/\text{m}^3$			
Maximum Concentration (ug/m <sup>3</sup> )	97.9 $\mu\text{g}/\text{m}^3$	225.1 $\mu\text{g}/\text{m}^3$	119.6 $\mu\text{g}/\text{m}^3$			
Average Concentration (TWA) (ug/m <sup>3</sup> )	33.3 $\mu\text{g}/\text{m}^3$	39.1 $\mu\text{g}/\text{m}^3$	26.9 $\mu\text{g}/\text{m}^3$			AD



United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: G.T. Charles A.

U.S. EPA: Norrell

Date: 11/19/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2646	2647	2648			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	0713	0712	0718			
Stop Time	1430	1433	1437			
Run Time (Minutes)	437	441	44439			
Minimum Concentration (ug/m3)	6.7	0.0	0.2			
Maximum Concentration (ug/m3)	253.6	337.8	229.8			
Average Concentration (TWA) (ug/m3)	92.1	34.9	78.0			

NO QC EVALUATION HAS BEEN PERFORMED,  
DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED WITH DISCRETION

DRAFT GC/MS Results for 11H481

File Name	NYC146	NYC147	NYC148	NYC149	NYC150	NYC143
Location	Instrument Bank	Target Bag Bank	16x60mm Tent Ambient Air	North Tower Plume	South Tower Plume	Auxiliary Plaza
Sample Number			07101	07102	07103	07104
Sample Height			Freezing	100m	100m	100m
Volume		250 ml	250 ml	100 ml	100 ml	250 ml
Fluorene	RL=20 ppb	RL=20 ppb	RL=20 ppb	13000 ppb =	16000 ppb	RL=20 ppb
Chlorofluoromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,1-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,1-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Chloromethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	6700 ppb =	21000 ppb	RL=20 ppb
Vinyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	15 ppb	RL=250 ppb	RL=20 ppb
1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	6100 ppb	RL=20 ppb
Ethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	98 ppb	RL=250 ppb	RL=20 ppb
Chlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	410 ppb	RL=250 ppb	RL=20 ppb
Tetrahydrofuran	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Isopropyl Alcohol	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	118 ppb
Axetone	RL=20 ppb	RL=20 ppb	RL=20 ppb	14200 ppb =	RL=250 ppb	166 ppb
Methoxybenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Methylene Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,1,1-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
trans-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Hexane	RL=20 ppb	RL=20 ppb	RL=20 ppb	660 ppb	440 ppb	RL=20 ppb
1,1-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Vinyl Acetate	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	710 ppb	122 ppb
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	4700 ppb =	5100 ppb	111 ppb
trans-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,1,1-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Chloroform	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Tetrahydrofuran	RL=20 ppb	RL=20 ppb	RL=20 ppb	1300 ppb =	RL=250 ppb	RL=20 ppb
1,1,1-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Cyclohexane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Carbon Tetrachloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Benzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	20000 ppb =	36000 ppb	RL=20 ppb
Hexane	RL=20 ppb	RL=20 ppb	RL=20 ppb	1640 ppb	350 ppb	RL=20 ppb
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,4-Dioxane	RL=20 ppb	RL=20 ppb	RL=20 ppb	270 ppb	RL=250 ppb	RL=20 ppb
N,N-Dimethyl Ketone	RL=20 ppb	RL=20 ppb	RL=20 ppb	140 ppb	RL=250 ppb	RL=20 ppb
trans-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Toluene	RL=20 ppb	RL=20 ppb	RL=20 ppb	7300 ppb =	16000 ppb	111 ppb
trans-1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,1,2-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
2-Pentanone	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Tetrahydrofuran	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Chloroacetonitrile	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Chlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	100 ppb	RL=250 ppb	RL=20 ppb
1,2-Dichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	7100 ppb =	11000 ppb	27 ppb
1,2-Dichloroethene	RL=20 ppb	RL=20 ppb	RL=20 ppb	590 ppb	390 ppb	RL=20 ppb
O-Xylene	RL=20 ppb	RL=20 ppb	RL=20 ppb	500 ppb	RL=250 ppb	RL=20 ppb
Styrene	RL=20 ppb	RL=20 ppb	RL=20 ppb	2200 ppb	64000 ppb	1630 ppb
Bromobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,1,2-Trichloroethane	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
4-Ethyltoluene	RL=20 ppb	RL=20 ppb	RL=20 ppb	340 ppb	RL=250 ppb	RL=20 ppb
1,3-Dimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	440 ppb	RL=250 ppb	RL=20 ppb
1,4-Dimethylbenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	250 ppb	RL=250 ppb	RL=20 ppb
1,3-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,4-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
Benzyl Chloride	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	34 ppb
1,3-Dichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=20 ppb	RL=250 ppb	RL=20 ppb
1,2,4-Trichlorobenzene	RL=20 ppb	RL=20 ppb	RL=20 ppb	15 ppb	RL=250 ppb	RL=20 ppb
Hexachloro-1,3-Butadiene	RL=20 ppb	RL=20 ppb	RL=20 ppb	12 ppb	RL=250 ppb	RL=20 ppb

\* - Estimated Value: the reported result exceeded the highest calibration standard and may be inaccurate or imprecise  
\*\* - Concentration reported from a diluted aliquot of sample.

NO QC EVALUATION HAS BEEN PERFORMED.  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/15/01

File Name	NYC156	NYC157	NYC158	NYC160		
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent	North Tower	South Tower <sup>(1)</sup>	Austin Tobin Plaza <sup>(1)</sup>
Sample Number			Ambient Air	Plume		
Sample Height			A07105	A07106		
Sample Volume		250 mL	breathing zone	ground	ground	ground
Reporting Limit (RL)	20	20	20	50		
Sample Conc. Units	ppb,	ppb,	ppb,	ppb,	ppb,	ppb,
Propylene	RL	RL	RL	51 ppb,		
Freon 22	RL	RL	RL	RL		
Dichlorodifluoromethane	RL	RL	RL	RL		
Dichlorotetrafluoroethane	RL	RL	RL	RL		
Chloromethane	RL	RL	RL	RL		
Vinyl Chloride	RL	RL	RL	RL		
1,3-Butadiene	RL	RL	RL	RL		
Bromomethane	RL	RL	RL	RL		
Chloroethane	RL	RL	RL	RL		
Trichlorofluoromethane	RL	RL	RL	RL		
Isopropyl Alcohol	RL	RL	RL	51 ppb,		
Acetone	RL	RL	RL	1300 ppb,		
Trichlorofluoroethane	RL	RL	RL	RL		
1,1-Dichloroethene	RL	RL	RL	RL		
3-Chloropropene	RL	RL	RL	RL		
Methylene Chloride	RL	RL	RL	RL		
MTBE	RL	RL	RL	RL		
trans-1,2-Dichloroethene	RL	RL	RL	RL		
Hexane	RL	RL	RL	RL		
1,1-Dichloroethane	RL	RL	RL	RL		
Vinyl Acetate	RL	RL	RL	RL		
2-Butanone	RL	RL	RL	160 ppb,		
cis-1,2-Dichloroethene	RL	RL	RL	RL		
Ethyl Acetate	RL	RL	RL	RL		
Chloroform	RL	RL	RL	RL		
Tetrahydrofuran	RL	RL	RL	RL		
1,1,1-Trichloroethane	RL	RL	RL	RL		
Cyclohexane	RL	RL	RL	RL		
Carbon Tetrachloride	RL	RL	RL	RL		
1,2-Dichloroethane	RL	RL	RL	RL		
Benzene	RL	RL	RL	75 ppb,		
Heptane	RL	RL	RL	RL		
Trichloroethene	RL	RL	RL	RL		
1,2-Dichloropropane	RL	RL	RL	RL		
1,4-Dioxane	RL	RL	RL	RL		
Methyl isobutyl Ketone	RL	RL	RL	RL		
cis-1,3-Dichlorocyclohexane	RL	RL	RL	RL		
Toluene	RL	RL	RL	RL		
trans-1,3-Dichlorocyclohexane	RL	RL	RL	RL		
1,1,2-Trichloroethane	RL	RL	RL	RL		
2-Hexanone	RL	RL	RL	RL		
Tetrachloroethene	RL	RL	RL	RL		
Dibromochloromethane	RL	RL	RL	RL		
1,2-Dibromoethane	RL	RL	RL	RL		
Chlorobenzene	RL	RL	RL	RL		
Ethylbenzene	RL	RL	RL	RL		
m,p-Xylenes	RL	RL	RL	RL		
O-Xylene	RL	RL	RL	RL		
Styrene	RL	RL	RL	RL		
Bromoform	RL	RL	RL	RL		
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL		
4-Ethyltoluene	RL	RL	RL	RL		
1,3,5-Trimethylbenzene	RL	RL	RL	RL		
1,2,4-Trimethylbenzene	RL	RL	RL	RL		
1,3-Dichlorobenzene	RL	RL	RL	RL		
1,4-Dichlorobenzene	RL	RL	RL	RL		
Benzyl Chloride	RL	RL	RL	RL		
1,2-Dichlorobenzene	RL	RL	RL	RL		
1,2-Trichlorobenzene	RL	RL	RL	RL		
Hexachloro-1,3-Butadiene	RL	RL	RL	RL		

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/16/01

File Name	NYC164	NYC165	NYC166	NYC168	NYC169	NYC167
Sample Location	Instrument Blank	Tedlar Esp. Blank	Washing Tent Ambient Air	North Tower Plume	South Tower Plume	Austin Tobin Plaza
Sample Number			AD7107	AD7108	AD7109	AD7110
Sample Height			Breathing Level	Ground Level	Ground Level	Breathing Level
Sample Volume		250 mL	250 mL	20 mL	5 mL	250 mL
Reporting Limit (RL)	20	20	20	250	1000	20
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	1200 ppb	66000 ppb	RL
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	5500 ppb	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	17000 ppb	RL
Butyromethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	RL	RL	12000 ppb, (1)	RL
Acetone	RL	RL	RL	1500 ppb	120000 ppb, (1)	45 ppb
Trichlorofluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	11000 ppb	49 ppb
2-Butanone	RL	RL	RL	260 ppb	31000 ppb	RL
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	2400 ppb	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	5000 ppb	73000 ppb	RL
Heptane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	1400 ppb	25000 ppb	RL
1,1,1,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	1000 ppb	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	1500 ppb	5000 ppb	RL
m,p-Xylenes	RL	RL	RL	RL	2800 ppb	RL
O-Xylene	RL	RL	RL	RL	2000 ppb	RL
Styrene	RL	RL	RL	340 ppb	4600 ppb	RL
Ethylform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	1100 ppb	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,2-Ethadiene	RL	RL	RL	RL	RL	RL

Note: (1) Estimated Value: The reported result may be inaccurate and/or imprecise due to its exceedance of the highest calibration standard.

NO QC EVALUATION HAS BEEN PERFORMED.  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-16 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/17/01

File Name	NYC173	NYC174	NYC175	NYC176	NYC180	NYC176
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	North Tower Plume	South Tower Plume	Austin Tosin Plaza
Sample Number			AG7111	AG7112	AG7113	AG7114
Sample Height			Breathing Level	Ground Level	Ground Level	Breathing Level
Sample Volume		250 mL	250 mL	100 mL	100 mL	250 mL
Reporting Limit (RL)	20	20	20	20	20	20
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	170 ppb	350 ppb	RL
Freon 22	RL	RL	RL	32 ppb *	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	26 ppb	78 ppb	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	180 ppb	800 ppb	RL
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	RL
3-Chloroaniline	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
RTSE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	30 ppb	230 ppb	RL
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	RL	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	570 ppb	180 ppb	RL
Heptane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichlorocyclopentane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	180 ppb	110 ppb	RL
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethane	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	220 ppb	48 ppb	RL
m,p-Xylenes	RL	RL	RL	RL	RL	RL
o-Xylene	RL	RL	RL	RL	RL	RL
Styrene	RL	RL	RL	85 ppb	30 ppb	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

Note: \* Estimated value

NO QC EVALUATION HAS BEEN PERFORMED.  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/18/01

File Name	NYC183	NYC184	NYC185	NYC187	NYC188	NYC188
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent	North Tower	South Tower	Austin Tobin Plaza
			Ambient Air	Plume	Plume	
Sample Number			AD7115	AD7117	AD7116	AD7118
Sample Height			Breathing Level	Ground Level	Ground Level	Breathing Level
Sample Volume		250 mL	250 mL	100 mL	100 mL	250 mL
Resorting L/mic (RL)		20	20	20	20	20
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	190	3500	RL
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	2100	RL
Chloromethane	RL	RL	RL	250	RL	RL
Vinyl Chloride	RL	RL	RL	RL	5100	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	:10	RL
Chloroethane	RL	RL	RL	17	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	140	RL
Isopropyl Alcohol	RL	RL	RL	430	51000	17
Acetone	RL	RL	RL	RL	RL	RL
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	14	400	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	85	18000	RL
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	47	1000	RL
Tetrahydrofuran	RL	RL	RL	RL	RL	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	47	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	310	RL
1,2-Dichloroethane	RL	RL	RL	220	17000	RL
Benzene	RL	RL	RL	12	260	RL
Heptane	RL	RL	RL	39	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	18	150	RL
1,4-Dioxane	RL	RL	RL	11	220	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	120	8500	RL
Toluene	RL	RL	RL	RL	RL	RL
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	700	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromomethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	130	3400	RL
Ethylbenzene	RL	RL	RL	10	1200	RL
m&o-Xylenes	RL	RL	RL	RL	870	RL
p-Xylene	RL	RL	RL	390	3200	7.3
Styrene	RL	RL	RL	RL	RL	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	660	RL
4-Ethyltoluene	RL	RL	RL	RL	360	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	700	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

1409

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/15/01 P.M.

RST: Alex B  
John R  
Rob T

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl	HF	COCl <sub>2</sub>
N	1218	ND	ND	ND	21.2	4	ND	ND	ND	ND	<1	ND	<0.05
M	1227	ND	ND	ND	21.7	8	ND	ND	ND	ND	<1	ND	<0.05
L	1233	ND	ND	ND	21.2	8	ND	ND	ND	ND	<1	ND	<0.05
J	1245	ND	ND	ND	21.3	3	ND	ND	ND	ND	<1	ND	<0.05
F	1255	ND	ND	ND	21.2	6	ND	ND	ND	ND	<1	ND	<0.05
A	1303	ND	ND	ND	21.2	6	ND	ND	ND	ND	<1	ND	<0.05
B	1308	0.1	ND	ND	21.3	7	ND	ND	ND	ND	<1	ND	<0.05
C	1311	ND	ND	ND	21.3	6	ND	ND	ND	ND	<1	ND	<0.05
H	1326	ND	ND	ND	21.3	5	ND	ND	ND	ND	<1	ND	<0.05
I	1336	ND	ND	ND	21.2	6	ND	ND	ND	ND	<1	ND	<0.05
D	1347	ND	ND	ND	21.3	4	ND	ND	ND	ND	<1	ND	<0.05
K	1353	ND	ND	ND	21.3	4	ND	ND	ND	ND	<1	ND	<0.05
T	1400	ND	ND	ND	21.4	6	ND	ND	ND	ND	<1	ND	<0.05
U	1403	ND	ND	ND	21.3	7	ND	ND	ND	ND	<1	ND	<0.05
V	1408	ND	ND	ND	21.3	3	ND	ND	ND	ND	<1	ND	<0.05
S	1416	ND	ND	ND	21.3	6	ND	ND	ND	ND	<1	ND	<0.05
P	1426	ND	ND	ND	21.3	8	ND	ND	ND	ND	<1	ND	<0.05
E	1430	ND	ND	ND	21.3	4	ND	ND	ND	ND	<1	ND	<0.05
Q	1437	ND	ND	ND	21.3	9	ND	ND	ND	ND	<1	ND	<0.05

**Air Monitoring Locations**

A: Barclay and Broadway  
B: Church and Dey  
C1: Liberty and Broadway  
D: Greenwich and Albany  
E: Liberty and South End  
F: West and Vesey  
G: No Monitoring At This Location

H: Chase Plaza (Pine Street between Nassau and Williams)  
I: Wall Street and Broadway  
J: West and Warren  
K: West and Albany  
L: High School  
M: B-10 Wash Station on West Street  
N: Pier 25

O: No Location Established  
P: Albany and South End  
Q: West and Murray  
R: No Monitoring At This Location  
S: Reacor and South End  
T: Pier 6 (Light Pole)  
U: Pier 6 (Helipad)  
V: Pier 6 (Bus Sign)

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Wednesday, November 21, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 21, 2001 at 2:30 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 123 samples taken in and around ground zero from November 16 through 19. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on October 17, 18 and 22 and November 14 and 15, for a total of 137 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,408, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Staten Island Landfill:**

**Air (Asbestos)** - Sixteen samples were collected on November 18. All but one of these samples were below the school re-entry standard. One sample, taken at the Mess "Tent" Location #15, was above the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on November 19 at the Staten Island Landfill. There were no significant readings.

**Particulate Monitoring** - EPA used portable monitors to collect samples from November 15 through November 19 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). Particulate levels at all locations were below the OSHA time-weighted permissible exposure limit.

**Dioxin** - Ten samples were collected on October 26 and analyzed for dioxin/furans. Two of the samples (Location B - Church & Dey and Location 3A - between World Trade Center buildings 4 & 5) showed results above the level at which EPA would take some type of action to reduce people's exposure. This action guideline is based on a 30-year exposure. However, none of the samples were above the EPA action guideline adjusted to a one-year exposure. These levels do not pose a short-term health affect but should be monitored if they persist for a long period of time.



**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on November 18 and 19 at Pace University, Borough of Manhattan Community College, and the Coast Guard building in Battery Park. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**Silicates** - Thirty samples were collected on October 30 and November 6 and 8 (ten samples collected on each day) and analyzed for silicates. Silicates were not detected in any samples collected on Oct. 30 and Nov. 6. Samples collected on Nov. 8 were non-detect or were detected at levels below the NIOSH Recommended Exposure Limit (REL) time-weighted average of 0.05 mg/m<sup>3</sup>.

**Metals** - Ten samples were collected on November 2. Analysis for all metals were either non-detect or below applicable standards, guidelines and permissible levels established by EPA and OSHA. Final analysis of these samples for chromium showed that chromium is not present.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Wednesday, November 21, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Nov 16, 1200 - 2359 hrs)

All 20 samples analyzed were below the TEM AHERA standard.

NYC / ER (Nov 17, 0001 - 1200 hrs)

All 19 samples analyzed were below the TEM AHERA standard.  
1 sample (Location E) was not submitted for analysis due to a pump fault.

NYC / ER (Nov 17, 1200 - 2359 hrs)

All 21 samples analyzed were below the TEM AHERA standard.  
A new sampling location was established (Location W) at the Wash Tent common area.

NYC / ER (Nov 18, 0001 - 1200 hrs)

All 21 samples analyzed were below the TEM AHERA standard.

NYC / ER (Nov 18, 1200 - 2359 hrs)

All 21 samples analyzed were below the TEM AHERA standard.

NYC / ER (Nov 19, 0001 - 1200 hrs)

All 21 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

Fresh Kills (Oct 22, 1900 - Oct 23, 0700) - Asbestos

All 20 samples analyzed were below the TEM AHERA standard.  
Note: Low sample volumes recorded.

Fresh Kills (Nov 18, 0654 - 1945) - Asbestos

1 of 16 samples analyzed was above the TEM AHERA standard.  
Exceedance of the TEM AHERA standard occurred at Mess "Tent" Location #15  
(97.78 S/mm<sup>3</sup>)  
1 sample ("Offsite" #17) was not collected.

Fresh Kills (Nov 19) - Particulate Monitoring (Dataram)

Nothing of significance reported at five stations based on daily average concentrations.

Ambient Air Sampling Locations

## NYC / ER (Oct 26) - Dioxin .

2 of the 10 samples (Locations B and 3A) collected were above the EPA Removal Action guidelines (based on a 30-year exposure).  
 No samples were identified above the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.  
 Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for long-term (chronic exposure).

## NYC / ER (Nov 2) - Metals

Ten samples collected.  
 All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.  
Note: QA/QC review of chromium in air analytical data has revealed that chromium is not present in these samples.

## NYC / ER (Oct 30) - Silicates

All 10 samples did not detect any silicates.

## NYC / ER (Nov 6) - Silicates

All 10 samples did not detect any silicates.

## NYC / ER (Nov 8) - Silicates

All 10 samples either did not detect any silicates or were below the NIOSH REL TWA of 0.05 mg/m<sup>3</sup>.

NYC / ER (Nov 18) - Particulate Monitoring (PM<sub>2.5</sub>)

Pace University (Site 1) - 24-hr average concentration for this period was *17.87 ug/m<sup>3</sup>*.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *15.12 ug/m<sup>3</sup>*.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *14.80 ug/m<sup>3</sup>*.  
 All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Nov 19) - Particulate Monitoring (PM<sub>2.5</sub>)

Pace University (Site 1) - 24-hr average concentration for this period was *16.66 ug/m<sup>3</sup>*.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *17.31 ug/m<sup>3</sup>*.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *13.60 ug/m<sup>3</sup>*.  
 All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

## NYC / ER (Oct 17) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Pace University (Site 1)
- Manhattan Boro Community College (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 8 samples were collected from these monitoring sites.  
All of the samples were below the TEM AHERA standard.  
Data not attached.

## NYC / ER (Oct 18) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Pace University (Site 1)
- Manhattan Boro Community College (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 8 samples were collected from these monitoring sites.  
All of the samples were below the TEM AHERA standard.  
Data not attached.

## NYC / ER (Oct 22) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Pace University (Site 1)
- Manhattan Boro Community College (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 7 samples were collected from these monitoring sites.  
All of the samples were below the TEM AHERA standard.  
Sample not submitted for Site 8.  
Data not attached.

NYC / ER (Nov 14-15) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Pace University (Site 1)
- Manhattan Boro Community College (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St, Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 16 samples were collected from these monitoring sites. All of the samples were below the TEM AHERA standard.

NYC Emergency Response  
Air Samples - dioxin and furan results  
Sampling Date 10/28/01

Sample No.	Sampling Location	11551 R - TAGA 7380		11552 R - TAGA 7425		11553 A-Barclay & West Broadway 7380		11554 B-Church & Day St. 7380		11555 Loc 3A Between WTC 4 & WTC 5 7200		
		Result ng	EMPC ng	MDL ng	Result ng/m³	EMPC ng/m³	MDL ng/m³	Result ng/m³	EMPC ng/m³	MDL ng/m³	Result ng/m³	EMPC ng/m³
2378-TCDD	Method Blank	U	0.02	0.027	U	0.027	U	0.027	U	0.027	0.014 J	0.028
2378-PeCDF	0	0.024 J	0.027	0.014	U	0.014	U	0.014	U	0.014	0.028 J	0.014
2378-HxCDF		U	0.009	0.013	U	0.013	U	0.013	U	0.013	0.014	0.014
2378-HxCDD		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.0156	0.014
2378-HxCDF		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.0068 J	0.014
2378-HxCDD		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.0044 J	0.014
2378-HxCDF		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.0098 J	0.014
2378-HxCDD		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.0044 J	0.014
2378-HxCDF		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.0098 J	0.014
2378-HxCDD		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.0044 J	0.014
2378-HxCDF		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.0098 J	0.014
2378-HxCDD		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.0044 J	0.014
OCDF		U	0.02	0.027	U	0.027	U	0.027	U	0.027	0.0098 J	0.028
2378-TCDF		U	0.02	0.027	U	0.027	U	0.027	U	0.027	0.0098 J	0.028
2378-PeCDF		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.012 J	0.014
2378-HxCDF		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.028	0.014
2378-HxCDD		U	0.009	0.014	U	0.014	U	0.014	U	0.014	U	0.014
2378-HxCDF		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.014 J	0.014
2378-HxCDD		U	0.009	0.014	U	0.014	U	0.014	U	0.014	U	0.014
2378-HxCDF		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.014 J	0.014
2378-HxCDD		U	0.009	0.014	U	0.014	U	0.014	U	0.014	U	0.014
2378-HxCDF		U	0.009	0.014	U	0.014	U	0.014	U	0.014	0.014 J	0.014
2378-HxCDD		U	0.009	0.014	U	0.014	U	0.014	U	0.014	U	0.014
TEQ TCDFs		U	0.001	0.001	U	0.001	U	0.001	U	0.001	1.03	0.028
Total PeCDFs		U	0.0054	0.0054	U	0.0054	U	0.0054	U	0.0054	0.716	0.014
Total HxCDFs		U	0.0049	0.0049	U	0.0049	U	0.0049	U	0.0049	0.609	0.014
Total HxCDDs		U	0.0135	0.0135	U	0.0135	U	0.0135	U	0.0135	0.191	0.014
Total TCDFs		U	U	U	U	U	U	U	U	U	0.574	0.014
Total PeCDFs		U	U	U	U	U	U	U	U	U	0.313	0.014
Total HxCDFs		U	U	U	U	U	U	U	U	U	0.106	0.014
Total HxCDDs		U	U	U	U	U	U	U	U	U	0.046	0.014
Total TEQs		U	U	U	U	U	U	U	U	U	0.029	0.014
Total HxCDFs		U	U	U	U	U	U	U	U	U	0.029	0.014
Total HxCDDs		U	U	U	U	U	U	U	U	U	0.029	0.014
Total Adjusted Conc.		U	U	U	U	U	U	U	U	U	0.029	0.014
TEQ (ND=6)		0.0046	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046	0.029	0.014
TEQ (ND=12)		0.0083	0.0083	0.0083	0.0083	0.0083	0.0083	0.0083	0.0083	0.0083	0.029	0.014

COCF 0490

EMPC: Estimated Maximum Possible Concentration

TEQ: Toxicity Equivalent

The TEQ (ND=12) is calculated using 1/2 of the estimated detection limit for U (non detect) values.

ERTC 11/19/01 9:59 AM

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/19/01 06:54 to 11/18/01 19:45  
 Data Validation Date: 11/20/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	0.5µ-5µ	5µ	S-f/cc**	
11/18/01	LF00805	P-1	720	Air	<7.0	<0.004	0	0	0	8.89	0.0048
11/18/01	LF00806	P-2	720	Air	<7.0	<0.004	1***	0	0	8.89	0.0048
11/18/01	LF00808	P-3	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/18/01	LF00809	P-4	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/18/01	LF00810	P-5	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/18/01	LF00811	P-6	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/18/01	LF00812	P-7	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
11/18/01	LF00813	P-8	595	Air	<7.0	<0.005	0	0	0	<8.00	<0.0053
11/18/01	LF00814	W-11	720	Air	21.66	0.012	1***	0	0	8.89	0.0048
11/18/01	LF00815	W-12A	720	Air	33.12	0.018	0	0	0	8.89	0.0048
11/18/01	LF00816	W-12B	720	Air	64	0.004	0	0	0	8.89	0.0048
11/18/01	LF00817	B-1	720	Air	<7.0	<0.004	1***	0	0	<8.00	<0.0048
11/18/01	LF00818	B-14	633	Air	<7.0	<0.004	0	0	0	8.89	0.0048
11/18/01	LF00819	I-15	710	Air	25.48	0.014	11***	0	0	97.78	0.0530
11/18/01	LF00820	I-16	710	Air	14.65	0.008	6***	0	0	53.33	0.0289
11/18/01	LF00821	O-17	NC	NC	NC	NC	NC	NC	NC	NC	NC
11/18/01	LF00822	Top Blank	660	Air	<7.0	<0.004	0	0	0	<8.89	<0.0052
11/18/01	LF00823	Lot Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(4)</sup>	NA <sup>(5)</sup>

Key: \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Chipcote (S) is roughly equivalent to fiber (f)  
 \*\*\* Chipcote (S)  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/16/01 1200 to 2359

Data Validation Date: 11/19/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AIER-1)	
					fibers/cm <sup>2</sup>	fibers/cm <sup>3</sup>	Structures (f)	Stems <sup>2</sup>
11/16/01	RST-00751	M	720	Air	<7.0	<0.004	0	<8.89
11/16/01	RST-00752	M1-Duplicate	720	Air	<7.0	<0.004	0	<8.89
11/16/01	RST-00753	N	720	Air	<7.0	<0.004	0	<8.89
11/16/01	RST-00754	J	720	Air	8.92	0.005	0	<8.89
11/16/01	RST-00755	F	696	Air	<7.0	<0.004	0	<8.89
11/16/01	RST-00756	Q	720	Air	<7.0	<0.004	0	<8.89
11/16/01	RST-00757	A	720	Air	7.61	0.004	0	<8.89
11/16/01	RST-00758	B	720	Air	<7.0	<0.004	1**	<8.89
11/16/01	RST-00759	C	720	Air	8.92	0.005	0	<8.89
11/16/01	RST-00760	T	720	Air	<7.0	<0.004	0	<8.89
11/16/01	RST-00762	D	720	Air	10.19	0.005	0	<8.89
11/16/01	RST-00763	K	720	Air	8.92	0.005	1***	8.89
11/16/01	RST-00764	T	720	Air	<7.0	<0.004	1***	8.89
11/16/01	RST-00765	U	720	Air	7.64	0.004	0	<8.89
11/16/01	RST-00767	V	720	Air	<7.0	<0.004	0	<8.89
11/16/01	RST-00768	P	720	Air	<7.0	<0.004	0	<8.89
11/16/01	RST-00769	E	720	Air	<7.0	<0.004	0	<8.89
11/16/01	FB11701	Field Blank	0	Air	<7.0	na	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/16/01	TB11701	Top Blank	0	Air	<7.0	na	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Marinen & West Ship
- K: West St. at Pier 6
- L: On walkway toward North Park rec area (north side of Suyvesant Hgh), access to TAGA bus area

PCM by NIOSH 7400:

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Eastport
- U: Pier 6 Bus Stop
- V: Pier 6 Bus Sign
- Y: Pier 6 Bus Sign

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup>: Not analyzed due to overloading of particulates
- NA<sup>(2)</sup>: Not analyzed for TEM
- NS - Not applicable
- NS - Not submitted
- NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 Stems<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/17/01 00:01 to 1:20  
Data Validation Date: 11/19/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (#)	5µ - 5µ	5µ	S-f/cc**
11/17/01	RST-00770	L	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00771	M1	704	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00772	N	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00773	J	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00774	F	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00775	A	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00776	B	665	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00777	C	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00778	D	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00779	E	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00780	T	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00781	D	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00782	K	719	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00783	T	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00784	U	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00785	V	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00786	V-Duplicate	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00787	S	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00788	S	684	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00789	O	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00790	E	NS	NS	NS	NS	NS	NS	NS	NS
11/17/01	FB11701	Field Blank	0	Air	<7.0	n/a	NA <sup>20</sup>	NA <sup>21</sup>	NA <sup>22</sup>	NA <sup>23</sup>
11/17/01	TB11701	Trip Blank	0	Air	<7.0	n/a	NA <sup>24</sup>	NA <sup>25</sup>	NA <sup>26</sup>	NA <sup>27</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Chromic (S) is roughly equivalent to fiber (f)  
 \*\*\* Chromic (S) is roughly equivalent to fiber (f) particulates  
 NA<sup>(#)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

PCM by NIOSH 7400  
 f/m<sup>3</sup> - f/cc  
 Structures (#)  
 5µ - 5µ  
 5µ

TEM (AHERA)  
 S-f/cc\*\*  
 5µ

Sampling Locations:  
 A: NE corner of West Broadway & Bardoy  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St.  
 H: Church & Duane  
 I: SE corner of Canal St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/16/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
 Standard criteria: EPA 40 CFR Part 763 (AHERA); 0.01 fiber/cc (p.c.f.), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/17/01 1200 to 2359

Data Validation Date: 11/20/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (F)	Structures (F)	S-fiber**	
11/17/01	RST-00789	L	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00790	M1	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00791	N	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00792	O	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00793	F	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00794	F-Duplicate	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00795	Q	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00796	A	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00797	B	720	Air	<7.0	<0.004	1***	0	8.89	0.0048
11/17/01	RST-00798	C	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00799	H	694	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00800	I	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00801	J	716	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00802	K	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00803	L	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00804	U	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00805	V	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00806	S	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00807	P	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00809	E	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/17/01	RST-00809	W	720	Air	<7.0	<0.004	0	1***	8.89	0.0048
11/7801	FB11801	Field Blank	0	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/7801	TB11801	Trip Blank	0	Air	<7.0	n/a	0	0	NA <sup>(1)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Not sampled

Sampling Locations:  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Day St.  
 C: Trinity (a.k.a. Church & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On Broadway, North of Pier 25 area (north side of Bayreath High), access to TACA bus area  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TACA Bus Location  
 S: Rector & South End  
 T: Pier 8 Heliport  
 U: Pier 8 Exit 2  
 V: Pier 8 Bus sign  
 W: West Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Responses  
 Ambient Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/18/01 0001 to 1200  
 Data Validation Date: 11/20/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>2</sup>	f/cc	Structures (#)	S-f/cc**
11/18/01	RST-00810	L	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00811	M1	624	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00812	N	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00813	J	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00814	F	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00815	A	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00816	A	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00817	B	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00818	C	525	Air	<7.0	<0.005	1**	<0.0059
11/18/01	RST-00819	C-Duplicate	680	Air	<7.0	<0.004	0	<0.0045
11/18/01	RST-00820	H	582	Air	<7.0	<0.005	0	<0.0053
11/18/01	RST-00821	I	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00822	D	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00823	K	694	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00824	L	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00825	U	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00826	V	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00827	S	700	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00828	P	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	RST-00829	E	572	Air	<7.0	<0.005	0	<0.0054
11/18/01	RST-00830	W	720	Air	<7.0	<0.004	0	<0.0048
11/18/01	FB111601	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/18/01	TB111601	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>

Key:  
 Sample volumes (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Not sampled

Sampling Locations:  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Liberty St.  
 C: SW corner of Church & Liberty St.  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St.  
 H: Church and Duane St.  
 I: SE corner of Wall St. & Broadway  
 J: SE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area

PCM by NIOSH 7400:  
 M: Western end of Harrison St. at West St.  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

TEM (AHERA):  
 Structures (#)  
 0.5µ - 5µ 5µ  
 S-f/cc\*\*

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/18/01 1200 to 2359

Data Validation Date: 11/20/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fiber**	
					liters <sup>2</sup>	f/cc	Structures (f)	Stmm <sup>2</sup>		
11/18/01	RST-00831	L	720	Air	57.0	0.064	0	0	<-0.82	<-0.0047
11/18/01	RST-00832	M	720	Air	6.02	0.005	0	0	<-0.82	<-0.0047
11/18/01	RST-00833	MI-Delicate	720	Air	10.19	0.005	0	0	<-0.82	<-0.0047
11/18/01	RST-00834	N	720	Air	<7.0	<-0.004	0	0	<-0.82	<-0.0047
11/18/01	RST-00835	J	720	Air	<7.0	<-0.004	0	0	<-0.82	<-0.0047
11/18/01	RST-00836	F	720	Air	50.96	0.027	0	0	<-0.82	<-0.0047
11/18/01	RST-00837	Q	720	Air	39.49	0.021	0	0	<-0.82	<-0.0047
11/18/01	RST-00838	A	720	Air	20.36	0.011	0	0	<-0.82	<-0.0047
11/18/01	RST-00839	B	720	Air	<7.0	<-0.004	0	0	<-0.82	<-0.0047
11/18/01	RST-00840	C	720	Air	31.85	0.017	0	0	<-0.82	<-0.0047
11/18/01	RST-00841	H	720	Air	<7.0	<-0.004	0	0	<-0.82	<-0.0047
11/18/01	RST-00842	I	720	Air	<7.0	<-0.004	0	0	<-0.82	<-0.0047
11/18/01	RST-00843	D	720	Air	<7.0	<-0.004	0	0	<-0.82	<-0.0047
11/18/01	RST-00844	K	720	Air	11.45	0.006	0	0	<-0.82	<-0.0047
11/18/01	RST-00845	T	720	Air	<7.0	<-0.004	0	0	<-0.82	<-0.0047
11/18/01	RST-00846	U	720	Air	14.01	0.007	0	0	<-0.82	<-0.0047
11/18/01	RST-00847	V	720	Air	<7.0	<-0.004	0	0	<-0.82	<-0.0047
11/18/01	RST-00848	S	720	Air	<7.0	<-0.004	0	0	<-0.82	<-0.0047
11/18/01	RST-00849	P	720	Air	<7.0	<-0.004	0	0	<-0.82	<-0.0047
11/18/01	RST-00850	E	720	Air	8.92	0.005	0	0	<-0.82	<-0.0047
11/18/01	RST-00851	W	720	Air	7.84	0.004	0	0	<-0.82	<-0.0047
11/19/01	FB111901	Field Blank	0	Air	<7.0	ns	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(2)</sup>
11/19/01	TB111901	Trip Blank	0	Air	<7.0	ns	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(2)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Doy St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany median strip
- L: On ramp and North Park rec area (north side of Suyvesant Hgh), access to TAGA bus area

PCM by NIOSH 7400

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Recter & South End
- T: Pier 6 Helipad
- V: Pier 6 Bus Stop
- W: Pier 6 Bus Stop
- W: Wash Tent Common Area

TEM (AHERA)

- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- ns - Not applicable
- ns - Not requested
- NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/19/01 0001 to 1200

Data Validation Date: 11/20/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (f)	f/m <sup>2</sup>	f/cc	f/fiber*
11/19/01	RST-00852	L	720	Air	<0.04	<0.04	0	<0.04	<0.04	<0.04
11/19/01	RST-00853	M	720	Air	10.19	0.005	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00854	N	720	Air	<7.0	<0.004	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00855	J	720	Air	<7.0	<0.004	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00856	F	720	Air	36.49	0.021	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00857	Q	720	Air	26.75	0.014	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00858	A	720	Air	21.66	0.012	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00859	B	720	Air	8.92	0.005	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00860	B-Duplicate	720	Air	16.19	0.005	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00861	C	690	Air	22.93	0.013	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00862	H	720	Air	<7.0	<0.004	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00863	I	720	Air	<7.0	<0.004	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00864	D	720	Air	<7.0	<0.004	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00865	K	720	Air	16.56	0.009	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00866	T	720	Air	<7.0	<0.004	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00867	U	720	Air	12.74	0.007	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00868	V	720	Air	<7.0	<0.004	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00869	S	720	Air	<7.0	<0.004	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00870	P	679	Air	7.64	0.004	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00871	E	720	Air	<7.0	<0.004	0	<7.64	<0.0042	<0.0042
11/19/01	RST-00872	E	720	Air	<7.0	0.005	0	<7.64	<0.0042	<0.0042
11/19/01	FB111901	Field Blank	0	Air	<7.0	0.005	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/19/01	TB111901	Tape Blank	0	Air	<7.0	0.005	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

- Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Northern median strip of Vesey & West St.  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: Northern median strip of West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Sayresant Hgh), access to TAGA bus area
- PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 N: South side of Pier 25 (next to volleyball ct)  
 O: NE corner of South End Ave. & Albany  
 P: Barclay & West St. (center island) in proximity to USCG command post  
 Q: TAGA Bus Location  
 R: Rector & South End  
 S: Pier 6 East  
 T: Pier 6 East 2  
 U: Pier 8 Bus Stop  
 V: Pier 8 Bus Stop  
 W: Wash Tent Common Area
- TEM (AHERA):**  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 NA<sup>(3)</sup> - Not applicable  
 NR - Not reported  
 NS - Sample not submitted

NIOSH 7400: Fiber Analysis via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/14/2001 1200 to 2400  
 Data Validation Date: 11/19/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S-f/cc*
11/14/01	7093-15-0047	Manhattan PS #143	1440	Air	<7.0	<0.002	0	<16.00	0	<0.0043
11/14/01	7094-09-0041	Bronx PS #164	1348	Air	<7.0	<0.002	0	<16.00	0	<0.0046
11/14/01	7096-12-0043	Queens PS #199	1062***	Air	<7.0	<0.003	0	<13.33	0	<0.0049
11/14/01	7095-98-0045	Brooklyn PS #274	1310	Air	<7.0	<0.002	0	<16.00	0	<0.0047
11/14/01	7097-18-0041	Staten Is. PS #44	988***	Air	<7.0	<0.003	0	<11.43	0	<0.0045
11/14/01	7093-18-0048	Pace Univ.	1440	Air	<7.0	<0.002	0	<16.00	0	<0.0043
11/14/01	7093-19-0048	BMCC	1440	Air	<7.0	<0.002	0	<16.00	0	<0.0043
11/14/01	7093-20-0048	Coast Guard	1440	Air	<7.0	<0.002	0	<16.00	0	<0.0043

see file

Key:  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis  
 \*\*\*\* Chrysler  
 NR - analysis not requested  
 NS - Sample not submitted for analysis  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/15/2001 1200 to 2400  
 Data Validation Date: 11/19/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S-f/cc*
11/15/01	7093-15-0049	Manhattan PS #143	1256	Air	<7.0	<0.002	0	0	0	<0.0049
11/15/01	7094-09-0042	Bronx PS #184	1280	Air	<7.0	<0.002	0	0	0	<0.0048
11/15/01	7096-12-0044	Queens PS #199	1440	Air	<7.0	<0.002	0	0	0	<0.0043
11/15/01	7095-99-0046	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	0	<0.0043
11/15/01	7097-18-0042	Staten Is. PS #44	1006***	Air	<7.0	<0.002	0	0	0	<0.0044
11/15/01	7093-18-0049	Pace Univ.	1436	Air	<7.0	<0.002	0	0	0	<0.0043
11/15/01	7093-19-0049	BMCC	1418	Air	<7.0	<0.002	0	0	0	<0.0043
11/15/01	7093-20-0049	Coast Guard	1224	Air	<7.0	<0.002	0	0	0	<0.0050

ccc:19a

- Key:**  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis  
 \*\*\*\* Chrysofile  
 NR - analysis not requested  
 NS - Sample not submitted for analysis  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 19, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	48	12:00:00	10	00:15:00	100	0.0	2.7	14.8	297.9
2	-74.198262	40.566883	2295	1	49	12:15:00	10	00:15:00	100	0.0	13.3	49.2	269.8
3	-74.198685	40.570054	2011	1	49	12:15:00	10	00:15:00	100	0.0	16.8	57.2	1436.8
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	49	12:15:00	10	00:15:00	100	0.0	14.6	48.4	179.2
8	-74.203019	40.561915	2363	1	49	12:15:00	10	00:15:00	100	0.0	14.4	56.6	378.2



NYC Emergency Response  
 Silica - Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/09/01 0830 to 1700

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
11/8/01	02875	A	1000	Air	0.02 J	<0.02	<0.02
11/8/01	02876	B	1000	Air	<0.01	<0.02	<0.02
11/8/01	02878	C	1000	Air	<0.01	<0.02	<0.02
11/8/01	02879	D	1000	Air	<0.01	<0.02	<0.02
11/8/01	11242	E	1000	Air	<0.01	<0.02	<0.02
11/8/01	02880	P	1000	Air	<0.01	<0.02	<0.02
11/8/01	11241	S	1000	Air	<0.01	<0.02	<0.02
11/8/01	02873	TAGA	1000	Air	<0.01	<0.02	<0.02
11/8/01	02874	TAGA	1000	Air	<0.01	<0.02	<0.02
11/8/01	02877	Loc 3A Between WTC 4 & 5	1000	Air	<0.01	<0.02	<0.02

conf 04888

Sampling Locations:

- A: NE corner of West Broadway & Barclay
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  - C: Trinity (a.k.a. Church) & Liberty
  - C1: SW corner of Broadway & Liberty St.
  - D: East end of Albany St. at Greenwich St.
  - E: Western end of Liberty St. at South End Ave
  - F: Northern median strip of Vesey & West St
  - G: Church and Duane St.
  - H: South side of Chase Manhattan Plaza at Pine St.
  - I: SE corner of Wall St. & Broadway
  - J: NE corner of Warren & West St.
  - K: West St. & Albany in median strip
  - L: On walkway toward North Park rec area (north side of Sluysevaert High), access to TAGA bus area
  - M: Western end of Harrison St. at West St. (on tree next to bulkhead)
  - N: South side of Pier 25 (next to volleyball court)
  - P: NE corner of South End Ave. & Albany
  - Q: Barclay & West St. (center island) in proximity to USCG command post
  - R: TAGA Bus Location
  - S: Rector & South End
- NS: Not sampled
- ERT 11/15/01 9.50 AM

NIOSH 7500: Silica crystalline by XRD

J denotes that value is in between the level of detection and the level of quantitation

NYC Emergency Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Time: 10/22/01 19:00 to 10/23/01 07:00

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEH (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (P) S/1	S-f/cc*	
10/22-23/2001	03570	P Loc # 1	701	Air	<7.0	<0.004	0	<8.75	<0.0048
10/22-23/2001	03580	P Loc # 2	702	Air	<7.0	<0.004	0	<8.75	<0.0048
10/22-23/2001	03581	P Loc # 3	695	Air	<7.0	<0.004	0	<8.75	<0.0048
10/22-23/2001	03582	P Loc # 4	710	Air	<7.0	<0.004	1**	8.75	0.0047
10/22-23/2001	03583	P Loc # 5	711	Air	<7.0	<0.004	0	<8.75	<0.0047
10/22-23/2001	03584	P Loc # 6	712	Air	<7.0	<0.004	0	<8.75	<0.0047
10/22-23/2001	03585	P Loc # 7	713	Air	<7.0	<0.004	1**	8.75	0.0047
10/22-23/2001	03586	P Loc # 8	715	Air	<7.0	<0.004	0	<8.75	<0.0047
10/22-23/2001	03587	S Loc # 9	720	Air	<7.0	<0.004	0	<8.75	<0.0047
10/22-23/2001	03588	S Loc # 10	416.6	Air	<7.0	<0.004	1**	8.75	0.0047
10/22-23/2001	03589	S Loc # 10 B	720	Air	<7.0	<0.004	0	<8.75	<0.0047
10/22-23/2001	03591	W Loc # 11	720	Air	<7.0	<0.004	0	<8.75	<0.0047
10/22-23/2001	03592	W Loc # 12A	2.6	Air	<7.0	<1.035	0	<8.75	<1.30
10/22-23/2001	03593	W Loc # 12B	119.1	Air	<7.0	<0.023	0	<8.75	<0.0263
10/22-23/2001	03594	W Loc # 12C	757	Air	<7.0	<0.004	0	<8.75	<0.0044
10/22-23/2001	03595	B Loc # 13	702.7	Air	<7.0	<0.004	0	<8.75	<0.0046
10/22-23/2001	03596	B Loc # 14	701	Air	<7.0	<0.004	1**	8.75	0.0045
10/22-23/2001	03597	B Loc # 15	745	Air	<7.0	<0.004	0	<8.75	0.0045
10/22-23/2001	03598	T Loc # 16	618	Air	<7.0	<0.004	1**	8.75	0.0042

09/24/03/04

\*\*Chrysotile, no other type of asbestos fiber detected

NS: Not sampled  
 AF/ANF: Asbestos fibers/Non asbestos fibers  
 Sample volume is below recommended limit of the method:  
 \*Structure (S) roughly equivalent to fiber (f) f/cc  
 W: not analyzed due to sampling of particulates  
 NC: Denotes not calculated due to no sample volume.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

ERT: 1/15/01 9:50 AM

NYC Emergency Response  
 Silica - Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 10/30/01 0830 to 1630

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristofalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
10/30/01	11613	A	1000	Air	<0.01	<0.02	<0.02
10/30/01	11614	B	1000	Air	<0.01	<0.02	<0.02
10/30/01	11616	C	1000	Air	<0.01	<0.02	<0.02
10/30/01	11617	D	1000	Air	<0.01	<0.02	<0.02
10/30/01	11620	E	975	Air	<0.01	<0.02	<0.02
10/30/01	11618	P	1000	Air	<0.01	<0.02	<0.02
10/30/01	11619	S	1000	Air	<0.01	<0.02	<0.02
10/30/01	11611	TAGA	1000	Air	<0.01	<0.02	<0.02
10/30/01	11612	TAGA	1000	Air	<0.01	<0.02	<0.02
10/30/01	11615	Loc 3A Between WTC 4 & 5	1000	Air	<0.01	<0.02	<0.02

excel 04/053

Sampling Locations:

- A: NE corner of West Broadway & Barclay
  - B: SE corner of Church & Dey St.
  - C: Trinity (a.k.a. Church) & Liberty
  - CT: SW corner of Broadway & Liberty St.
  - D: East end of Albany St. at Greenwich St.
  - E: Western end of Liberty St. at South End Ave
  - F: Northern median strip of Vessey & West St
  - G: Church and Duane St.
  - H: South side of Chase Manhattan Plaza at Pine St.
  - I: SE corner of Wall St. & Broadway
  - J: NE corner of Warren & West St.
  - K: West St. & Albany in median strip
  - L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
  - M: Western end of Harrison St. at West St. (on tree next to bulkhead)
  - N: South side of Pier 25 (next to volleyball court)
  - P: NE corner of South End Ave. & Albany
  - Q: Barclay & West St. (center island) in proximity to USCG command post
  - R: TAGA Bus Location
  - S: Rector & South End
- NS: Not sampled
- ERT 11/14/01 9:50 AM

NIOSH 7500: Silica crystalline by XRD

NYC Emergency Response  
 Silica- Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/06/01 0800 to 1600

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
11/6/01	11845	A	1000	Air	<0.01	<0.02	<0.02
11/6/01	11846	B	1000	Air	<0.01	<0.02	<0.02
11/6/01	11848	C	1000	Air	<0.01	<0.02	<0.02
11/6/01	11849	D	1000	Air	<0.01	<0.02	<0.02
11/6/01	11852	E	1000	Air	<0.01	<0.02	<0.02
11/6/01	11850	P	1000	Air	<0.01	<0.02	<0.02
11/6/01	11857	S	1000	Air	<0.01	<0.02	<0.02
11/6/01	11843	TAGA	900	Air	<0.01	<0.02	<0.02
11/6/01	11844	TAGA	980	Air	<0.01	<0.02	<0.02
11/6/01	11847	Loc 3A Between WTC 4 & 5	850	Air	<0.01	<0.02	<0.02

0008 04864

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vessey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

NS: Not sampled

ERT 11/15/01 9.50 AM

NIOSH 7500: Silica crystalline by XRD

Table 1-x (cont.) Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ER site

Client ID	Media Blank #1		Media Blank#2		Media Blank#3		11857		11858		111	
Location	Lab		Lab		Lab		Field Blank		Lab Blank		TA	
Air Volume (L)							0		0		51	
Date Collected							11/02/01		11/02/01		11/0	
Parameter	Analysis Method	Conc. $\mu\text{g}/\text{liter}$	MDL $\mu\text{g}/\text{liter}$	Conc. $\mu\text{g}/\text{liter}$	MDL $\mu\text{g}/\text{liter}$	Conc. $\mu\text{g}/\text{liter}$	MDL $\mu\text{g}/\text{liter}$	Conc. $\mu\text{g}/\text{liter}$	MDL $\mu\text{g}/\text{liter}$	Conc. $\mu\text{g}/\text{liter}$	MDL $\mu\text{g}/\text{liter}$	
Aluminum	ICAP	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	0.72
Antimony	AA-Fur	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Arsenic	AA-Fur	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Barium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	0.027
Beryllium	ICAP	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Cadmium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Calcium	ICAP	4.1	2.5	3.9	2.5	4.1	2.5	U	2.5	U	2.5	2.4
Chromium	ICAP	0.81	0.13	0.8	0.13	0.78	0.13	U	0.13	U	0.13	U
Cobalt	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Copper	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Iron	ICAP	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	1.2
Lead	AA-Fur	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	0.024
Magnesium	ICAP	U	13	U	13	U	13	U	13	U	13	U
Manganese	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	0.027
Nickel	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Potassium	ICAP	U	50	U	50	U	50	U	50	U	50	U
Selenium	AA-Fur	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Silver	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Sodium	ICAP	U	13	U	13	U	13	U	13	U	13	3
Thallium	AA-Fur	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Vanadium	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Zinc	ICAP	0.55	0.25	U	0.25	U	0.25	U	0.25	U	0.25	0.16

11-02-01ammetals

ERTC 11-20-01 9:50 AM

Table 1-x (cont.) Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ER site

Client ID	11648		11649		11650		11651		11652		111	
Location	TAGA		A-BARCLAY + WEST BROADWAY		B-CHURCH + DEY		3A PLAZA BETWEEN WTC 4 + 5		C-LIBERTY + CHURCH		D-GREEK ALB	
Air Volume (L)	5160		4900		4960		4900		4850		48	
Date Collected	11/02/01		11/02/01		11/02/01		11/02/01		11/02/01		11/0	
Parameter	Analysis Method	Conc. $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$	Conc. $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$	Conc. $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$	Conc. $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$	Conc. $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$	
Aluminum	ICAP	0.74	0.24	2.5	0.26	3.8	0.26	7.1	0.26	1.1	0.26	1.7
Antimony	AA-Fur	U	0.0097	0.041	0.01	0.048	0.01	0.095	0.01	U	0.01	0.012
Arsenic	AA-Fur	U	0.0097	0.014	0.01	0.016	0.01	0.028	0.01	U	0.01	U
Barium	ICAP	0.031	0.024	0.083	0.026	0.13	0.026	0.14	0.026	0.054	0.026	0.25
Beryllium	ICAP	U	0.0097	U	0.01	U	0.01	U	0.01	U	0.01	U
Cadmium	ICAP	U	0.024	U	0.026	U	0.026	U	0.026	U	0.026	U
Calcium	ICAP	2.9	0.46	32	0.51	50	0.51	94	0.51	5.3	0.51	14.4
Chromium	ICAP	U	0.024	U	0.026	U	0.026	U	0.026	U	0.026	U
Cobalt	ICAP	U	0.049	U	0.051	U	0.051	U	0.051	U	0.052	U
Copper	ICAP	U	0.049	0.41	0.051	0.70	0.051	1.7	0.051	U	0.052	0.15
Iron	ICAP	1.5	0.12	11	0.13	18	0.13	25	0.13	1.8	0.13	4.3
Lead	AA-Fur	0.028	0.0097	0.13	0.01	0.17	0.01	0.31	0.01	0.024	0.01	0.064
Magnesium	ICAP	U	2.4	U	2.6	3.7	2.6	6.4	2.6	U	2.6	U
Manganese	ICAP	0.033	0.024	0.18	0.026	0.20	0.026	0.45	0.026	0.043	0.026	0.077
Nickel	ICAP	U	0.049	U	0.051	U	0.051	0.064	0.051	U	0.052	U
Potassium	ICAP	U	6.7	U	10	U	10	U	10	U	10	U
Selenium	AA-Fur	U	0.0097	U	0.01	U	0.01	U	0.01	U	0.01	U
Silver	ICAP	U	0.024	U	0.026	U	0.026	U	0.026	U	0.026	U
Sodium	ICAP	3.2	2.4	3.9	2.6	3.4	2.6	3.8	2.6	3.1	2.6	3.6
Thallium	AA-Fur	U	0.0097	U	0.01	U	0.01	U	0.01	U	0.01	U
Vanadium	ICAP	U	0.049	U	0.051	U	0.051	U	0.051	U	0.052	U
Zinc	ICAP	0.2	0.049	1.3	0.051	1.5	0.051	2.9	0.051	0.35	0.052	0.33

11-02-01ammetals

ERTC 11-20-01 9:50 AM

Table 1.a (cont.) Results of the Analysis for Metals in Air  
 WA # 0-239 New York (WTC) ER site

Client ID	11654		11655		11656		
Location	P-ALBANY + SOUTH END		S-RECTOR PLACE + SOUTH END		E-LIBERTY + SOUTH END		
Air Volume (L)	4820		4820		4800		
Date Collected	11/02/01		11/02/01		11/02/01		
Parameter	Analysis Method	Conc µg/m <sup>3</sup>	MCL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Aluminum	ICAP	0.66	0.26	1	0.26	1.2	0.26
Arsenic	AA-Flu	U	0.01	U	0.01	U	0.01
Arsenic	AA-Flu	U	0.01	U	0.01	U	0.01
Barium	ICAP	0.035	0.026	0.036	0.026	0.043	0.026
Beryllium	ICAP	U	0.01	U	0.01	U	0.01
Cadmium	ICAP	U	0.006	U	0.006	U	0.006
Calcium	ICAP	5.8	0.52	4.9	0.52	9.2	0.52
Chromium	ICAP	U	0.026	U	0.026	U	0.026
Cobalt	ICAP	U	0.052	U	0.052	U	0.052
Copper	ICAP	0.086	0.052	0.07	0.052	0.13	0.052
Iron	ICAP	1.8	0.13	2.2	0.13	2.2	0.13
Lead	AA-Flu	0.037	0.01	0.026	0.01	0.033	0.01
Magnesium	ICAP	U	2.6	U	2.6	U	2.6
Manganese	ICAP	0.044	0.026	0.042	0.026	0.052	0.026
Nickel	ICAP	U	0.052	U	0.052	U	0.052
Potassium	ICAP	U	10	U	10	U	10
Selenium	AA-Flu	U	0.01	U	0.01	U	0.01
Silver	ICAP	U	0.026	U	0.026	U	0.026
Sodium	ICAP	4	2.6	4	2.6	3.2	2.6
Thallium	AA-Flu	U	0.01	U	0.01	U	0.01
Vanadium	ICAP	U	0.052	U	0.052	U	0.052
Zinc	ICAP	0.21	0.052	0.21	0.052	0.24	0.052

11-02-01a1metals

ERTC 11-20-01 9:50 AM

1433

147  
GA  
50  
201

MDL µg/m <sup>3</sup>
0.24
0.0097
0.0097
0.024
0.0097
0.024
0.48
0.024
0.049
0.049
0.12
0.0097
2.4
0.024
0.049
9.7
0.0097
0.024
2.4
0.0097
0.049
0.049



153  
WV/CN +  
4NY  
50  
201

MDL µg/m <sup>3</sup>
0.28
0.01
0.01
0.026
0.01
0.026
0.52
0.026
0.052
0.052
0.15
0.01
2.6
0.026
0.052
10
0.01
0.026
2.6
0.01
0.052
0.052

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Thursday, November 22, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 19, 1200 - 2359 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location L) was not submitted for analysis.
- NYC / ER (Nov 20, 0001 - 1200 hrs)
  - All 21 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 19, 0653 - 1936) - Asbestos
  - All 17 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Nov 19, 1745 - Nov 20, 0752) - Asbestos
  - All 17 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Nov 20) - Particulate Monitoring (Dataram)
  - Significant decrease in particulate levels reported at five stations based on daily average concentrations.

Ambient Air Sampling Locations

- NYC / ER (Nov 6) - PCBs
  - All 10 samples did not detect any PCBs.
- NYC / ER (Nov 8) - Metals
  - Nine samples collected.
  - All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.
  - **Note:** QA/QC review of chromium in air analytical data has revealed that chromium is not present in these samples.
- NYC / ER (Nov 12) - Silicates
  - All 9 samples did not detect any silicates.
  - A sample was not collected from Location 3A since access to that area was restricted.



- NYC / ER (Nov 16 - 17) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 14 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
  - 1 sample (Site 5) for Nov 16 was not analyzed due to a low volume.

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/19/01 0653 to 1936  
 Data Validation Date: 11/20/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					fmm <sup>2</sup>	ficc	Structures (#)	S/mm <sup>2</sup>	S-ficc**	S/mm <sup>2</sup>	
11/19/01	LF00843	P-1	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89	<0.0048
11/19/01	LF00844	P-2	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89	<0.0048
11/19/01	LF00845	P-3	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89	<0.0048
11/19/01	LF00846	P-4	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89	<0.0048
11/19/01	LF00847	P-5	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89	<0.0048
11/19/01	LF00848	P-6	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89	<0.0048
11/19/01	LF00849	P-7	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89	<0.0048
11/19/01	LF00850	P-8	652	Air	<7.0	<0.006	0	<8.0	<0.0047	<8.0	<0.0047
11/19/01	LF00851	W-11	720	Air	10.83	0.011	5***	17.78	0.0395	17.78	0.0395
11/19/01	LF00852	W-12A	532	Air	14.65	0.011	1***	40	0.0289	40	0.0289
11/19/01	LF00853	W-12B	705	Air	<7.0	<0.004	0	8.89	<0.0048	8.89	<0.0048
11/19/01	LF00854	B-13	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89	<0.0048
11/19/01	LF00855	B-14	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89	<0.0048
11/19/01	LF00856	T-15	690	Air	31.85	0.018	0	<8.89	<0.0050	<8.89	<0.0050
11/19/01	LF00857	T-16	686	Air	19.11	0.011	0	<8.89	<0.0049	<8.89	<0.0049
11/19/01	LF00858	O-17	512	Air	<7.0	<0.005	0	<8.0	<0.0060	<8.0	<0.0060
11/19/01	LF00859	O-18	544	Air	<7.0	<0.005	0	<8.0	<0.0057	<8.0	<0.0057
11/19/01	LF00860	Lot Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/19/01	LF00861	Trip Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA <sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA <sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/19/01 1745 to 11/20/01 0752

Data Validation Date: 11/21/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-f/cc**		
					f/m <sup>3</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>			
11/19/01	LF00862	P-1	717	Air	<7.0	<0.004	0	0	<8.75	<0.0047	
11/19/01	LF00863	P-2	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047	
11/19/01	LF00864	P-3	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047	
11/19/01	LF00865	P-4	681	Air	<7.0	<0.004	0	0	<8.75	<0.0049	
11/19/01	LF00866	P-5	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047	
11/19/01	LF00867	P-6	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047	
11/19/01	LF00868	P-7	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047	
11/19/01	LF00869	P-8	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047	
11/19/01	LF00870	W-11	720	Air	22.29	0.012	3***	1***	0	26.25	0.0140
11/19/01	LF00871	W-12A	720	Air	24.20	0.013	1***	1***	0	17.50	0.0094
11/19/01	LF00872	W-12B	449	Air	<7.0	<0.006	0	0	<7.87	<0.0068	
11/19/01	LF00873	B-13	720	Air	<7.0	<0.004	0	0	<7.87	<0.0042	
11/19/01	LF00874	B-14	720	Air	<7.0	<0.004	1***	0	8.75	0.0047	
11/19/01	LF00875	T-15	720	Air	14.01	0.008	0	0	<8.75	<0.0047	
11/19/01	LF00876	T-16	720	Air	11.46	0.006	0	0	<8.75	<0.0047	
11/19/01	LF00877	O-17	655	Air	<7.0	<0.004	0	0	<7.87	<0.0046	
11/19/01	LF00878	O-18	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047	
11/19/01	LF00879	Lol Blank	0	Air	n/a	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	
11/19/01	LF00880	Trip Blank	0	Air	<7.0	<7.0	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	

- Key:
- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
  - \*\* Structure (S) is roughly equivalent to fiber (f)
  - \*\*\* Chrysotile
  - NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
  - NA<sup>(2)</sup> - Not analyzed for TEM
  - n/a - Not applicable
  - NR - Not requested
  - NS - Sample not submitted
  - R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/19/01 1200 to 2359  
Data Validation Date: 11/21/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Net Submitted	Structures (#) 0.5μ - 5μ	S/mm <sup>2</sup>	S-f/cc**
11/19/01	RST-00873	M1	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/19/01	RST-00874	N	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/19/01	RST-00875	J	720	Air	8.92	0.005	0	0	<8.82	<0.0047
11/19/01	RST-00876	F	720	Air	40.76	0.022	0	0	<8.82	<0.0047
11/19/01	RST-00877	F-Duplicate	720	Air	43.31	0.023	0	0	<8.82	<0.0047
11/19/01	RST-00878	Q	720	Air	28.75	0.014	1***	0	8.82	0.0047
11/19/01	RST-00879	A	720	Air	14.01	0.007	0	0	<8.82	<0.0047
11/19/01	RST-00880	B	720	Air	40.76	0.022	0	0	<8.82	<0.0047
11/19/01	RST-00881	C	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/19/01	RST-00882	H	720	Air	16.56	0.009	0	0	<8.82	<0.0047
11/19/01	RST-00883	I	720	Air	7.64	0.004	0	0	<8.82	<0.0047
11/19/01	RST-00884	D	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/19/01	RST-00885	K	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/19/01	RST-00886	T	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/19/01	RST-00887	U	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/19/01	RST-00888	V	720	Air	7.64	0.004	0	0	<8.82	<0.0047
11/19/01	RST-00889	S	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/19/01	RST-00890	P	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/19/01	RST-00891	E	720	Air	10.19	0.005	0	0	<8.82	<0.0047
11/19/01	RST-00892	W	720	Air	15.29	0.008	0	0	<8.82	<0.0047
11/20/01	FB112001	Field Blank	0	Air	<7.0	n/a	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>
11/20/01	TB112001	Trip Blank	0	Air	<7.0	n/a	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(a)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(b)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

**Sampling Locations:**  
 A: NE corner of West Broadway & Barday  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 N: West St. - 50 yards south of Harrison St. at bulkhead  
 J: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barday & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AHERA):**  
 S-f/cc\*\*

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 703 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/20/01 00:01 to 1:20  
Data Validation Date: 11/21/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400 f/m <sup>3</sup>	TEM (AHERA)			
						Structures (#) 0.5µ-5µ	S/mm <sup>2</sup>	S-fiber**	
11/20/01	RST-00893	L	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/20/01	RST-00894	M	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/20/01	RST-00895	N	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/20/01	RST-00896	J	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/20/01	RST-00897	F	720	Air	11.46	0.006	0	<8.82	<0.0047
11/20/01	RST-00898	O	350	Air	<7.0	<0.006	0	<7.94	<0.0087
11/20/01	RST-00899	A	611	Air	7.64	0.005	0	<7.94	<0.0050
11/20/01	RST-00900	A-Duplicate	576	Air	<7.0	<0.005	0	<7.94	<0.0054
11/20/01	RST-00901	B	567	Air	11.46	0.008	0	<8.82	<0.0047
11/20/01	RST-00902	C	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/20/01	RST-00903	H	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/20/01	RST-00904	I	559	Air	<7.0	<0.005	0	<7.94	<0.0055
11/20/01	RST-00905	D	690	Air	<7.0	<0.004	0	<7.94	<0.0044
11/20/01	RST-00906	K	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/20/01	RST-00907	T	371	Air	<7.0	<0.007	0	<7.94	<0.0082
11/20/01	RST-00908	U	429	Air	<7.0	<0.005	0	<7.94	<0.0071
11/20/01	RST-00909	V	720	Air	11.46	0.006	0	<8.82	<0.0047
11/20/01	RST-00910	S	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/20/01	RST-00911	P	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/20/01	RST-00912	E	720	Air	11.46	0.005	0	<8.82	<0.0047
11/20/01	RST-00913	W	720	Air	11.46	0.005	0	<8.82	<0.0047
11/20/01	FB112001	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/20/01	TB112001	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

**Sampling Locations:**  
A: NE corner of West Broadway & Barclay  
B: SE corner of Church & Dey St.  
C: Trinity (a.k.a. Church) & Liberty  
C1: SW corner of Broadway & Liberty St.  
D: East end of Albany St. at Greenwich St.  
E: Western end of Liberty St. at South End Ave  
F: Northern median strip of Vesey & West St  
G: Church and Duane St.  
H: South side of Chase Manhattan Plaza at Pine St.  
I: SE corner of Wall St. & Broadway  
J: NE corner of Warren & West St.  
K: West St. & Albany in median strip  
L: On walkway toward North Park rec area (north side of Suyvesant High), access to TACA bus area

**PCM by NIOSH 7400**  
M: Western end of Harrison St. at West St.  
MI: (on tree next to bulkhead)  
N: West St. - 50 yards south of Harrison St. at bulkhead  
NI: South side of Pier 25 (next to volleyball ct)  
O: NE corner of South End Ave. & Albany  
P: Barclay & West St. (center island) in proximity to USCG command post  
R: TAGA Bus Location  
S: Rector & South End  
T: Pier 6 Heliport  
U: Pier 6 Exit 2  
V: Pier 6 Bus Sign  
W: Wash Tent Common Area

**TEM (AHERA)**  
NA<sup>(1)</sup>: Not analyzed due to overloading of particulates  
NA<sup>(2)</sup>: Not analyzed for TEM  
n/a - Not applicable  
NR - Not requested  
NS - Sample not submitted

**Key:**  
\* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysothile  
NA<sup>(1)</sup>: Not analyzed due to overloading of particulates  
NA<sup>(2)</sup>: Not analyzed for TEM  
n/a - Not applicable  
NR - Not requested  
NS - Sample not submitted

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/16/2001 1200 to 2400  
 Data Validation Date: 11/20/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
11/16/01	7093-15-0049	Manhattan PS #143	1148***	Air	<7.0	<0.002	0	0	<13.33	<0.0045
11/16/01	7094-09-0043	Bronx PS #154	160****	Air			Not Analyzed			
11/16/01	7096-12-0045	Queens PS #199	1240	Air	<7.0	<0.002	0	0	<13.33	<0.0041
11/16/01	7097-18-0043	Slaten Is. PS #44	1440	Air	<7.0	<0.002	0	0	<13.33	<0.0036
11/16/01	7093-18-0050	Pace Univ.	1196***	Air	<7.0	<0.002	0	0	<13.33	<0.0043
11/16/01	7093-19-0050	BMCC	1252	Air	<7.0	<0.002	0	0	<13.33	<0.0041
11/16/01	7093-20-0050	Coast Guard	1192***	Air	<7.0	<0.002	0	0	<13.33	<0.0043

**Key:**  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis  
 \*\*\*\* Sample was not analyzed at the recommendation of the sampler  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/16/2001 1200 to 2400

Data Validation Date: 11/20/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
11/16/01	7093-15-0049	Manhattan PS #143	1148***	Air	<7.0	<0.002	0	0	<13.33	<0.0045
11/16/01	7094-09-0043	Bronx PS #154	160****	Air			Not Analyzed			
11/16/01	7096-12-0045	Queens PS #199	1240	Air	<7.0	<0.002	0	0	<13.33	<0.0041
11/16/01	7097-18-0043	Staten Is. PS #44	1440	Air	<7.0	<0.002	0	0	<13.33	<0.0036
11/16/01	7093-18-0050	Pace Univ.	1196***	Air	<7.0	<0.002	0	0	<13.33	<0.0043
11/16/01	7093-19-0050	BMCC	1252	Air	<7.0	<0.002	0	0	<13.33	<0.0041
11/16/01	7093-20-0050	Coast Guard	1192***	Air	<7.0	<0.002	0	0	<13.33	<0.0043

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Sample was not analyzed at the recommendation of the sampler
- n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/16/01 1200 to 1345 and 11/17/2001 1200 to 2400  
 Data Validation Date: 11/20/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
11/17/01	7093-15-0050	Manhattan PS #143	1440	Air	<7.0	<0.002	0	0	<15.87	<0.0042
11/17/01	7094-08-0044	Bronx PS #154	1440	Air	<7.0	<0.002	0	0	<15.87	<0.0042
11/17/01	7096-12-0046	Queens PS #199	1304	Air	<7.0	<0.002	0	0	<15.87	<0.0042
11/16/01	7095-98-0047	Brooklyn PS #274	210 ***	Air	<7.0	<0.013	0	0	<7.94	<0.0146
11/17/01	7097-18-0044	Staten Is. PS #44	1356	Air	<7.0	<0.002	0	0	<15.87	<0.0046
11/17/01	7093-18-0051	Pace Univ.	1120***	Air	<7.0	<0.002	0	0	<13.23	<0.0045
11/17/01	7093-19-0051	BMCC	1104***	Air	<7.0	<0.002	0	0	<13.23	<0.0045
11/17/01	7093-20-0051	Coast Guard	1054***	Air	<7.0	<0.003	0	0	<13.23	<0.0048

Key:  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis  
 \*\*\*\* Chrysotile  
 NR - analysis not requested  
 NS - Sample not submitted for analysis  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
November 20, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	30	07:30:00	10	00:15:00	100	0.0	0.5	8.7	142.4
2	-74.198262	40.566883	2295	1	30	07:30:00	10	00:15:00	100	0.0	0.0	4.4	423.3
3	-74.198685	40.570054	2011	1	11	2:45:00	10	00:15:00	100	0.0	0.0	20.7	230.1
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	31	07:45:00	10	00:15:00	100	0.0	0.0	3.5	122.7
8	-74.203019	40.561915	2363	1	31	07:45:00	10	00:15:00	100	0.0	0.0	9.2	261.8

NYC Emergency Response  
 Silica - Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/12/01 0820 to 1730

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
11/12/01	11223	A	1000	Air	<0.01	<0.02	<0.02
11/12/01	11224	B	1000	Air	<0.01	<0.02	<0.02
11/12/01	11225	C	1000	Air	<0.01	<0.02	<0.02
11/12/01	11226	D	1000	Air	<0.01	<0.02	<0.02
11/12/01	11229	E	1000	Air	<0.01	<0.02	<0.02
11/12/01	11227	P	1000	Air	<0.01	<0.02	<0.02
11/12/01	11228	S	1000	Air	<0.01	<0.02	<0.02
11/12/01	11221	TAGA	980	Air	<0.01	<0.02	<0.02
11/12/01	11222	TAGA	1000	Air	<0.01	<0.02	<0.02

cc# 04869

NS: Not sampled

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Liberty St. at South End Ave
- E: Western end of Albany St. at Greenwich St.
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End

ERT 11/21/01 9:50 AM

NIOSH 7500 - Silica crystalline by XRD

J denotes that value is in between the level of detection and the level of quantitation

NAC Emergency Response  
Air Sampling - Monitor Method 800 PCB results  
Sampling Date 11/8/01

NAC Emergency Response  
Air Sampling - Monitor Method 800 PCB results  
Sampling Date 11/8/01

11867			11868			11869			11870			11871			11872		
Sample	Volume (L)	Result	Sample	Volume (L)	Result	Sample	Volume (L)	Result	Sample	Volume (L)	Result	Sample	Volume (L)	Result	Sample	Volume (L)	Result
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39

Sample	Volume (L)	Result	Sample	Volume (L)	Result	Sample	Volume (L)	Result	Sample	Volume (L)	Result	Sample	Volume (L)	Result	Sample	Volume (L)	Result
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
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Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
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Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39
Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39	Sum of PCBs	100	1.39

Sampling Locations:  
 A - NE corner of Church & Liberty  
 B - NE corner of Church & Liberty  
 C - Trinity Park, Church & Liberty  
 D - NE corner of Liberty St. at South 200 Ave  
 E - Western end of Liberty St. at South 200 Ave  
 F - NE corner of Liberty St. at South 200 Ave  
 G - Church and Diane St.  
 H - NE corner of Liberty St. at South 200 Ave  
 I - NE corner of Liberty St. at South 200 Ave  
 J - NE corner of Warren & West St.  
 K - Western end of Ferguson St. at West St. (on the next to ballfield)  
 L - On walkway toward North Park, Inc area (North side of Shiloh and Hwy), access to T&CA Area area  
 M - NE corner of South East Ave. & Abbey  
 N - NE corner of South East Ave. & Abbey  
 O - T&CA Area Location  
 P - T&CA Area Location  
 Q - T&CA Area Location  
 R - T&CA Area Location  
 S - T&CA Area Location  
 U - Results not obtained  
 MCL - Maximum Allowable Concentration level

11/8/01 1:50 AM  
 BRT

Table 1.1 Results of the Analysis for Metals in Air  
 WA # 0-236 New York (WTC) ER site

Client ID Location Air Volume (L) Date Collected	Media Blank #1 Lab	Media Blank#2 Lab	Media Blank#3 Lab	02871 Field Blank 0 11/08/01			
Parameter	Analysis Method	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter
Aluminum	ICAP	U	1.3	U	1.3	U	1.3
Antimony	AA-Fur	U	0.05	U	0.05	U	0.05
Arsenic	AA-Fur	U	0.05	U	0.05	U	0.05
Barium	ICAP	U	0.13	U	0.13	U	0.13
Beryllium	ICAP	U	0.05	U	0.05	U	0.05
Cadmium	ICAP	U	0.13	U	0.13	U	0.13
Calcium	ICAP	U	2.5	U	2.5	U	2.5
Chromium	ICAP	4.5	0.13	3.7	0.13	4.2	0.13
Cobalt	ICAP	0.71	0.25	0.8	0.25	0.61	0.25
Copper	ICAP	U	0.25	U	0.25	U	0.25
Iron	ICAP	U	0.63	U	0.63	U	0.63
Lead	AA-Fur	U	0.05	U	0.05	U	0.05
Magnesium	ICAP	U	13	U	13	U	13
Manganese	ICAP	U	0.13	U	0.13	U	0.13
Nickel	ICAP	U	0.25	U	0.25	U	0.25
Potassium	ICAP	U	50	U	50	U	50
Selenium	AA-Fur	U	0.05	U	0.05	U	0.05
Silver	ICAP	U	0.13	U	0.13	U	0.13
Sodium	ICAP	U	13	U	13	U	13
Thallium	AA-Fur	U	0.05	U	0.05	U	0.05
Vanadium	ICAP	U	0.25	U	0.25	U	0.25
Zinc	ICAP	U	0.25	U	0.25	U	0.25

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration subtracted from all sample results

Table 1.1 (cont.) Results of the Analysis for Metals in Air  
 WA # 0-236 New York (WTC) ER site

Client ID	11922	11924	11925	11926				
Location	TAGA	B-CHURCH & DEY ST. 5220	LOC 3A Plaza BETWEEN WTC 4 + 5	C-LIBERT CHURCH & 4820				
Air Volume (L)	4680	5220	5130	4820				
Date Collected	11/08/01	11/08/01	11/08/01	11/08/01				
Parameter	Analysis Method	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³		
Aluminum	ICAP	0.48	0.27	7	0.24	1.1	0.24	1.2
Antimony	AA-Fur	U	0.011	0.099	0.0096	0.023	0.0097	0.015
Arsenic	AA-Fur	U	0.011	0.015	0.0096	U	0.0097	U
Barium	ICAP	0.044	0.027	0.38	0.024	0.04	0.024	0.098
Beryllium	ICAP	U	0.011	U	0.0096	U	0.0097	U
Cadmium	ICAP	U	0.027	U	0.024	U	0.024	U
Calcium	ICAP	3.2	0.53	81	0.48	13	0.49	12
Chromium	ICAP	0.032	0.027	0.094	0.024	0.028	0.024	U
Cobalt	ICAP	U	0.053	U	0.048	U	0.049	U

Copper	ICAP	0.059	0.053	0.94	0.048	0.17	0.049	0.13
Iron	ICAP	1.4	0.13	27	0.12	2.9	0.12	5.2
Lead	AA-Fur	0.032	0.011	0.27	0.0096	0.047	0.0097	0.065
Magnesium	ICAP	U	2.7	7	2.4	U	2.4	U
Manganese	ICAP	U	0.027	0.5	0.024	0.067	0.024	0.078
Nickel	ICAP	U	0.053	0.063	0.048	U	0.049	U
Potassium	ICAP	U	11	U	9.6	U	9.7	U
Selenium	AA-Fur	U	0.011	U	0.0096	U	0.0097	U
Silver	ICAP	U	0.027	U	0.024	U	0.024	U
Sodium	ICAP	2.8	2.7	3.4	2.4	U	2.4	2.6
Thallium	AA-Fur	U	0.011	U	0.0096	U	0.0097	U
Vanadium	ICAP	U	0.053	U	0.048	U	0.049	U
Zinc	ICAP	0.18	0.053	3.8	0.048	0.67	0.049	0.53

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration subtracted from all sample results

Table 1.1 (cont.) Results of the Analysis for Metals in Air  
 WA # 0-236 New York (WTC) ER site

Client ID	11929	11930
Location	S-RECTOR PLACE & SOUTH END AVE.	E-LIBERTY ST. & SOUTH END AVE.
Air Volume (L)	4900	4920
Date Collected	11/08/01	11/08/01

Parameter	Analysis Method	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Aluminum	ICAP	0.5	0.26		0.25
Antimony	AA-Fur	0.012	0.01		0.01
Arsenic	AA-Fur	U	0.01	U	0.01
Barium	ICAP	0.058	0.026		0.025
Beryllium	ICAP	U	0.01	U	0.01
Cadmium	ICAP	U	0.026	U	0.025
Calcium	ICAP	3.2	0.51		0.51
Chromium	ICAP	U	0.026		0.025
Cobalt	ICAP	U	0.051	U	0.051
Copper	ICAP	U	0.051		0.051
Iron	ICAP	1.6	0.13		0.13
Lead	AA-Fur	0.031	0.01		0.01
Magnesium	ICAP	U	2.6	U	2.5
Manganese	ICAP	0.028	0.026	U	0.025
Nickel	ICAP	U	0.051	U	0.051
Potassium	ICAP	U	10	U	10
Selenium	AA-Fur	U	0.01	U	0.01
Silver	ICAP	U	0.026	U	0.025
Sodium	ICAP	3.7	2.6	U	2.5
Thallium	AA-Fur	U	0.01	U	0.01
Vanadium	ICAP	U	0.051	U	0.051
Zinc	ICAP	0.32	0.051	U	0.051

MDL denotes Method Detection Limit

U denotes less than the MDL (not detected)

Average Media Blank concentration subtracted from all sample results

02872 11921  
 Lot Blank TAGA  
 0 5200  
 11/08/01 11/08/01

MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
1.3	U	1.3	0.48	0.24
0.05	U	0.05	0.0098	0.0096
0.05	U	0.05	U	0.0096
0.13	U	0.13	0.045	0.024
0.05	U	0.05	U	0.0096
0.13	U	0.13	U	0.024
2.5	U	2.5	3.1	0.48
0.13	0.22	0.13	0.075	0.024
0.25	U	0.25	U	0.048
0.25	0.42	0.25	0.056	0.048
0.63	U	0.63	1.3	0.12
0.05	U	0.05	0.03	0.0096
13	U	13	U	2.4
0.13	U	0.13	0.024	0.024
0.25	U	0.25	U	0.048
50	U	50	U	9.6
0.05	U	0.05	U	0.0096
0.13	U	0.13	U	0.024
13	U	13	2.8	2.4
0.05	U	0.05	U	0.0096
0.25	U	0.25	U	0.048
0.25	U	0.25	0.16	0.048



Y ST. & ST.	11927 D-GREENWICH & ALBANY ST. 5280 11/08/01	11928 P-ALBANY ST. & SOUTH END AVE. 4850 11/08/01	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³
0.26	1	0.24	0.26	0.33	0.26		
0.01	0.012	0.0095	0.01	U	0.01		
0.01	U	0.0095	0.01	U	0.01		
0.026	0.064	0.024	0.026	0.035	0.026		
0.01	U	0.0095	0.01	U	0.01		
0.026	U	0.024	0.026	U	0.026		
0.52	8.7	0.47	0.52	2.3	0.52		
0.026	0.059	0.024	0.026	U	0.026		
0.052	U	0.047	0.052	U	0.052		

0.052	0.14	0.047	U	0.052
0.13	3.2	0.12		0.13
0.01	0.055	0.0095		0.01
2.6	U	2.4		2.6
0.026	U	0.024		0.026
0.052	U	0.047		0.052
10	U	9.5		10
0.01	U	0.0095		0.01
0.026	U	0.024		0.026
2.6	U	2.4		2.6
0.01	U	0.0095		0.01
0.052	U	0.047		0.052
0.052	0.49	0.047	U	0.052
			U	0.24
				0.052

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Friday, November 23, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 23, 2001 at 2:30 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 41 samples taken in and around ground zero on November 19 and 20. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on November 16 and 17, for a total of 47 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,455, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected on November 16 and 17 from these locations showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Twenty-four samples were collected on November 19. All of these samples were below the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on November 20 at the Staten Island Landfill. There were significant decreases in the readings.

**Dioxin** - Ten samples were collected on October 26 and analyzed for dioxin/furans. Two of the samples (Location B - Church & Dey and Location 3A - between World Trade Center buildings 4 & 5) showed results above the level at which EPA would take some type of action to reduce people's exposure. This action guideline is based on a 30-year exposure. However, none of the samples were above the EPA action guideline adjusted to a one-year exposure. These levels do not pose a short-term health affect but should be monitored if they persist for a long

period of time.

**PCBs** - Ten samples were collected on November 6 and analyzed for PCBs. PCBs were not detected in any of the samples.

**Silicates** - Nine samples were collected on November 12 and analyzed for silicates. Silicates were not detected in any of the samples.

**Metals** - Nine samples were collected on November 8. Analysis for all metals were either non-detect or below applicable standards, guidelines and permissible levels established by EPA and OSHA. Final analysis of these samples for chromium showed that chromium is not present.

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Monday, November 26, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 26, 2001 at 6:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 41 samples taken in and around ground zero on November 20 and 21. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on November 19 for a total of 44 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,499, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected on November 19 from these locations showed no exceedances of the AHERA re-entry standard.

**Air: Fixed Monitors in New Jersey:**

Asbestos - Four air samples were taken in New Jersey on November 19. All samples showed results less than school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 199, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Seventy-two samples were collected from November 20 to November 23. All but two of these samples were below the school re-entry standard. Two samples collected on November 20 at Wash Station Locations W-11 and W-12A were above the standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on November 21 and 24 at the Staten Island Landfill. There were significant decreases in the readings.

**Particulate Monitoring** - EPA used portable monitors to collect samples from November 20 through November 25 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). (Note: no data collected on Nov. 24 due to rain.) Particulate levels at all locations were below the OSHA time-weighted permissible exposure limit.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on November 20 and 25 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene in one sample from the North Tower (taken on Nov. 20) debris piles in the plume exceeded the OSHA PEL of 1 part per million (ppm). Two of three other samples analyzed from the same day taken at West and Murray and Austin Tobin Plaza were non-detect for benzene. No samples collected on Nov. 25 exceeded the OSHA standard for benzene.

**Direct Air Readings** - Direct readings taken on November 20 through November 25 in and around ground zero generally showed no levels of significance with the exception of the following four readings: one reading from Nov. 22 was above the National Ambient Air Quality Standard for carbon monoxide (8 hr. average) of 9 ppm and three readings from Nov. 23 were above the same carbon monoxide standard. (Note: no data was collected on Nov. 24 due to rain.)

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))**  
**Sampling Situation Report**  
**Monday, November 26, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 20, 1200 - 2359 hrs)
  - All 21 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 21, 0001 - 1200 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location B) was not submitted for analysis due to no sample volume.
- NJ / ER (Nov 19)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 20, 0705 - 2015) - Asbestos
  - 2 of 16 samples analyzed were above the TEM AHERA standard.
  - Exceedance of the TEM AHERA standard occurred at Wash Station Locations W-11 and W-12A.
  - 1 sample ("Offsite" #17) was not collected.
- Fresh Kills (Nov 20, 1555 - Nov 21, 0818) - Asbestos
  - All 17 samples analyzed were below the TEM AHERA standard.
  - 1 sample ("Offsite" #17) was not collected.
- Fresh Kills (Nov 21, 0728 - 2006) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Nov 21, 1750 - Nov 22, 0836) - Asbestos
  - All 10 samples analyzed were below the TEM AHERA standard.
  - Samples P-3, P-4, P-5, P-6, W-11, B-13, B-14 and O-19 were not collected due to pump and battery failures.
- Fresh Kills (Nov 22, 0700 - 1900) - Asbestos
  - All 10 samples analyzed were below the TEM AHERA standard.
  - Samples P-3, P-4, P-5, P-6, W-11, B-13, B-14 and O-19 were not collected due to pump and battery failures.
- Fresh Kills (Nov 22, 1900 - Nov 23, 0700) - Asbestos

- All 8 samples analyzed were below the TEM AHERA standard.
- Samples P-2, P-3, P-4, P-5, P-6, W-11, B-13, B-14 and O-19 were not collected due to pump and battery failures.
- Sample O-18 was rejected due to no sample volume.
- Fresh Kills (Nov 21) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations based on daily average concentrations.
- Fresh Kills (Nov 22) - Particulate Monitoring (Dataram)
  - No data collected due to holiday.
- Fresh Kills (Nov 23) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at four stations based on daily average concentrations.
- Fresh Kills (Nov 24) - Particulate Monitoring (Dataram)
  - No data collected.

#### Ambient Air Sampling Locations

- NYC / ER (Nov 19) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
- NYC / ER (Nov 20) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 4.0 hours, due to rain.
  - Station L values ranged from 0.0 to 78.2 ug/m<sup>3</sup> with an average of 5.2 ug/m<sup>3</sup>.
  - Station N values ranged from 0.0 to 88.4 ug/m<sup>3</sup> with an average of 5.4 ug/m<sup>3</sup>.
  - Station R values ranged from 0.0 to 87.8 ug/m<sup>3</sup> with an average of 2.6 ug/m<sup>3</sup>.
- NYC / ER (Nov 21) - Particulate Monitoring (Dataram)



- Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
- Instruments operated approximately 8.5 hours
- Station L values ranged from 3.4 to 142.2  $\mu\text{g}/\text{m}^3$  with an average of 21.7  $\mu\text{g}/\text{m}^3$ .
- Station N values ranged from 4.1 to 152.0  $\mu\text{g}/\text{m}^3$  with an average of 17.3  $\mu\text{g}/\text{m}^3$ .
- Station R values ranged from 3.5 to 624.5  $\mu\text{g}/\text{m}^3$  with an average of 17.5  $\mu\text{g}/\text{m}^3$ .
- NYC / ER (Nov 22) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 7.5 hours
  - Station L values ranged from 17.0 to 152.5  $\mu\text{g}/\text{m}^3$  with an average of 32.1  $\mu\text{g}/\text{m}^3$ .
  - Station N values ranged from 0.3 to 73.2  $\mu\text{g}/\text{m}^3$  with an average of 24.2  $\mu\text{g}/\text{m}^3$ .
  - Station R values ranged from 15.2 to 100.6  $\mu\text{g}/\text{m}^3$  with an average of 27.1  $\mu\text{g}/\text{m}^3$ .
- NYC / ER (Nov 23) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 6.5 hours
  - Station L values ranged from 0.4 to 197.9  $\mu\text{g}/\text{m}^3$  with an average of 59.8  $\mu\text{g}/\text{m}^3$ .
  - Station N values ranged from 1.9 to 259.7  $\mu\text{g}/\text{m}^3$  with an average of 47.7  $\mu\text{g}/\text{m}^3$ .
  - Station R values ranged from 18.2 to 1190.0  $\mu\text{g}/\text{m}^3$  with an average of 50.8  $\mu\text{g}/\text{m}^3$ .
- NYC / ER (Nov 24) - Particulate Monitoring (Dataram)
  - No data collection due to rain.
- NYC / ER (Nov 25) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 6.0 hours
  - Station L no data recorded due to error.
  - Station N values ranged from 0.0 to 920.3  $\mu\text{g}/\text{m}^3$  with an average of 18.3  $\mu\text{g}/\text{m}^3$ .
  - Station R values ranged from 7.4 to 101.7  $\mu\text{g}/\text{m}^3$  with an average of 18.3  $\mu\text{g}/\text{m}^3$ .
- NYC / ER (Nov 20) - Volatile Organics (Mobile Laboratory)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) on the debris pile in the plume at ground level.
  - 2 of 3 other samples (Wash Tent and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).
- NYC / ER (Nov 23) - Volatile Organics (Mobile Laboratory)
  - GCMS not operational, no samples analyzed.
- NYC / ER (Nov 24) - Volatile Organics (Mobile Laboratory)
  - GCMS not operational, no samples analyzed.

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- NYC / ER (Nov 25) - Volatile Organics (Mobile Laboratory)
  - Benzene did not exceeded OSHA TWA PEL (1 ppm) at any location.

### Direct Reading Instruments

- NYC / ER (Nov 20)
  - AM reading were not collected due to rain.
  - Nothing of significance reported.
- NYC / ER (Nov 21)
  - Nothing of significance reported.
- NYC / ER (Nov 22)
  - One reading noted (10 ppm at location E) was above the carbon monoxide NAAQS (8 hr. average) of 9 ppm.
- NYC / ER (Nov 23)
  - Three readings noted (12 ppm at location D, 13 at location K and 10 at location T) were above the carbon monoxide NAAQS (8 hr. average) of 9 ppm.
  - PM reading were not collected due to battery failure.
- NYC / ER (Nov 24)
  - No data collection due to rain.
- NYC / ER (Nov 25)
  - Nothing of significance reported.
  - No readings noted above the carbon monoxide NAAQS (8 hr. average) of 9 ppm.

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/20/01 0705 to 11/20/01 2015  
 Data Validation Date: 11/21/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	S-5µ-5µ	S/µm <sup>2</sup>	S-f/cc**
11/20/01	LF00881	P-1	720	Air	15.29	0.008	0	<8.89	<0.0048	
11/20/01	LF00882	P-2	720	Air	<7.0	<0.004	1***	0	8.89	0.0048
11/20/01	LF00883	P-3	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/20/01	LF00884	P-4	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/20/01	LF00885	P-5	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/20/01	LF00886	P-6	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/20/01	LF00887	P-7	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/20/01	LF00888	P-8	627	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/20/01	LF00889	W-11	720	Air	8.92	0.005	8***	0	71.11	0.0380
11/20/01	LF00890	W-12A	720	Air	12.74	0.007	7***	0	71.11	0.0380
11/20/01	LF00891	W-12B	720	Air	10.19	<0.005	0	0	<8.89	<0.0048
11/20/01	LF00892	B-13	690	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/20/01	LF00893	B-14	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/20/01	LF00894	T-15	725	Air	17.83	0.0095	0	0	<8.89	<0.0048
11/20/01	LF00895	T-16	720	Air	17.20	0.009	5***	0	44.44	0.0238
11/20/01	LF00896	O-17	0	Air	NS	NS	NS	NS	NS	NS
11/20/01	LF00897	O-18	538	Air	<7.0	<0.005	0	0	<8.00	<0.0057
11/20/01	LF00898	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/20/01	LF00899	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/µm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/20/01 1955 to 11/21/01 0818  
 Data Validation Date: 11/24/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	f/m <sup>2</sup>	PCM by NIOSH 7400			TEM (AHERA)		
						f/m <sup>2</sup>	f/m <sup>2</sup>	f/m <sup>2</sup>	Structures (f)	f/m <sup>2</sup>	S-f/m <sup>2</sup> **
11/20/01	LF00907	P-1	720	Air	<7.0	<7.0	0.51	0	0	17.50	0.0094
11/20/01	LF00901	P-2	565	Air	<7.0	<0.004	2***	0	0	-8.75	<0.0047
11/20/01	LF00902	P-3	720	Air	<7.0	<0.004	1***	0	0	8.75	0.0047
11/20/01	LF00903	P-4	720	Air	<7.0	<0.004	0	0	0	-8.75	<0.0047
11/20/01	LF00904	P-5	720	Air	<7.0	<0.004	0	0	0	-8.75	<0.0047
11/20/01	LF00905	P-6	720	Air	<7.0	<0.004	0	0	0	-8.75	<0.0047
11/20/01	LF00906	P-7	720	Air	<7.0	<0.004	0	0	0	-8.75	<0.0047
11/20/01	LF00907	P-8	720	Air	<7.0	<0.004	0	0	0	-8.75	<0.0047
11/20/01	LF00908	W-11	720	Air	8.52	0.005	4***	0	0	35.00	0.0187
11/20/01	LF00909	W-12A	720	Air	19.11	0.010	2***	0	0	17.50	0.0094
11/20/01	LF00910	W-12B	720	Air	<7.0	<0.004	0	0	0	-8.75	<0.0047
11/20/01	LF00911	B-13	720	Air	<7.0	<0.004	1***	1***	0	17.50	0.0094
11/20/01	LF00912	B-14	720	Air	<7.0	<0.004	0	0	0	-8.75	<0.0047
11/20/01	LF00913	T-15	717	Air	15.92	0.0085	0	0	0	-8.75	<0.0047
11/20/01	LF00914	T-16	720	Air	22.83	0.012	0	0	0	-8.75	<0.0047
11/20/01	LF00915	O-17	0	Air	NS	NS	NS	NS	NS	NS	NS
11/20/01	LF00916	O-18	551	Air	<7.0	<0.004	0	0	0	-8.75	<0.0061
11/20/01	LF00917	O-19	642	Air	<7.0	<0.004	0	0	0	-8.75	<0.0052
11/20/01	LF00918	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/20/01	LF00919	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume  
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NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/21/01 0728 to 2006  
 Data Validation Date: 11/24/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	S <sub>1</sub> mm <sup>2</sup>	S <sub>1</sub> -f/cc**	S <sub>1</sub> mm <sup>2</sup>
11/21/01	LF00520	P-1	720	Air	7.76	0.004	0	8.89	<0.0048	8.89
11/21/01	LF00521	P-2	720	Air	8.92	<0.004	0	8.89	<0.0048	8.89
11/21/01	LF00522	P-3	720	Air	11.46	0.006	1***	17.76	0.0095	17.76
11/21/01	LF00523	P-4	720	Air	11.46	0.006	2***	17.76	0.0095	17.76
11/21/01	LF00524	P-5	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89
11/21/01	LF00525	P-6	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89
11/21/01	LF00526	P-7	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89
11/21/01	LF00527	P-8	597	Air	<7.0	<0.005	0	<8.00	<0.0052	<8.00
11/21/01	LF00528	W-11	720	Air	7.84	0.004	0	8.89	0.0048	8.89
11/21/01	LF00529	W-12A	698	Air	10.19	0.006	0	<8.89	<0.0049	<8.89
11/21/01	LF00530	W-12B	655	Air	<7.0	<0.004	1***	8	0.0047	8
11/21/01	LF00531	B-13	720	Air	12.74	0.007	0	<8.89	<0.0048	<8.89
11/21/01	LF00532	B-14	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89
11/21/01	LF00533	T-15	670	Air	<7.0	<0.004	0	<8.89	<0.0048	<8.89
11/21/01	LF00534	T-16	671	Air	16.55	0.0095	0	<8.00	<0.0046	<8.00
11/21/01	LF00535	O-17	510	Air	<7.0	<0.005	0	<8.00	<0.0054	<8.00
11/21/01	LF00536	O-18	550	Air	<7.0	<0.005	0	<8.00	<0.0054	<8.00
11/21/01	LF00537	O-19	570	Air	<7.0	<0.005	0	<8.00	<0.0054	<8.00
11/21/01	LF00538	Lot Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/21/01	LF00539	Trp Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
 Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 Slimm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/21/01 1750 to 11/22/01 0836  
 Data Validation Date: 11/24/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	f/cc	Structures (#)	S <sub>u</sub>	S-f/cc**
11/21/01	LF00940	P-1	720	Air	<7.0	<0.004	0	0	-8.75	<0.0047
11/21/01	LF00941	P-2	720	Air	<7.0	<0.004	0	0	-8.75	<0.0047
-	-	P-3	NC	NC	NC	NC	NC	NC	NC	NC
-	-	P-4	NC	NC	NC	NC	NC	NC	NC	NC
-	-	P-5	NC	NC	NC	NC	NC	NC	NC	NC
-	-	P-6	NC	NC	NC	NC	NC	NC	NC	NC
11/21/01	LF00942	P-7	11***	Air	<7.0	<0.245	0	0	-7.87	<0.2756
11/21/01	LF00943	P-8	720	Air	<7.0	<0.004	0	0	-8.75	<0.0047
-	-	W-11	NC	NC	NC	NC	NC	NC	NC	NC
11/21/01	LF00944	W-12A	720	Air	<7.0	<0.004	0	0	-8.75	<0.0047
11/21/01	LF00945	W-12B	720	Air	<7.0	<0.004	0	0	-8.75	<0.0047
-	-	B-13	NC	NC	NC	NC	NC	NC	NC	NC
-	-	B-14	NC	NC	NC	NC	NC	NC	NC	NC
11/21/01	LF00946	T-15	720	Air	17.83	0.010	3***	0	26.25	0.0140
11/21/01	LF00947	T-16	720	Air	26.75	0.014	2***	0	17.5	0.0094
11/21/01	LF00948	O-17	379	Air	<7.0	<0.007	0	0	-7.87	<0.0090
11/21/01	LF00949	O-18	601	Air	<7.0	<0.004	0	0	-7.87	<0.0050
-	-	O-19	NC	NC	NC	NC	NC	NC	NC	NC
11/21/01	LF00950	Lot Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/21/01	LF00975	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

- Key:**
- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
  - \*\* Structure (S) is roughly equivalent to fiber (f)
  - \*\*\* Chrysotile
  - \*\*\*\* Extremely low sample volume collected
  - NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
  - NA<sup>(2)</sup> - Not analyzed for TEM
  - n/a - Not applicable
  - NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/22/01 0700 to 1900

Data Validation Date: 11/24/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/ftc	f/ftc	Structures (#)	S-f/cc**
11/22/01	LF00952	P-1	720	Air	<7.0	<0.004	0	<8.75
11/22/01	LF00953	P-2	720	MS	<7.0	<0.004	0	<8.75
-	-	P-3	NC	MS	NC	NC	NC	NC
-	-	P-4	NC	MS	NC	NC	NC	NC
-	-	P-5	NC	MS	NC	NC	NC	NC
-	-	P-6	NC	MS	NC	NC	NC	NC
11/22/01	LF00954	P-7	720	Air	<7.0	<0.004	0	<8.75
11/22/01	LF00955	P-8	620	Air	<7.0	<0.004	0	<8.75
-	-	W-11	NC	NC	NC	NC	NC	NC
11/22/01	LF00956	W-12A	720	Air	<7.0	<0.004	1***	7.87
11/22/01	LF00957	W-12B	720	Air	<7.0	<0.004	0	<8.75
-	-	B-13	NC	NC	NC	NC	NC	NC
-	-	B-14	NC	NC	NC	NC	NC	NC
11/22/01	LF00958	T-15	535	Air	15.29	0.011	0	<8.75
11/22/01	LF00959	T-16	720	Air	<7.0	<0.004	0	<8.75
11/22/01	LF00960	O-17	533	Air	<7.0	<0.005	0	<8.75
11/22/01	LF00961	O-18	512	Air	<7.0	<0.005	0	<8.75
-	-	O-19	NC	NC	NC	NC	NC	NC
11/22/01	LF00962	Lot Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>
11/22/01	LF00963	Trip Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftc, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/22/01 1900 to 11/23/01 0700  
 Data Validation Date: 11/24/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures #/0.5µ-5µ	f/µm <sup>2</sup>	f/cc	S-fiber**
11/22/01	LF00964	P-1	598	Air	<7.0	<0.0045	0	<7.87	<0.0051	NC
-	-	P-2	NC	NC	NC	NC	NC	NC	NC	NC
-	-	P-3	NC	NC	NC	NC	NC	NC	NC	NC
-	-	P-4	NC	NC	NC	NC	NC	NC	NC	NC
-	-	P-5	NC	NC	NC	NC	NC	NC	NC	NC
-	-	P-6	NC	NC	NC	NC	NC	NC	NC	NC
11/22/01	LF00965	P-7	720	Air	<7.0	<0.004	0	<8.75	<0.0047	NC
11/22/01	LF00966	P-8	720	Air	<7.0	<0.004	0	<8.75	<0.0047	NC
-	-	W-11	NC	NC	NC	NC	NC	NC	NC	NC
11/22/01	LF00967	W-12A	720	Air	<7.0	<0.004	0	<8.75	<0.0047	NC
11/22/01	LF00968	W-12B	720	Air	<7.0	<0.004	0	<8.75	<0.0047	NC
-	-	B-13	NC	NC	NC	NC	NC	NC	NC	NC
-	-	B-14	NC	NC	NC	NC	NC	NC	NC	NC
11/22/01	LF00969	T-15	641	Air	<7.0	<0.004	0	<8.75	<0.00525	NC
11/22/01	LF00970	T-16	720	Air	<7.0	<0.004	0	<8.75	<0.0047	NC
11/22/01	LF00971	O-17	607	Air	<7.0	<0.004	0	<8.75	<0.0055	NC
11/22/01	LF00972	O-18	0	Air	R	R	R	R	R	R
-	-	O-19	NC	NC	NC	NC	NC	NC	NC	NC
11/22/01	LF00973	Lot Blank	0	Air	n/a	n/a	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/22/01	LF00974	Trip Blank	0	Air	<7.0	<7.0	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 - - - - - Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 R - Sample data rejected due to no sample volume  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/20/01 1200 to 2359  
 Date Validation Date: 11/24/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>2</sup>	f/cc	Structures (f)†	S/fcc**
11/20/01	RST-00914	L	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00915	M1	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00916	N	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00917	J	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00918	F	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00919	C	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00920	Q.Dup.	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00921	A	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00922	B	720	Air	8.82	0.005	0	<8.82
11/20/01	RST-00923	C	720	Air	7.84	0.004	0	<8.82
11/20/01	RST-00924	H	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00925	I	680	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00926	D	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00927	K	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00928	T	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00929	U	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00930	V	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00931	S	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00932	P	720	Air	26.75	0.014	0	<8.82
11/20/01	RST-00933	E	720	Air	<7.0	<0.004	0	<8.82
11/20/01	RST-00934	W	720	Air	<7.0	<0.004	0	<8.82
11/24/01	FB112101	Tap Blank	0	Air	<7.0	n/a	NA <sup>2b</sup>	NA <sup>2c</sup>
11/24/01	FB112101	Field Blank	0	Air	<7.0	n/a	NA <sup>2b</sup>	NA <sup>2c</sup>

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty St.  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany (near Penn Station)  
 L: On sidewalk near North Park (see area for north side of Stuyvesant High), access to TACGA bus area

**Key:**  
 \* Sample volume (filters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 NA<sup>1</sup>: Not analyzed due to overloading of particulates  
 NA<sup>2a</sup>: Not analyzed for TEM  
 NA<sup>2b</sup>: Not applicable  
 NA<sup>2c</sup>: Not required  
 NS: Not sampled

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (Center Island) in proximity to USCG command post

**TEM (AHERA):**  
 R: TACGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Wharf  
 U: Pier 6 Bus Stop  
 V: Pier 6 Bus Stop  
 W: Wash Tent Common Area

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/21/01 0001 to 1200  
 Data Validation Date: 11/24/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)					
					f/mmt <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc**	
11/21/01	RST-00935	L	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00936	M	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00937	N	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00938	J	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00939	F	667	Air	<7.0	<0.004	0	0	0	0	<7.94	<0.0046
11/21/01	RST-00940	Q	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00941	A	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00942	B	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11/21/01	RST-00943	C	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00944	I	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00945	D	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00946	K	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00947	T	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00948	U	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00949	V	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00950	S	720	Air	16.56	0.009	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00951	P	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00952	E	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	RST-00953	E-Dup	665	Air	<7.0	<0.004	0	0	0	0	<7.94	<0.0046
11/21/01	RST-00954	W	720	Air	<7.0	<0.004	0	0	0	0	<8.82	<0.0047
11/21/01	TB112101	Tripl Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/21/01	FB112101	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St  
 H: Church and Duane St.  
 I: South side of Chesle Manhattan Plaza at Pine St  
 J: NE corner of Wall St. & Broadway  
 K: East St. & Albany in median strip  
 L: On Walkway (near North Platte) area (north side of Stuyvesant High), access to TAGA bus area

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume

**PCM by NIOSH 7400**  
 f/mmt<sup>2</sup>  
 f/cc

**TEM (AHERA)**  
 Structures (#)  
 0.5µ - 5µ  
 5µ  
 S/mm<sup>2</sup>  
 S-f/cc\*\*

**Sampling Locations:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 C: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 T: Pier 6 Hellport  
 U: Pier 6 Exit 2  
 W: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/19/01 1200 to 2400  
 Data Validation Date: 11/24/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
11/19/01	7093-18-0053	Pace Univ.	1104***	Air	<7.0	<0.002	0	0	<13.23	<0.0046
11/19/01	7093-19-0053	BMCC	1116***	Air	<7.0	<0.002	0	0	<13.23	<0.0046
11/19/01	7093-20-0053	Coast Guard	1154***	Air	<7.0	<0.002	0	0	<13.23	<0.0046
11/19/01	7093-15-0052	Manhattan PS #143	1440	Air	<7.0	<0.002	0	0	<15.87	<0.0042
11/19/01	7094-08-0046	Bronx PS #154	1440	Air	<7.0	<0.002	0	0	<15.87	<0.0042
11/19/01	7096-12-0048	Queens PS #199	1440	Air	<7.0	<0.002	0	0	<15.87	<0.0042
11/19/01	7095-98-0049	Brooklyn PS #274	642***	Air	<7.0	<0.004	0	0	<7.94	<0.0048
11/19/01	7097-18-0046	Staten Is. PS #44	1270	Air	<7.0	<0.002	0	0	<15.87	<0.0048

Key: \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Asbestos Air Sampling Results NYC ER/NJ/DEP  
 Sampling Date and Time: 11/19/2001 1043 to 2220  
 Data Validation Date: 11/24/2001

Date Sampled	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)				
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ	S (#)	5µ	S/mm <sup>2</sup>	S-f/cc*
11/19/01	1LIB111901	Liberty Park	608**	Air	<7.0	<0.004	0	0	0	<7.27	<0.0046
11/19/01	2CIT111901	CITGO Terminal	1192**	Air	<7.0	<0.002	0	0	0	<13.33	<0.0043
11/19/01	3FMC111901	FMC Terminal	1102**	Air	<7.0	<0.002	0	0	0	<13.33	<0.0047
11/19/01	4SHL111901	Shell Terminal	1200	Air	<7.0	<0.002	0	0	0	<13.33	<0.0043
11/19/01	5FLD111901	Field Blank	0	Air	<7.0	n/a	NA	NA	NA	NA	NA

**Key:**  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\*\* Chrysotile  
 n/a - Not applicable  
 NA - Not analyzed for TEM

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

**Sampling Location**  
 Liberty Park  
 CITGO Terminal  
 FMC Terminal  
 Shell Terminal

**Sampling Times**  
 11/19/01 1043 - 1547  
 11/19/01 1129 - 2125  
 11/19/01 1203 - 2114  
 11/19/01 1220 - 2220

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 23, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	0	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0
2	-74.198262	40.566883	2295	1	30	7:30:00	10	00:15:00	100	0.0	4.6	37.0	264.6
3	-74.198685	40.570054	2011	1	41	10:15:00	10	00:15:00	100	0.0	12.3	62.9	326.6
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	42	10:30:00	10	00:15:00	100	0.0	7.5	75.7	1127.5
8	-74.203019	40.561915	2363	1	42	10:30:00	10	00:15:00	100	0.0	4.3	67.2	419.0

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 November 24, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
2	-74.198262	40.566883	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
3	-74.198685	40.570054	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
8	-74.203019	40.561915	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

DATE: 4-20-01 (EARLY)

RST: BRENNAN

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (pph)

*NOTE: NO AIR MONITORING WAS CONDUCTED IN THE MORNING DUE TO RAIN*

- Location A: Barklay and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Helipport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

DATE: 11/20/01 late

RST: Rob Tichenor

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1221	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
M	1225	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	0.6*	<0.05
N	1229	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
J	1237	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	<0.05
F	1244	ND	ND	ND	21.0	3	ND	ND	ND	ND	<1	ND	<0.05
D	1246	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
A	1251	ND	ND	ND	21.0	3	ND	ND	ND	ND	<1	ND	<0.05
R	1257	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1	ND	<0.05
C	1302	ND	ND	ND	21.0	5	ND	ND	ND	ND	<1	ND	<0.05
H	1314	ND	ND	ND	21.0	6	ND	ND	ND	ND	<1	ND	<0.05
I	1326	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1	ND	<0.05
D	1328	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	<0.05
K	1332	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1	ND	<0.05
T	1344	ND	ND	ND	21.0	3	ND	ND	ND	ND	<1	ND	<0.05
U	1347	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	<0.05
V	1350	ND	ND	ND	21.0	3	ND	ND	ND	ND	<1	ND	<0.05
S	1400	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	<0.05
P	1404	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	<0.05
E	1408	ND	ND	ND	21.0	3	ND	ND	ND	ND	<1	ND	<0.05

Location A: Barikay and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Liberty and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Stuyvesant High School  
Location M: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location



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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

ATE: 11/21/01 A.M.

RST: R L T

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	0825	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
M1	0828	ND	0.1	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
N	0833	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
J	0840	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
F	0843	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
Q	0846	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
A*	0823	0.8*	ND	ND	21.0	ND	ND	ND	ND	ND	<1	2.1*	<0.05
B	0828	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
L	0832	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
H	0841	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
I	0847	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
D	0858	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
K	1007	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
T	1015	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
U	1020	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
V	1026	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
S	1032	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
P	1042	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
E	1047	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
													R*

\* Several diesel engines & generator engines running in the area (Location A)

Location A: Barkley and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Stuyvesant High School  
Location M1: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/21/01 P.M.

RST: Charles M.

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	1311	0.2	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
M	1314	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
N	1319	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
J	1324	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
<del>F</del>	1330	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
Q	1334	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
A	1356	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
S	1353	ND	0.4	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
C	1348	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
H	1400	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
I	1407	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
D	1418	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
R	1423	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
T	1429	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	<0.05
U	1432	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	X	<0.05
V	1439	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1		<0.05
S	1447	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1		<0.05
P	1451	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1		<0.05
E	1456	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1		<0.05

\* Done in area (STATION #)  
\* Begin using Deager hand pump (STATION #)  
X Battery is out. (Not single ppm meter)

- |                                       |                                   |                                   |
|---------------------------------------|-----------------------------------|-----------------------------------|
| Location A: Barkley and West Broadway | Location J: West and Warren       | Location S: Reactor and South End |
| Location B: Church and Dev            | Location K: Albany and West       | Location T: Pier 6 Heliport       |
| Location C: Liberty and Church        | Location L: Sunnyside High School | Location U: Pier 6 Exit 2         |
| Location D: Albany and Greenwich      | Location M: West and Warren       | Location V: Pier 6 Bus Sign       |
| Location E: Liberty and South End     | Location N: Pier 25 Volleyball    | Location W: No location           |
| Location F: West and Vesey            | Location O: No location           | Location X: No location           |
| Location G: No location               | Location P: Albany and South End  | Location Y: No location           |
| Location H: Chase Plaza               | Location Q: West and Murray       | Location Z: No location           |
| Location I: Wall Street and Broadway  | Location R: No asbestos sampling  |                                   |

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



EARLY

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/22/01

RST: B. Hoffman

Location	Time	FID (u/s)	PID (u/s)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0830	* FID	ND	ND	20.6	1	ND	ND	ND	ND	<1.00	ND	<0.50
M	0838	* FID	ND	ND	20.5	4	ND	ND	ND	ND	<1.00	ND	<0.50
N	0845	* FID	ND	ND	20.6	4	ND	ND	ND	ND	<1.00	ND	<0.50
J	0852	* FID	ND	ND	20.7	4	ND	ND	ND	ND	<1.00	ND	<0.50
Q	0902	* FID	ND	ND	20.5	2	ND	ND	ND	ND	<1.00	ND	<0.50
F	0906	* FID	ND	ND	20.7	5	ND	ND	ND	ND	<1.00	ND	<0.50
A	0914	* FID	ND	ND	20.8	5	ND	ND	ND	ND	<1.00	ND	<0.50
B	0917	* FID	ND	ND	20.8	4	ND	ND	ND	ND	<1.00	ND	<0.50
G	0922	* FID	ND	ND	20.8	2	ND	ND	ND	ND	<1.00	ND	<0.50
I	0929	* FID	ND	ND	20.8	6	ND	ND	ND	ND	<1.00	ND	<0.50
I	0935	* FID	ND	ND	20.8	5	ND	ND	ND	ND	<1.00	ND	<0.50
D	0942	* FID	ND	ND	20.7	3	ND	ND	ND	ND	<1.00	ND	<0.50
K	0947	* FID	ND	ND	20.8	2	ND	ND	ND	ND	<1.00	ND	<0.50
T	0957	* FID	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.50
U	1001	* FID	ND	ND	20.8	5	ND	ND	ND	ND	<1.00	ND	<0.50
V	1005	* FID	ND	ND	20.8	2	ND	ND	ND	ND	<1.00	ND	<0.50
S	1012	* FID	ND	ND	20.9	2	ND	ND	ND	ND	<1.00	ND	<0.50
P	1018	* FID	ND	ND	20.9	7	ND	ND	ND	ND	<1.00	ND	<0.50
E	1021	* FID	ND	ND	21.0	10	ND	ND	ND	ND	<1.00	ND	<0.50

\* readings not taken -- FID failure

- Location A: Barclay and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



LATE

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/22/01

RST: B. Hoffman

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	1244	ND	ND	ND	20.9	7	ND	ND	ND	ND	ND	ND	ND
M1	1251	ND	ND	ND	20.8	6	ND	ND	ND	ND	ND	ND	ND
N	1254	ND	ND	ND	21.0	7	ND	ND	ND	ND	ND	ND	ND
J	1257	ND	ND	ND	21.0	4	ND	ND	ND	ND	ND	ND	ND
Q	1259	ND	ND	ND	21.1	3	ND	ND	ND	ND	ND	ND	ND
F	1301	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	ND
A	1312	ND	ND	ND	21.0	2	ND	ND	ND	ND	ND	ND	ND
B	1316	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	ND
C	1318	ND	ND	ND	21.0	4	ND	ND	ND	ND	ND	ND	ND
H	1325	ND	ND	ND	21.1	3	ND	ND	ND	ND	ND	ND	ND
I	1328	ND	ND	ND	21.1	2	ND	ND	ND	ND	ND	ND	ND
D	1334	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	ND
K	1337	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	ND
T	1342	ND	ND	ND	21.1	7	ND	ND	ND	ND	ND	ND	ND
U	1344	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	ND
V	1347	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	ND
S	1356	ND	ND	ND	21.0	2	ND	ND	ND	ND	ND	ND	ND
P	1359	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	ND
E	1405	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	ND

- Location A: Barkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M1: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EARLY

EPA Contract No. 68-W-00-113

DATE: 11/23/01

RST: R. Hoffman

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	0754	ND	ND	ND	20.7	1	ND	ND	ND	ND	ND	ND	ND
M	0801	ND	ND	ND	20.7	2	ND	ND	ND	ND	ND	ND	ND
N	0811	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	ND
J	0820	ND	ND	ND	20.6	5	ND	ND	ND	ND	ND	ND	ND
F	0825	ND	ND	ND	20.6	2	ND	ND	ND	ND	ND	ND	ND
Q	0835	ND	ND	ND	20.7	1	ND	ND	ND	ND	ND	ND	ND
A	0838	ND	ND	ND	20.7	3	ND	ND	ND	ND	ND	ND	ND
B	0845	ND	ND	ND	20.6	4	ND	ND	ND	ND	ND	ND	ND
C	0850	ND	ND	ND	20.6	3	ND	ND	ND	ND	ND	ND	ND
H	0858	ND	ND	ND	20.6	5	ND	ND	ND	ND	ND	ND	ND
I	0903	ND	ND	ND	20.6	3	ND	ND	ND	ND	ND	ND	ND
D	0913	ND	ND	ND	20.6	12	ND	ND	ND	ND	ND	ND	ND
K	0915	ND	ND	ND	20.6	13	ND	ND	ND	ND	ND	ND	ND
T	0930	ND	ND	ND	20.6	10	ND	ND	ND	ND	ND	ND	ND
U	0939	ND	ND	ND	20.7	5	ND	ND	ND	ND	ND	ND	ND
V	0942	ND	ND	ND	20.6	2	ND	ND	ND	ND	ND	ND	ND
S	0954	ND	ND	ND	20.7	1	ND	ND	ND	ND	*	ND	ND
P	1008	ND	**	**	21.0	**	**	ND	ND	ND	*	ND	ND
E	1012	ND	**	**	21.0	**	**	ND	ND	ND	*	ND	ND

\* Backup disk on SP4 for HCl  
\*\* multiple backup disk

- Location A: Barkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Sayresat High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

LATE

EPA Contract No. 68-W-00-113

DATE: 11/23/01

RST: G. Hoffner

Location	Time	PID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	1207	ND	*	*	21.0	*	*	ND	ND	ND	<1.00	ND	ND
M	1211	ND			21.0			ND	ND	ND	<1.00	ND	ND
N	1214	ND			21.0			ND	ND	ND	<1.00	ND	ND
U	1220	ND			21.0			ND	ND	ND	<1.00	ND	ND
F	1224	ND			21.0			ND	ND	ND	<1.00	ND	ND
Q	1226	ND			21.0			ND	ND	ND	<1.00	ND	ND
A	1231	ND			21.0			ND	ND	ND	<1.00	ND	ND
B	1234	ND			21.0			ND	ND	ND	<1.00	ND	ND
C	1237	ND			21.0			ND	ND	ND	<1.00	ND	ND
H	1248	ND			21.1			ND	ND	ND	<1.00	ND	ND
S	1251	ND			21.0			ND	ND	ND	<1.00	ND	ND
P	1259	ND			21.0			ND	ND	ND	<1.00	ND	ND
K	1301	ND			21.1			ND	ND	ND	<1.00	ND	ND
T	1311	ND			21.0			ND	ND	ND	<1.00	ND	ND
V	1314	ND			21.0			ND	ND	ND	<1.00	ND	ND
Y	1316	ND			21.1			ND	ND	ND	<1.00	ND	ND
G	1320	ND			21.1			ND	ND	ND	<1.00	ND	ND
D	1325	ND			21.1			ND	ND	ND	<1.00	ND	ND
E	1332	ND			21.0			ND	ND	ND	<1.00	ND	ND

\* Analytical battery dead

- Location A: Barkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11-27-01 *Carry*

RST: *Brennan*

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
/													

*NOT COLLECTED DUE TO RAIN*

- Location A: Barklay and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway
- Location J: West and Warren
- Location K: Albany and West
- Location L: Snyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling
- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11-24-01 LATE

RST: Bennett

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
<i>NOT COLLECTED DUE TO RAIN</i>													

*NOT COLLECTED DUE TO RAIN*

- Location A: Barklay and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location



United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

DATE: 11/25/07 4 PM

RST: J. B. C.M.  
E.T.

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COG (ppm)
L	0757	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	ND
M1	0805	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	ND
N	0813	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	ND
J	0821	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	ND
F	0827	ND	ND	ND	21.0	3	ND	ND	ND	ND	<1	ND	ND
Q *	0832	0.3	0.3	ND	21.0	3	ND	ND	ND	ND	<1	ND	ND
A *	0840	0.7	0.8	ND	21.0	2	ND	ND	ND	ND	<1	ND	ND
B °	0844	1.4	0.6	ND	21.0	6	ND	ND	ND	ND	<1	ND	ND
C	0850	ND	0.1	ND	21.0	3	ND	ND	ND	ND	<1	ND	ND
H	0859	ND	ND	ND	21.0	3	ND	ND	ND	ND	<1	ND	ND
I +	0906	ND	0.1	ND	21.0	3	ND	ND	ND	ND	<1	ND	ND
D	0915	0.4	0.4	ND	21.0	5	ND	ND	ND	ND	<1	ND	ND
K	0920	ND	0.1	ND	21.0	3	ND	ND	ND	ND	<1	ND	ND
T	0929	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	ND
U °	0934	0.3	0.2	ND	21.0	2	ND	ND	ND	ND	<1	ND	ND
V	0941	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	ND
S	0948	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	ND
P	0955	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	ND
E	1000	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	ND

- \* Trucks idling in area, standby for loading.
- \* Open mobile generator running in area.
- ° Heavy equipment operating in area.
- + Traffic
- Generator

- Location A: Barkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway
- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling
- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

N/A Battery died.

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-115

DATE: 11/25/01 P.M.

RST: J.B. P.M.  
R.T.

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	1207	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	<0.05
M	1216	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	<0.05
N	1222	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	<0.05
J	1227	ND	ND	ND	21.0	2	ND	ND	ND	ND	ND	ND	<0.05
F	1233	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	<0.05
B	1237	ND	ND	ND	21.0	2	ND	ND	ND	ND	ND	ND	<0.05
A	1242	0.7	0.8	ND	21.0	3	ND	ND	ND	ND	ND	ND	<0.05
Z	1247	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	<0.05
C	1251	0.1	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	<0.05
H	1302	ND	ND	ND	21.0	2	ND	ND	ND	ND	ND	ND	<0.05
I	1309	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	<0.05
D	1317	ND	ND	ND	21.0	3	ND	ND	ND	ND	ND	ND	<0.05
K	1322	ND	ND	ND	21.0	2	ND	ND	ND	ND	ND	ND	<0.05
T	1328	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	<0.05
U	1333	ND	0.2	ND	21.0	2	ND	ND	ND	ND	ND	ND	<0.05
V	1337	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	<0.05
S	1345	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	<0.05
P	1350	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	<0.05
E	1354	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	<0.05

\* Open variable.

- Location A: Barkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chast Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Shreveport High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location



NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/25/01

File Name	NYC215	NYC260	NYC261	NYC262	NYC264	NYC265
Sample Location	Instrument Blank	Tedlar Bag Blank	Walking Tent Ambient Air	Airion Tabin Plaza	North Tower Plume	South Tower Plume
Sample Number			A07143	A07145	A07144	A07146
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 ml	250 ml	250 mL	250 ml	250 mL
Reporting Limit (RL)	20	20	20	20	20	20
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Fluorene	RL	RL	RL	RL	50	RL
Fluor. 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotrifluoromethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	25	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	RL	25	RL	RL
Acetone	RL	RL	RL	RL	110	24
Trichloroethene	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloroacetylene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Etanol	RL	RL	RL	RL	26	RL
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrachloroethane	RL	RL	RL	RL	RL	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	260	46
Heptane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	56	RL
trans-1,2-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	33	RL
m-Xylenes	RL	RL	RL	RL	RL	RL
p-Xylene	RL	RL	RL	RL	RL	RL
Styrene	RL	RL	RL	RL	RL	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,3-Trichlorobenzene	RL	RL	RL	RL	RL	RL

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: L. BRENNAN

U.S. EPA: Norrell

Date: 11-20-01

RST Site Project Manager Brennan

Location	L	R	N		
DataRAM ID No.	2648	2646	2643		
Flow Rate (Liters / Minute)	2.0	2.0	2.0		
Start Time	1058	1100	1104		
Stop Time	1444	1439	1446		
Run Time (Minutes)	226	219	222		
Minimum Concentration (ug/m <sup>3</sup> )	0.0	0.0	0.0		
Maximum Concentration (ug/m <sup>3</sup> )	78.2	87.8	88.4		
Average Concentration (TWA) (ug/m <sup>3</sup> )	5.2	2.6	5.4		

Note: Pumps were started late due to early morning rain.

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: Metzger

U.S. EPA: Norrell

Date: 4/21

RST Site Project Manager Brennan

Location	L	R	N		
DataRAM ID No.	2648	2646	2643		
Flow Rate (Liters / Minute)	2	2	2		
Start Time	0659	0658	0703		
Stop Time	1530	1524	1536		
Run Time (Minutes)	512	505	512		
Minimum Concentration (ug/m3)	34	35	41		
Maximum Concentration (ug/m3)	142.2	624.5	152.0		
Average Concentration (TWA) (ug/m3)	21.7	175	17.3		

*(Handwritten signature/initials)*

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: B. Huffman

U.S. EPA: Norrell

Date: 11/22/01

RST Site Project Manager Brennan

Location	L	R	N			
DataRAM ID No.	2643	2647	2648			
Flow Rate (Liters/Minute)	2.0 L/m	2.0 L/m	2.0 L/m			
Start Time	0716	0718	0724			
Stop Time	1433	1435	1428			
Run Time (Minutes)	435	435	423			
Minimum Concentration (ug/m3)	17.0	15.2	0.3			
Maximum Concentration (ug/m3)	152.5	100.6	73.2			
Average Concentration (TWA) (ug/m3)	32.1	27.1	24.2			

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: S. Hoffman

U.S. EPA: Norrell

Date: 11/23/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2048	2047	2043			
Flow Rate (Liters / Minute)	2.0 L/m	2.0 L/m	2.0 L/m			
Start Time	0758	0753	0811			
Stop Time	1425	1421	1412			
Run Time (Minutes)	392	388	361			
Minimum Concentration (ug/m3)	18.2 ug/m3	0.4 ug/m3	1.9 ug/m3			
Maximum Concentration (ug/m3)	1190.0 ug/m3	147.4 ug/m3	259.7 ug/m3			
Average Concentration (TWA) (ug/m3)	50.8 ug/m3	59.8 ug/m3	47.7 ug/m3			



United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: A.T., C.H., J.B.

U.S. EPA: Norrell

Date: 11/25/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2647	2648	2643			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	0756	0810	0817			
Stop Time	1412	1413	1417			
Run Time (Minutes)	376	363	359			
Minimum Concentration (ug/m3)	7.4		0.0			
Maximum Concentration (ug/m3)	101.7		420.3			
Average Concentration (TWA) (ug/m3)	18.3		18.3			

→ DATA WAS NOT LOGGED IN ERROR.

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Tuesday, November 27, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 27, 2001 at 4:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 87 samples taken in and around ground zero from November 21 through November 23. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on November 18 for a total of 90 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,589, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected on November 18 from these locations showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Seventy-nine samples were collected on November 18, 23 and 24. All of these samples were below the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on November 26 at the Staten Island Landfill. Nothing of significant readings reported.

**Particulate Monitoring** - EPA used portable monitors to collect samples on November 26 at the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). Particulate levels at all locations were below the OSHA time-weighted permissible exposure limit.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on November 21 and

26 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene in one sample from the North Tower (taken on Nov. 26) debris piles in the plume exceeded the OSHA PEL of 1 part per million (ppm). A sample collected at the South Tower debris pile did not exceed OSHA benzene limit. Two other samples analyzed from the same day taken at West and Murray and Austin Tobin Plaza were non-detect for benzene.

**Direct Air Readings** - No significant readings found on November 26.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))**  
**Sampling Situation Report**  
**Tuesday, November 27, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 21, 1200 - 2359 hrs)
  - All 22 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 22, 0001 - 1200 hrs)
  - All 22 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 22, 1200 - 2359 hrs)
  - All 22 samples analyzed were below the TEM AHERA standard.
- NYC / ER (Nov 23, 0001 - 1200 hrs)
  - All 21 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location F) was not submitted for analysis.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 18, 0818 - 2100) - Asbestos
  - All 15 samples analyzed were below the TEM AHERA standard.
  - 2 samples (W-12B and T-16) were not analyzed for TEM due to overloading.
- Fresh Kills (Nov 23, 0730 - 1926) - Asbestos
  - All 13 samples analyzed were below the TEM AHERA standard.
  - Samples P-6, P-7, P-8, W-12B and O-19 were not collected due to pump and battery failures.
- Fresh Kills (Nov 23, 1730 - Nov 24, 0706) - Asbestos
  - All 17 samples analyzed were below the TEM AHERA standard.
  - 1 sample ("Offsite" #19) was not collected.
- Fresh Kills (Nov 24, 0646 - 1933) - Asbestos
  - All 17 samples analyzed were below the TEM AHERA standard.
  - 1 sample ("Offsite" #19) was not collected.
- Fresh Kills (Nov 24, 1747 - Nov 25, 0704) - Asbestos
  - All 17 samples analyzed were below the TEM AHERA standard.
  - 1 sample ("Offsite" #19) was not collected.

- Fresh Kills (Nov 26) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations based on daily average concentrations.

Ambient Air Sampling Locations

- NYC / ER (Nov 18) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building, Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
- NYC / ER (Nov 26) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 7.5 hours
  - Station L values ranged from 17.0 to 147.9 ug/m<sup>3</sup> with an average of 58.9 ug/m<sup>3</sup>.
  - Station N values ranged from 0.0 to 135.9 ug/m<sup>3</sup> with an average of 42.2 ug/m<sup>3</sup>.
  - Station R values ranged from 70.6 to 253.7 ug/m<sup>3</sup> with an average of 128.8 ug/m<sup>3</sup>.
- NYC / ER (Nov 21) - Volatile Organics (Mobile Laboratory)
  - Benzene did not exceeded OSHA TWA PEL (1 ppm) at any location.
- NYC / ER (Nov 26) - Volatile Organics (Mobile Laboratory)
  - Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) on the debris pile in the plume at ground level.
  - Benzene did not exceeded OSHA TWA PEL (1 ppm) at the South Tower location.
  - 2 other samples (Wash Tent and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

Direct Reading Instruments

- NYC / ER (Nov 26)
  - Nothing of significance reported.

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/21/01 1200 to 2359

Data Validation Date: 11/26/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fiber**
					f/mmm <sup>3</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	
11/21/01	RST-00955	L	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/21/01	RST-00956	M1	720	Air	13.75	0.005	0	<7.94	<0.0047
11/21/01	RST-00957	N	720	Air	13.38	0.007	0	<8.82	<0.0047
11/21/01	RST-00958	O	720	Air	13.38	0.007	0	<8.82	<0.0047
11/21/01	RST-00960	F	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/21/01	RST-00961	A	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/21/01	RST-00962	B	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/21/01	RST-00963	C	720	Air	8.92	0.005	0	<8.82	<0.0047
11/21/01	RST-00964	H	720	Air	8.92	0.005	0	<8.82	<0.0047
11/21/01	RST-00965	I	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/21/01	RST-00966	J	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/21/01	RST-00968	K	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/21/01	RST-00969	T	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/21/01	RST-00970	U	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/21/01	RST-00971	V	720	Air	11.45	0.006	0	<8.82	<0.0047
11/21/01	RST-00972	S	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/21/01	RST-00973	P	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/21/01	RST-00975	W	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/21/01	RST-00976	F-Duplicate	720	Air	<7.0	<0.004	0	<8.82	<0.0047
11/22/01	13112201	Field Blank	0	Air	<7.0	nsg	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>
11/22/01	13112201	Field Blank	0	Air	<7.0	nsg	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NS - Not requested  
 NS - Not sampled

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: NE corner of Broadway & West St.  
 L: On walkway toward North Park rec area north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St.  
 (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post

**TEM (AHERA):**  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 8 heliport  
 U: Pier 8 Bus Stop  
 V: Pier 8 Bus Stop  
 W: Wash Tent Common Area

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Responses  
 Air Quality Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/22/01 0901 to 1200  
 Data Validation Date: 11/26/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (#)	0.5µ-5µ	5µ	S-f/cc**
11/22/01	RST-00977	L	720	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00978	M1	720	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00979	N	720	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00980	J	720	Air	7.0†	0.004	0	0	0	<0.0047
11/22/01	RST-00981	J-Duplicate	717	Air	13.38	0.007	0	0	0	<0.0047
11/22/01	RST-00982	L	720	Air	4.0†	0.005	0	0	0	<0.0047
11/22/01	RST-00983	G	720	Air	10.0†	0.005	0	0	0	<0.0047
11/22/01	RST-00984	A	711	Air	15.92	0.009	0	0	0	<0.0047
11/22/01	RST-00985	B	720	Air	8.92	0.005	0	0	0	<0.0047
11/22/01	RST-00986	C	716	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00987	H	720	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00988	I	720	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00989	D	720	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00990	K	720	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00991	T	720	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00992	U	713	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00993	V	720	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00994	S	720	Air	7.0†	0.004	0	0	0	<0.0047
11/22/01	RST-00995	S-Duplicate	720	Air	11.45	0.006	0	0	0	<0.0047
11/22/01	RST-00996	P	720	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00997	E	720	Air	<7.0	<0.004	0	0	0	<0.0047
11/22/01	RST-00998	W	720	Air	8.92	0.005	0	0	0	<0.0047
11/22/01	TB112201	Trip Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(4)</sup>
11/22/01	FB112201	Field Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(4)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on sampling rate.  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay St.  
 B: SE corner of Church & Day St.  
 C: Church & Day St. (back of building)  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St.  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area  
 M: Western end of Harrison St. at West St.  
 M1: West St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**NIOSH 7400: Filter Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 5/15/94**  
**Ambient Filter Analysis by Transmission Electron Microscopy (TEM), EPA 40 CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/22/01 1200 to 2359 Data Validation Date: 11/26/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-f/cc**
					h/m/m <sup>2</sup>	f/cc	Structures (#)	5/μ	
11/22/01	RST-01001	L	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01002	M	570	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01003	N	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01004	J	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01005	F	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01006	Q	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01007	A	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01008	B	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01009	C	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01010	H	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01011	I	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01012	D	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01013	K-Duplicate	612	Air	<7.0	<0.004	0	0	<7.84
11/22/01	RST-01014	T	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01015	U	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01016	V	655	Air	<7.0	<0.004	0	0	<7.84
11/22/01	RST-01017	S	720	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01018	P	707	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01019	R	678	Air	<7.0	<0.004	0	0	<8.82
11/22/01	RST-01020	W	720	Air	<7.0	<0.004	0	0	<8.82
11/23/01	TBA112301	Trip Blank	0	Air	ns	ns	NA <sup>(3)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/23/01	FBI12301	Field Blank	0	Air	<7.0	<7.0	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (e.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St
- I: NE corner of Wall St. Broadway
- J: NE West St. at Market & West St
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Reader & South End Pier 6 Pier 2
- U: Pier 6 East 2
- V: Pier 6 Bus Stop
- W: Wash Tent Common Area

Key:  
\* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysotile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
na - Not applicable  
ns - Not requested  
NS - Not sampled

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/23/01 0001 to 1200

Data Validation Date: 11/28/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	f/m <sup>3</sup>	PCM by NIOSH 7400		TEM (AHERA)		S-fiber**
						Mic	Structures (#)	Structures (#)	Slm <sup>2</sup>	
11/23/01	RST-01025	M1	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01023	N1	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01024	J	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01025	Q	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01025	F	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01027	B	715	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01029	C	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01029	H	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01030	I	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01031	D	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01032	D-Duplicate	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01033	K	593	Air	<7.0	<0.0045	0	0	<7.48	<0.0052
11/23/01	RST-01034	T	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01035	U	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01037	V-Duplicate	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01038	S	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01039	E	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	RST-01041	W	720	Air	<7.0	<0.004	0	0	<8.82	<0.0047
11/23/01	TS112301	Tim Blank	0	Air	<7.0	ns	NA <sup>(2)</sup>	NA <sup>(2)</sup>	<8.82	NA <sup>(2)</sup>
11/23/01	FB112301	Field Blank	0	Air	<7.0	ns	NA <sup>(2)</sup>	NA <sup>(2)</sup>	<8.82	NA <sup>(2)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Vesey St. at Pier 6
- I: SE corner of West St. & Barclay
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCC command post
- R: TAGA Bus Location
- S: Pier 6 Bulkhead
- T: Pier 6 Bulkhead
- U: Pier 6 Bulkhead
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

Key:  
\* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysothale  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
N/A - Not applicable  
NS - Not submitted  
NS - Sample not submitted due to no sample volume

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 Slm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/23/01 07:30 to 11/23/01 19:26  
 Data Validation Date: 11/24/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume <sup>a</sup>	Matrix	PCM by NIOSH 7400			TEM (AF-ERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	5µ	S/mm <sup>2</sup>	S-f/cc <sup>++</sup>
11/23/01	LF00976	P-1	631	Air	<7.0	<0.004	0	0	<8.00	<0.0049
11/23/01	LF00977	P-2	630	Air	<7.0	<0.004	1**	0	8.00	<0.0049
11/23/01	LF00978	P-3	630	Air	<7.0	<0.004	0	0	<8.00	<0.0049
11/23/01	LF00979	P-4	631	Air	<7.0	<0.004	0	0	<8.00	<0.0049
11/23/01	LF00980	P-5	631	Air	<7.0	<0.004	0	0	<8.00	<0.0049
11/23/01	-	P-6	NC	Air	NC	NC	NC	NC	NC	NC
11/23/01	-	P-7	NC	Air	NC	NC	NC	NC	NC	NC
11/23/01	-	P-8	NC	Air	NC	NC	NC	NC	NC	NC
11/23/01	-	W-12B	NC	Air	NC	NC	NC	NC	NC	NC
11/23/01	LF00981	B-13	631	Air	<7.0	<0.004	0	0	<8.00	<0.0049
11/23/01	LF00982	B-14	630	Air	<7.0	<0.004	0	0	<8.00	<0.0049
11/23/01	LF00983	W-12A	631	Air	4.46	0.007	0	0	48.00	0.0266
11/23/01	LF00984	L-15	634	Air	<7.0	<0.004	6**	0	48.00	0.0266
11/23/01	LF00985	O-17	477	Air	<7.0	<0.005	0	0	<8.00	<0.0065
11/23/01	LF00987	O-18	483	Air	<7.0	<0.005	0	0	<8.00	<0.0065
11/23/01	-	O-19	NC	Air	NC	NC	NC	NC	NC	NC
11/23/01	LF00988	Lot Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/23/01	LF00989	Tip Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/23/01	LF00990	W-11	634	Air	<7.0	<0.004	3***	1***	32.00	0.0194

Key: \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chute

NA<sup>(1)</sup> - Not analyzed due to overloading of particulates

NA<sup>(2)</sup> - Not analyzed for TEM

n/a - Not applicable

NC - Sample not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/23/01 1730 to 11/24/01 0706  
 Data Validation Date: 11/24/2001

Sampling	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-Inst**	
					fibs/cm <sup>3</sup>	fibs/cm <sup>2</sup>	Structures (f)	S-Inst**		
11/23/01	LF00581	P-1	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF00582	P-2	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF00583	P-3	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF00584	P-4	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF00585	P-5	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF00586	P-6	629	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF00587	P-7	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF00588	P-8	539	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF00589	W-11	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF00590	W-12	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF00591	M-1A	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF00592	M-1B	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF01002	B-13	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF01003	B-14	649	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF01004	T-15	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF01005	T-16	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF01006	O-17	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/23/01	LF01007	O-18	500	Air	<7.0	<0.005	0	0	<8.75	<0.0061
11/23/01	LF01008	O-19	NC	NC	NC	NC	NC	NC	NC	NC
11/23/01	LF01009	Lot Blank	0	Air	<7.0	n/a	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>
11/23/01	LF01009	Tip Blank	0	Air	<7.0	n/a	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>

Key:  
 \* Sample volume (fibs) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fibs (f)  
 \*\*\* Chrysotile  
 NA<sup>(a)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(b)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
 Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/24/01 0646 to 1933  
 Data Validation Date: 11/26/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)				
					f/mmm <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc**	
11/24/01	LF01010	P-1	620	Air	<7.0	<0.004	0	0	0	<8.00	<0.0050	
11/24/01	LF01011	P-2	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048	
11/24/01	LF01012	P-3	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048	
11/24/01	LF01013	P-4	660	Air	<7.0	<0.004	0	0	0	<8.00	<0.0045	
11/24/01	LF01014	P-5	675	Air	<7.0	<0.004	0	0	0	<8.00	<0.0045	
11/24/01	LF01015	P-6	681	Air	<7.0	<0.004	0	0	0	<8.00	<0.0045	
11/24/01	LF01016	P-7	681	Air	<7.0	<0.004	0	0	0	<8.00	<0.0045	
11/24/01	LF01017	P-8	682	Air	<7.0	<0.004	0	0	0	<8.00	<0.0045	
11/24/01	LF01018	W-11	862	Air	16.56	0.005	3***	1**	32	0.0181		
11/24/01	LF01019	W-12A	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048	
11/24/01	LF01020	W-12B	685	Air	<7.0	<0.004	0	0	0	<8.00	<0.0045	
11/24/01	LF01021	B-13	674	Air	<7.0	<0.004	0	0	0	<8.00	<0.0048	
11/24/01	LF01022	B-14	672	Air	<7.0	<0.004	0	0	0	<8.00	<0.0048	
11/24/01	LF01023	T-15	678	Air	12.74	0.007	0	0	0	<8.00	<0.0045	
11/24/01	LF01024	O-16	678	Air	8.47	0.005	0	0	0	8	<0.0045	
11/24/01	LF01025	O-17	686	Air	8.08	0.005	0	0	0	8	<0.0045	
11/24/01	LF01026	O-18	535	Air	<7.0	<0.005	0	0	0	<8.00	<0.0045	
11/24/01	NC	O-18	NC	Air	NC	NC	NC	NC	NC	NC	NC	
11/24/01	LF01027	Ltd Blank	0	Air	<7.0	n/a	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	
11/24/01	LF01028	Top Blank	0	Air	<7.0	n/a	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 \*\*\* Extremely low sample volume collected  
 NA<sup>(a)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(b)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM); 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/24/01 1747 to 11/25/01 0704

Data Validation Date: 11/26/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					fmm <sup>2</sup>	f/cc	S/mm <sup>2</sup>	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
11/24/01	LF01031	P-1	710	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/24/01	LF01032	P-2	710	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/24/01	LF01033	P-3	49***	Air	<7.0	<0.005	0	0	<7.87	<0.0047
11/24/01	LF01032	P-4	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/24/01	LF01033	P-5	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/24/01	LF01034	P-6	243	Air	<7.0	<0.011	0	0	<7.87	<0.0125
11/24/01	LF01035	P-7	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/24/01	LF01036	P-8	625	Air	<7.0	<0.004	0	0	<7.87	<0.0049
11/24/01	LF01037	W-11	720	Air	8.92	0.005	0	0	<8.75	<0.0047
11/24/01	LF01038	W-12A	513	Air	<7.0	<0.004	0	0	<7.87	<0.0049
11/24/01	LF01039	W-13	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/24/01	LF01040	B-13	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/24/01	LF01041	B-14	142	Air	<7.0	<0.019	0	0	<7.87	<0.0116
11/24/01	LF01042	T-15	720	Air	26.75	0.014	0	0	<8.75	<0.0047
11/24/01	LF01043	T-16	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/24/01	LF01044	O-17	657	Air	<7.0	<0.004	0	0	<7.87	<0.0046
11/24/01	LF01045	O-18	565	Air	<7.0	<0.005	0	0	<7.87	<0.0054
11/24/01	NC	O-19	NC	Air	NC	NC	NC	NC	NC	NC
11/24/01	LF01046	Lot/Blank	0	Air	<7.0	n/a	0	0	<7.87	n/a
11/24/01	LF01047	Tip/Blank	0	Air	<7.0	n/a	0	0	<7.87	n/a

Key: \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 \*\*\*\* Extremely low sample volume collected  
 NA (1) - Not analyzed due to overloading of particulates  
 NA (2) - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
 Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, 10 S/mm<sup>2</sup>, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/18/01 1200 to 2400  
 Data Validation Date: 11/21/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
11/18/01	7093-15-0051	Manhattan PS #143	1224	Air	<7.0	<0.002	0	<15.87	<0.0050
11/18/01	7094-09-0045	Brooklyn PS #154	472***	Air	<7.0	<0.006	0	<7.94	<0.0065
11/18/01	7096-12-0047	Queens PS #199	1200	Air	11.46	0.004	0	<13.23	<0.0042
11/18/01	7095-98-0048	Brooklyn PS #274	1440	Air	10.19	0.003	0	<15.87	<0.0042
11/18/01	7097-18-0045	Staten Is. PS #44	1440	Air	<7.0	<0.002	0	<15.87	<0.0042
11/18/01	7093-18-0052	Pace Univ.	1166***	Air	11.46	0.004	0	<13.23	<0.0044
11/18/01	7093-19-0052	BMCC	1440	Air	<7.0	<0.002	0	<15.87	<0.0042
11/18/01	7093-20-0052	Coast Guard	1144***	Air	<7.0	<0.002	0	<13.23	<0.0045

Key:  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/19/01 0818 to 2100  
 Data Validation Date: 11/20/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					fiber/m <sup>3</sup>	Structures (f)	Stam <sup>2</sup>	fiber/m <sup>3</sup>	Structures (f)	Stam <sup>2</sup>
11/19/01	LF00826	P-1	695	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/19/01	LF00826	P-2	693	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/19/01	LF00826	P-3	693	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/19/01	LF00827	P-4	695	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/19/01	LF00826	P-5	695	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/19/01	LF00829	P-6	693	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/19/01	LF00831	P-7	692	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/19/01	LF00832	P-8	691	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/19/01	LF00832	W-11	689	Air	20.38	0.011	0	<8.75	<0.0048	<0.0048
11/19/01	LF00833	W-12A	713	Air	27.39	0.015	NA <sup>(1)</sup>	<8.75	<0.0048	<0.0048
11/19/01	LF00834	W-12B	714	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/19/01	LF00835	B-13	694	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/19/01	LF00836	B-14	694	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/19/01	LF00837	T-15	720	Air	7.64	0.004	2**	0	17.5	0.0094
11/19/01	LF00838	T-16	720	Air	14.01	0.007	NA <sup>(1)</sup>	0	17.5	0.0094
11/19/01	LF00839	O-17	720	Air	<7.0	<0.004	0	<8.75	<0.0048	<0.0048
11/19/01	LF00840	O-18	720	Air	<7.0	<0.004	1***	0	3.75	0.0047
11/19/01	LF00841	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/19/01	LF00842	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Not analyzed  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
November 26, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	24	06:00:00	10	00:15:00	100	0.0	0.0	13.5	206.8
2	-74.198262	40.566883	2295	1	24	06:00:00	10	00:15:00	100	0.0	0.0	14.7	196.9
3	-74.198685	40.570054	2011	1	24	06:00:00	10	00:15:00	100	0.0	9.7	23.3	218.5
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	29	07:15:00	10	00:15:00	100	0.0	0.0	20.0	54.9
8	-74.203019	40.561915	2363	1	29	07:15:00	10	00:15:00	100	0.0	0.0	23.3	148.0



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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/26/01 A.M.

RST: T. Skenn

Location	Time	FID (units)	FID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	C <sub>1</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0755	0.9	0.1	ND	21.0	ND	ND	ND	ND	ND	<1	ND	0.05
M1	0809	2.0	0.3	ND	21.0	2	ND	ND	ND	ND	<1	ND	0.05
N	0820	1.5	0.6	ND	21.0	ND	ND	ND	ND	ND	<1	ND	0.05
J	0824	2.0	0.7	ND	21.0	5	ND	ND	ND	ND	<1	ND	0.05
F	0831	1.2	0.1	ND	21.0	5	ND	ND	ND	ND	<1	ND	0.05
G	0837	1.1	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	0.05
A	0843	1.1	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	0.05
B	0849	1.2	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	0.05
C	0855	1.1	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	0.05
H	0907	0.9	ND	ND	21.0	1	ND	ND	ND	ND	<1	ND	0.05
I	0916	0.7	ND	ND	21.0	1	ND	ND	ND	ND	<1	ND	0.05
D	0932	0.9	ND	ND	21.0	ND	ND	ND	ND	ND	<1	ND	0.05
K	0943	1.3	ND	ND	21.0	1	ND	ND	ND	ND	<1	ND	0.05
T	0952	0.9	ND	ND	21.0	1	ND	ND	ND	ND	<1	ND	0.05
U	0959	1.2	ND	ND	21.0	6	ND	ND	ND	ND	<1	ND	0.05
V	1004	1.1	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	0.05
S	1012	1.4	ND	ND	21.0	2	ND	ND	ND	ND	<1	ND	0.05
P	1017	1.4	ND	ND	21.0	3	ND	ND	ND	ND	<1	ND	0.05
E	1023	1.1	ND	ND	21.0	5	ND	ND	ND	ND	<1	ND	0.05

#COCL<sub>2</sub> - DFABE CMS  
#HCL - DRABER

- |                                       |                                    |                                  |
|---------------------------------------|------------------------------------|----------------------------------|
| Location A: Berkley and West Broadway | Location J: West and Warren        | Location S: Rector and South End |
| Location B: Church and Dey            | Location K: Albany and West        | Location T: Pier 6 Heisport      |
| Location C: Liberty and Church        | Location L: Stuyvesant High School | Location U: Pier 6 Exit 2        |
| Location D: Albany and Greenwich      | Location M1: West and Warren       | Location V: Pier 6 Bus Sign      |
| Location E: Liberty and South End     | Location N: Pier 25 Volleyball     | Location W: No location          |
| Location F: West and Vesey            | Location O: No location            | Location X: No location          |
| Location G: No location               | Location P: Albany and South End   | Location Y: No location          |
| Location H: Chase Plaza               | Location Q: West and Murray        | Location Z: No location          |
| Location I: Wall Street and Broadway  | Location R: No asbestos sampling   |                                  |

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/26/01 P.M.

RST: J.B. H.

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1217	1.2	ND	ND	20.1	ND	ND	ND	ND	ND	ND	ND	ND
M1	1221	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND
N	1224	0.8	ND	ND	21.0	5	ND	ND	ND	ND	ND	ND	ND
J	1227	1.4	ND	ND	21.0	6	ND	ND	ND	ND	ND	ND	ND
F	1232	1.5	ND	ND	21.0	5	ND	ND	ND	ND	ND	ND	ND
G	1234	1.5	ND	ND	21.0	5	ND	ND	ND	ND	ND	ND	ND
A*	1239	1.8	0.8	ND	21.0	7	ND	0.3	ND	ND	ND	ND	ND
B*	1243	2.0	2.2	ND	21.0	7	ND	ND	ND	ND	ND	ND	ND
C	1245	1.5	ND	ND	21.0	7	ND	ND	ND	ND	ND	ND	ND
H	1256	1.2	ND	ND	21.0	5	ND	ND	ND	ND	ND	ND	ND
E	1302	1.7	0.1*	ND	21.0	6	ND	ND	ND	ND	ND	ND	ND
D	1307	1.7	ND	ND	21.0	6	ND	ND	ND	ND	ND	ND	ND
K	1312	1.7	0.1	ND	21.0	5	ND	ND	ND	ND	ND	ND	ND
T	1317	1.7	0.2	ND	21.0	5	ND	ND	ND	ND	ND	ND	ND
U	1326	1.5	ND	ND	21.0	5	ND	ND	ND	ND	ND	ND	ND
V	1329	1.5	0.1	ND	21.0	4	ND	ND	ND	ND	ND	ND	ND
S	1341	1.5	ND	ND	21.0	5	ND	ND	ND	ND	ND	ND	ND
P	1343	1.5	ND	ND	21.0	5	ND	ND	ND	ND	ND	ND	0.05
E	1349	1.2	ND	ND	21.1	5	ND	ND	ND	ND	ND	ND	<

\* Open sewer  
\* Idling machinery, trucks, cars

\* COCl<sub>2</sub> - SPM, BRIST PIP & BRUSH CAS

Location A: Barkly and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Shyvesant High School  
Location M: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 3  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: A. Decker

U.S. EPA: Norrell

Date: 1/26/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2647	2643	2648			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	0753	0756	0821			
Stop Time	1437	1439	1443			
Run Time (Minutes)	464	463	442			
Minimum Concentration (ug/m3)	70.6	170	0.0			
Maximum Concentration (ug/m3)	253.7	147.8	135.9			
Average Concentration (TWA) (ug/m3)	128.8	58.9	42.2			

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: A. Decker

U.S. EPA: Norrell

Date: 11/26/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2647	2643	2648			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	0753	0756	0821			
Stop Time	1437	1439	1443			
Run Time (Minutes)	464	463	442			
Minimum Concentration (ug/m3)	70.6	170	0.0			
Maximum Concentration (ug/m3)	253.7	147.8	135.9			
Average Concentration (TWA) (ug/m3)	128.8	58.9	42.2			

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/21/01

File Name	NYC219	NYC220	NYC221	NYC207	NYC208	NYC222
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	North Tower Plume	South Tower Plume	Austin Tooin Plaza
Sample Number			A07127	A07128	A07130	A07129
Sample Height			Breathing Level	Ground Level	Ground Level	Breathing Level
Sample Volume		250 mL	250 mL	100 mL	100 mL	250 mL
Reporting Units (RL)	20	20	20	50	50	20
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Proylene	RL	RL	RL	380	RL	RL
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	57	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	420	RL	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isobutyl Alcohol	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	1200	580	RL
Trichlorofluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
1-Chloroethane	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
M'BE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
hexane	RL	RL	RL	RL	RL	5
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	150	82	RL
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	57	RL	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	780	99	RL
Heptane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl isobutyl ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	190	RL	RL
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrahydroethane	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	150	RL	RL
m&p-Xylenes	RL	RL	RL	RL	RL	RL
o-Xylene	RL	RL	RL	RL	RL	RL
Styrene	RL	RL	RL	71	RL	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Mexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

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**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Wednesday, November 28, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 28, 2001 at 5:30 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 77 samples taken in and around ground zero from November 23 through November 25. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on November 23 for a total of 80 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,669, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected on November 23 from these locations showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Forty-eight samples were collected on November 25 and 26. All of these samples were below the school re-entry standard. One sample collected on November 26 contained 69.99 structures per square millimeter, which is extremely close to the standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on November 27 at the Staten Island Landfill. Nothing of significant readings reported.

**Particulate Monitoring** - EPA used portable monitors to collect samples on November 27 at the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). Particulate levels at all locations were below the OSHA time-weighted permissible exposure limit.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted from November 20 through November 26 at Pace University, Borough of Manhattan Community College, and the Coast Guard building in Battery Park. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on November 27 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene did not exceed the OSHA standard at any of the sampling locations.

**Dioxin** - Ten samples were collected on October 30 and analyzed for dioxin/furans. One sample showed results above the level at which EPA would take some type of action to reduce people's exposure. This action guideline is based on a 30-year exposure. However, none of the samples were above the EPA action guideline adjusted to a one-year exposure. These levels do not pose a short-term health affect but should be monitored if they persist for a long period of time.

**Silicates** - Ten samples were collected on November 15 and analyzed for silicates. All samples were either non-detect or below the NIOSH standard.

**Metals** - Ten samples were collected on each of the following days: November 6, 12 and 15. Analysis for all metals were either non-detect or below applicable standards, guidelines and permissible levels established by EPA and OSHA. Final analysis of these samples for chromium showed that chromium is not present.

**Direct Air Readings** - No significant readings found on November 27.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Wednesday, November 28, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 23, 1200 - 2359 hrs)
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 3 samples (Locations H, D and E) were not submitted for analysis.
- NYC / ER (Nov 24, 0001 - 1200 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 3 samples (Locations J, V and E) were not submitted for analysis.
- NYC / ER (Nov 24, 1200 - 2359 hrs)
  - All 19 samples analyzed were below the TEM AHERA standard.
  - 3 samples (Locations M1, N and I) were not submitted for analysis.
- NYC / ER (Nov 25, 0001 - 1200 hrs)
  - All 21 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location B) was not submitted for analysis.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Nov 25, 0656 - 1915) - Asbestos
  - All 15 samples analyzed were below the TEM AHERA standard.
  - Samples P-1, O-17 and O-19 were not collected.
- Fresh Kills (Nov 25, 1756 - Nov, 26 0655) - Asbestos
  - All 15 samples analyzed were below the TEM AHERA standard.
  - Samples P-4, P-7, and O-19 were not collected.
- Fresh Kills (Nov 26, 0645 - 1936) - Asbestos
  - All 18 samples analyzed were below the TEM AHERA standard.
  - 1 sample contained 69.99 S/mm<sup>2</sup> extremely close to the TEM AHERA standard.
- Fresh Kills (Nov 27) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at five stations based on daily average concentrations.



Ambient Air Sampling Locations

- NYC / ER (Nov 23) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St, Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 7 samples were collected from these monitoring sites.
  - Site 5 (Bronx PS #154) was not collected.
  - All of the samples were below the TEM AHERA standard.
- NYC / ER (Oct 30) - Dioxin
  - 1 of 10 samples (Location D) collected were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - No samples were identified above the EPA Removal Action guidelines adjusted to a 1-year exposure.
  - Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for the long-term (chronic exposure).
- NYC / ER (Nov 15) - Silicates
  - All 10 samples either did not detect any silicates or were below the NIOSH Recommended Exposure Limit (REL) TWA of 0.05 mg/m<sup>3</sup>.
- NYC / ER (Nov 6) - Metals
  - Ten samples collected.
  - All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.
  - **Note:** QA/QC review of chromium in air analytical data has revealed that chromium is not present in these samples.
- NYC / ER (Nov 12) - Metals
  - Ten samples collected.
  - All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.
  - **Note:** QA/QC review of chromium in air analytical data has revealed that chromium is not present in these samples.

- NYC / ER (Nov 15) - Metals
  - Ten samples collected.
  - All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.
  - Note: QA/QC review of chromium in air analytical data has revealed that chromium is not present in these samples.
- NYC / ER (Nov 20) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **6.20 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **7.21 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **5.24 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 21) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **13.63 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **11.55 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **8.59 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 22) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **16.54 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **17.27 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **15.10 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 23) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **19.78 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **22.29 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **22.59 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 24) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Pace University (Site 1) - 24-hr average concentration for this period was **14.63 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **14.24 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **13.03 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 25) - Particulate Monitoring (PM<sub>2.5</sub>)

- Pace University (Site 1) - 24-hr average concentration for this period was **6.84 ug/m<sup>3</sup>**.
- Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **6.67 ug/m<sup>3</sup>**.
- Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **7.40 ug/m<sup>3</sup>**.
- All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 26) - Particulate Monitoring (PM<sub>2.5</sub>)
  - Park Row (Site 1) - 24-hr average concentration for this period was **12.47 ug/m<sup>3</sup>**.
  - Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **14.89 ug/m<sup>3</sup>**.
  - Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **10.94 ug/m<sup>3</sup>**.
  - Wall Street - 24-hr average concentration for this period was **17.70 ug/m<sup>3</sup>**.
  - All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).
- NYC / ER (Nov 27) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 6.5 hours
  - Station L values ranged from 0.0 to 165.4 ug/m<sup>3</sup> with an average of 42.7 ug/m<sup>3</sup>.
  - Station N values ranged from 0.0 to 518.4 ug/m<sup>3</sup> with an average of 36.8 ug/m<sup>3</sup>.
  - Station R values ranged from 0.4 to 141.5 ug/m<sup>3</sup> with an average of 35.7 ug/m<sup>3</sup>.
- NYC / ER (Nov 27) - Volatile Organics (Mobile Laboratory)
  - Benzene did not exceeded OSHA TWA PEL (1 ppm) at any location.

#### Direct Reading Instruments

- NYC / ER (Nov 27)
  - Nothing of significance reported.

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/23/01 1200 to 2359  
 Data Validation Date: 11/26/01

Sampling Date	Sample No	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	f/m <sup>2</sup>	f/cc	S-f/cc**
11/23/01	RST-01042	L-Duplicate	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01043	M1	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01044	N	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01045	O	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01046	F	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01047	A	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01048	B	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01049	C	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01050	H	578	Air	<7.0	<0.005	0	<7.94	<0.0053	<0.0053
11/23/01	RST-01051	J	451	Air	<7.0	<0.006	0	<7.94	<0.0068	<0.0068
11/23/01	RST-01062	D	570	Air	<7.0	<0.004	0	<7.94	<0.0053	<0.0053
11/23/01	RST-01063	R	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01064	U	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01065	V	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01066	S	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01067	S-Duplicate	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01068	P	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/23/01	RST-01069	E	720	Air	<7.0	<0.004	0	<8.82	<0.0047	<0.0047
11/24/01	TB112401	Trip Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>
11/24/01	FB112401	Field Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>

- Key:
- Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
  - \*\* Structure (S) is roughly equivalent to fiber (f)
  - \*\*\* Chrysotile
  - NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
  - NA<sup>(2)</sup> - Not analyzed for TEM
  - n/a - Not applicable
  - NR - Not requested

- Sampling Locations:
- A: NE corner of West Broadway & Barclay
  - B: SE corner of Church & Dey St.
  - C: Trinity (a.k.a. Church) & Liberty
  - C1: SW corner of Broadway & Liberty St.
  - D: East end of Albany St. at Greenwich St.
  - E: Western end of Liberty St. at South End Ave
  - F: Northern median strip of Vesey & West St
  - G: Church and Duane St.
  - H: South side of Chasa Manhattan Plaza at Pine St.
  - I: SE corner of Wall St. & Broadway
  - J: SE corner of Warren & West St.
  - K: West St. & Broadway median strip
  - L: One-way ramp of North Park rec. area (north side of Suyvesant High), access to TACA bus area
  - M: Western end of Harrison St. at West St. (on tree next to bulkhead)
  - M1: West St. - 50 yards south of Harrison St. at bulkhead
  - N: South side of Pier 25 (next to volleyball ct)
  - P: NE corner of South End Ave. & Albany
  - Q: Barclay & West St. (center island) in proximity to USCC command post
  - R: TACA Bus Location
  - S: Rector & South End
  - T: Pier 6 Heliport
  - U: Pier 6 Exit 2
  - V: Pier 6 Bus Sign
  - W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/24/01 0001 to 1200

Data Validation Date: 11/26/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fiber**
					f/m <sup>3</sup>	f/cc	Structures (P)	S/mm <sup>2</sup>	
11/24/01	RST-01069	L	720	Air	<7.0	<0.004	0	0	<0.0047
11/24/01	RST-01069	L	720	Air	<7.0	<0.004	0	0	<0.0047
11/24/01	RST-01069	M	354	Air	<7.0	<0.004	0	0	<0.0051
11/24/01	RST-01069	N	720	Air	<7.0	<0.004	0	0	<0.0047
11/24/01	RST-01069	N Duplicate	720	Air	<7.0	<0.004	0	0	<0.0047
11/24/01	RST-01064	F	720	Air	<7.0	<0.004	0	0	<0.0047
11/24/01	RST-01065	J	720	Air	7.64	0.004	0	0	<0.0047
11/24/01	RST-01065	Q	720	Air	<7.0	<0.004	0	0	<0.0047
11/24/01	RST-01065	A	719	Air	14.01	0.008	0	0	<0.0049
11/24/01	RST-01067	B	708	Air	<7.0	<0.008	0	0	<0.0094
11/24/01	RST-01068	C	324	Air	<7.0	<0.008	0	0	<0.0094
11/24/01	RST-01069	H	323	Air	<7.0	<0.008	0	0	<0.0094
11/24/01	RST-01070	I	720	Air	<7.0	<0.004	0	0	<0.0047
11/24/01	RST-01071	D	720	Air	<7.0	<0.004	0	0	<0.0047
11/24/01	RST-01072	K	692	Air	<7.0	<0.004	0	0	<0.0047
11/24/01	RST-01073	T	516	Air	<7.0	<0.005	0	0	<0.0054
11/24/01	RST-01074	U	570	Air	11.46	0.008	0	0	<0.0054
11/24/01	RST-01075	V	352	Air	<7.0	<0.009	0	0	<0.0087
11/24/01	RST-01076	P	720	Air	<7.0	<0.004	0	0	<0.0047
11/24/01	RST-01077	E-Duplicate	720	Air	7.64	0.004	0	0	<0.0047
11/24/01	RST-01078	P	720	Air	<7.0	<0.004	0	0	<0.0047
11/24/01	TB112401	Tap Blank	0	Air	<7.0	res	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>
11/24/01	FB112401	Field Blank	0	Air	<7.0	res	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Broadway
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Cruise Manhattan Plaza at Pine St.
- I: SE corner of West St. & Broadway
- J: Pier 6 East
- K: West St. & Albany to median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCC command post
- R: TAGA Bus Location
- S: Recor & South End
- T: Pier 6 East
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

Key:  
\* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
--- Chrysotile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
NA<sup>(3)</sup> - Not applicable  
NR - Not requested

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/19/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/24/01 1200 to 2359

Data Validation Date: 11/26/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					7mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>
11/24/01	RST-01079	L	720	Air	<7.0	<0.004	0	<0.0048
		M1				Not Collected		
						Not Collected		
11/24/01	RST-01080	N	720	Air	<7.0	<0.004	0	<0.0048
11/24/01	RST-01081	F	720	Air	<7.0	<0.004	0	<0.0048
11/24/01	RST-01082	O	720	Air	<7.0	<0.004	2***	0.0095
11/24/01	RST-01083	A	720	Air	<7.0	<0.004	0	<0.0048
11/24/01	RST-01084	B	720	Air	<7.0	<0.004	1***	0.0048
11/24/01	RST-01085	C	720	Air	7.01	0.004	0	<0.0048
11/24/01	RST-01086	H	720	Air	<7.0	<0.004	0	<0.0048
		I				Not Collected		
11/24/01	RST-01087	D	720	Air	<7.0	<0.004	0	<0.0048
11/24/01	RST-01088	G	720	Air	<7.0	<0.004	0	<0.0048
11/24/01	RST-01089	T	720	Air	<7.0	<0.004	0	<0.0048
11/24/01	RST-01090	U	720	Air	<7.0	<0.004	0	<0.0048
11/24/01	RST-01091	V	720	Air	<7.0	<0.004	0	<0.0048
11/24/01	RST-01092	S	720	Air	<7.0	<0.004	0	<0.0048
11/24/01	RST-01093	S-Duplicate	720	Air	<7.0	<0.004	1***	0.0048
11/24/01	RST-01094	P	720	Air	<7.0	<0.004	0	<0.0048
11/24/01	RST-01095	P-Duplicate	720	Air	<7.0	<0.004	0	<0.0048
11/24/01	RST-01096	E	720	Air	<7.0	<0.004	0	<0.0048
11/24/01	RST-01097	W	594	Air	<7.0	<0.005	0	<0.0098

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of West St. & Broadway
- J: Chase Manhattan Plaza at Pine St.
- K: West St. & Albany at median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

Key:

- \* Sample volume (filters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- ns - Not applicable
- NR - Not requested

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- O: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Pier
- U: Pier 6 Exit
- V: Pier 6 Bus Stop
- W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NVC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/25/01 0001 to 1200  
Data Validation Date: 11/26/01

Sampling Date	Sample No.	Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fiber**
					f/m <sup>2</sup>	f/cc	Structures (g)	5µm - 5µm	
11/25/01	RST-01069	W Duplicate	460	Air	<7.0	<0.006	0	0	<0.0048
11/25/01	RST-01100	M	687	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01101	N	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01102	R	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01103	F	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01104	O	554	Air	<7.0	<0.005	0	0	<0.0056
11/25/01	RST-01105	A	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01106	B	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01107	C	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01108	H	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01109	I	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01110	D	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01111	E	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01112	T	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01113	U	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01114	V	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01115	S	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01116	P	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01117	E Duplicate	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	RST-01118	W	720	Air	<7.0	<0.004	0	0	<0.0048
11/25/01	TB112501	Trig Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/25/01	FB112501	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

Sampling Locations:  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Timely (a.k.a. Church) & Liberty  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St.  
 H: Church and Duane St.  
 I: South side of Chase Manhattan Plaza at Pine St.  
 J: SE corner of Wall St. & Broadway  
 K: NE corner of Warren & West St.  
 L: West St. & Albany at Manhattan  
 M: NE corner of North Park area (north side of Suyvesant High), access to TAQA bus area

PCM by NIOSH 7400  
 f/m<sup>2</sup> f/cc  
 Structures (g)  
 0.5µ - 5µ 5µ

TEM (AHERA)  
 S-fiber\*\*  
 NA<sup>(3)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/25/01 0656 to 1915  
 Data Validation Date: 11/26/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)				
					f/oc	f/oc	f/oc	Structures (#)	5µ	S-f/oc**		
11/25/01	LF01048	P-1	703	Air	<7.0	<7.0	<7.0	0	0	<8.75	<0.0048	
11/25/01	LF01049	P-2	705	Air	<7.0	<7.0	<7.0	0	0	<8.75	<0.0048	
11/25/01	LF01050	P-3	645	Air	<7.0	<7.0	<7.0	0	0	<8.75	<0.0047	
11/25/01	LF01051	P-4	645	Air	<7.0	<7.0	<7.0	0	0	<8.75	<0.0047	
11/25/01	LF01052	P-5	645	Air	<7.0	<7.0	<7.0	0	0	<8.75	<0.0047	
11/25/01	LF01053	P-6	650	Air	<7.0	<7.0	<7.0	0	0	<8.75	<0.0047	
11/25/01	LF01054	P-7	650	Air	<7.0	<7.0	<7.0	0	0	<8.75	<0.0047	
11/25/01	LF01055	P-8	650	Air	<7.0	<7.0	<7.0	0	0	<8.75	<0.0047	
11/25/01	LF01056	W-11	650	Air	11.46	11.46	0.007	0	0	<8.75	<0.0047	
11/25/01	LF01057	W-12A	690	Air	7.84	7.84	0.004	0	0	<8.75	<0.0049	
11/25/01	LF01058	W-12B	643	Air	<7.0	<7.0	<7.0	0	0	<8.75	<0.0047	
11/25/01	LF01059	B-13	643	Air	<7.0	<7.0	<7.0	0	0	<8.75	<0.0047	
11/25/01	LF01060	B-14	643	Air	<7.0	<7.0	<7.0	0	0	<8.75	<0.0047	
11/25/01	LF01061	T-15	650	Air	7.64	7.64	0.005	0	0	<8.75	<0.0047	
11/25/01	LF01062	T-16	652	Air	12.74	12.74	0.009	0	0	<8.75	<0.0046	
11/25/01	LF01063	O-17	Sample could not be retrieved due to new closure time at the site			<7.0	<7.0	<7.0	0	0	<8.75	<0.0048
11/25/01	LF01064	O-18	525	Air	<7.0	<7.0	<7.0	Not Collected	0	<6.56	<0.0048	
11/25/01	LF01065	Lot Blank	0	Air	<7.0	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	
11/25/01	LF01066	Tip Blank	0	Air	<7.0	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NS - Sample not submitted  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/25/01 1756 to 11/26/01 0855  
 Data Validated on Date: 11/26/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	fibre/m <sup>3</sup>	PCM by NIOSH 7400		TEM (AHERA)		
						fibre/m <sup>3</sup>	fibre/cm <sup>3</sup>	Structures (#)	S-fibre**	
11/25/01	LF01067	P-1	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/25/01	LF01068	P-2	660	Air	<7.0	<0.004	0	0	<8.75	<0.0050
11/25/01	LF01069	P-3	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/25/01	LF01071	P-4	720	Air	<7.0	Not Collected	0	0	<8.75	<0.0047
11/25/01	LF01072	P-5	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/25/01	LF01074	P-7	516	Air	<7.0	Not Collected	0	0	<8.75	<0.0047
11/25/01	LF01075	W-11	720	Air	<7.0	<0.005	0	0	<8.75	<0.0065
11/25/01	LF01076	W-12	660	Air	<7.0	0.004	0	0	<8.75	<0.0047
11/25/01	LF01077	W-13	720	Air	<7.0	<0.004	1**	0	<8.75	<0.0047
11/25/01	LF01078	B-13	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/25/01	LF01079	B-14	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/25/01	LF01080	T-15	720	Air	8.92	0.005	0	0	<8.75	<0.0047
11/25/01	LF01081	T-16	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/25/01	LF01082***	G-17	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/25/01	LF01083	G-18	622	Air	<7.0	<0.004	0	0	<8.75	<0.0047
11/25/01	LF01085	Lot Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/25/01	LF01086	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 \*\*\*\* Sample was collected from 0911 to 2111 and was previously identified as LF01083. It could not be retrieved at the end of the previous sampling event due to the new closure time at the site.  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NS - Sample not submitted  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 2, Issue 2, 8/15/04  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibre/cc (PCM), 70 S/mmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/26/01 0603 to 1936  
 Data Validation Date: 11/27/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	S/fcc**	S/m <sup>2</sup>	S/fcc**
11/26/01	LF01087	P-1	631	Air	<7.0	<0.004	0	0	<7.87	<0.0048
11/26/01	LF01088	P-2	631	Air	<7.0	<0.004	0	0	<7.87	<0.0048
11/26/01	LF01089	P-3	635	Air	<7.0	<0.004	0	0	<7.87	<0.0048
11/26/01	LF01090	P-4	695	Air	<7.0	<0.004	0	0	<7.87	<0.0048
11/26/01	LF01091	P-5	700	Air	<7.0	<0.004	0	0	<7.87	<0.0048
11/26/01	LF01092	P-6	702	Air	<7.0	<0.004	0	0	<7.87	<0.0048
11/26/01	LF01093	P-7	702	Air	<7.0	<0.004	0	0	<7.87	<0.0048
11/26/01	LF01094	P-8	702	Air	11.46	0.006	0	0	<8.75	<0.0048
11/26/01	LF01095	W-11	703	Air	15.29	0.008	0	0	<8.75	<0.0048
11/26/01	LF01096	W-12A	720	Air	22.93	0.012	4***	0	35	0.0167
11/26/01	LF01097	W-12B	705	Air	10.19	0.006	0	0	<8.75	<0.0048
11/26/01	LF01098	B-13	633	Air	8.92	0.005	7***	1***	69.99	0.0426
11/26/01	LF01099	B-14	695	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/26/01	LF01100	T-15	600	Air	28.03	0.018	0	0	<7.87	<0.0051
11/26/01	LF01101	L-16	600	Air	19.56	0.011	0	0	<7.87	<0.0051
11/26/01	LF01102	O-17	515	Air	10.19	0.006	0	0	<7.87	<0.0051
11/26/01	LF01103	O-18	515	Air	10.19	0.006	0	0	<7.87	<0.0051
11/26/01	LF01104	O-19	515	Air	11.46	0.008	0	0	<7.87	<0.0059
11/26/01	LF01105	Lot Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>
11/26/01	LF01106	Trip Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(a)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(b)</sup> - Not analyzed for TEM  
 n/a - Not applicable

NIOSH 7400: Filter Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/04  
 Asbestos Filter Analysis by Transmission Electron Microscopy (TEM) EPA 808/6-99-0101 (AHERA)  
 Standard criteria: EPA 808/6-99-0101 (AHERA): 0.01 fibers/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/13/01 1200 to 2400  
 Data Validation Date: 11/27/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
11/23/01	7093-18-0057	Pace Univ	1180***	Air	<7.0	<0.002	0	0	<13.33	<0.0044
11/23/01	7093-19-0057	BMCC	1106***	Air	<7.0	<0.002	0	0	<13.33	<0.0046
11/23/01	7093-20-0057	Coast Guard	1118***	Air	<7.0	<0.002	0	0	<13.33	<0.0046
11/23/01	7093-15-0056	Manhattan PS #143	1440	Air	<7.0	<0.002	0	0	<16	<0.0043
-	-	Bronx PS #154	-	-	-	-	Not Collected			
11/23/01	7096-12-0052	Queens PS #199	1438	Air	<7.0	<0.002	0	0	<16	<0.0043
11/23/01	7095-98-0053	Brooklyn PS #274	1114***	Air	<7.0	<0.002	0	0	<13.33	<0.0046
11/23/01	7097-18-0050	Staten Is. PS #44	1392***	Air	<7.0	<0.002	0	0	<16	<0.0044

Key:  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis  
 NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

FORMAL DOCUMENT ID	SAMPLE ID	ANALYTE	SUB PAK TYPE	AGENCY JOB	DATE SAMPLED	LAB ID	USE NAME OR ADDRESS	LOCATION	UNITS	DETECTION METHOD	ANALYSIS METHOD
	PM 2.5	MS580C			11/20/01		Pace University	1000	6.43 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	8.24 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	5.73 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	16.09 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	-0.84 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	1.85 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	4.27 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	4.11 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	2.82 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	1.84 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	5.26 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	7.43 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	6.05 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	7.55 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	6.09 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	5.66 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	4.18 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	5.02 ug/m <sup>3</sup>	SP-10	SP-10
<b>Average</b>											
	PM 2.5	MS580C			11/20/01		Pace University	1000	6.20 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	5.24 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	6.09 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	10.35 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	2.34 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	3.76 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	5.11 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	4.91 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	3.14 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	2.43 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	2.91 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	2.54 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	5.94 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	6.71 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	8.15 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	5.38 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	5.35 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	4.81 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	5.24 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	10.11 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	10.29 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	7.85 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	14.22 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	1.79 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	4.68 ug/m <sup>3</sup>	SP-10	SP-10
	PM 2.5	MS580C			11/20/01		Pace University	1000	6.57 ug/m <sup>3</sup>	SP-10	SP-10





Inter-Agency Environmental Sampling Log

DRAFT

PROJECT ID	LOCATION COMMENTS	PM ACTIVITY	ZONE	SAMPLE REGION	ERC DATE	ERC TIME	SOURCE	LATITUDE	LONGITUDE
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12
			Disposal from zone	7663 19				529847 19 19	154352 19 12

24. Sample March

2019





































DRAFT

Inter-Agency Environmental Sampling Log

11/02/01, Item1125 addendum 4b, Page 1 of 4

UNIQUE IDENTIFIER	SOURCE_ID	ANALYTE	RAW_DATA_FILE	RAW_DATA_PATH	DATE_SAMPLED	COUNTY	SITE_NAME_OR_ADDRESS	FIELD_LOCATION	INTERMEDIATE_CONTAINER	RECYCLED_CONTAINER	STATION	UNIT	TOTAL	AVG	STANDARD
PH 2.3					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	5.112 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	5.241 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	6.233 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	8.257 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	5.622 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	7.601 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	7.743 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	5.926 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	5.151 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	6.131 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	8.235 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	10.209 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	5.515 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	4.752 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	8.236 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	7.115 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	24 hours	11.5 ug/m3	6.84
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	4.648 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	3.71 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	6.808 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	6.011 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	8.145 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	6.782 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	6.478 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	8.115 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	4.089 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	8.922 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	6.141 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	8.085 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	13.815 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	4.684 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	8.862 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	7.015 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	24 hours	7.40	7.40
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	4.238 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	4.481 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	4.896 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	4.511 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	5.266 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	4.759 ug/m3	
PH 2.5					11/25/01						Coast Guard Battery Park	Coast Guard Battery Park	1 Hour	5.281 ug/m3	







Inter-Agency Environmental Sampling Log

DRAFT	TIME	DATE	LOCATION	ACTIVITY	ZONE	SAMPLE/CASE	ENC_DATE	ENC_TIME	SOURCE	LATITUDE	LONGITUDE
						706318				3069714818	10252187
					Unknown from zone	706318				3069714818	10252187
						706319				3069714818	10252187
					Unknown from zone	706319				3069714818	10252187
						706319				3069714818	10252187
					Unknown from zone	706319				3069714818	10252187
						706319				3069714818	10252187
					Unknown from zone	706319				3069714818	10252187
						706319				3069714818	10252187
					Unknown from zone	706319				3069714818	10252187
						706319				3069714818	10252187
					Unknown from zone	706319				3069714818	10252187
						706319				3069714818	10252187
					Unknown from zone	706319				3069714818	10252187
						706319				3069714818	10252187
					Unknown from zone	706319				3069714818	10252187
						706319				3069714818	10252187
					Unknown from zone	706319				3069714818	10252187
						706319				3069714818	10252187









Inter-Agency Environmental Sampling Log

PROJECT NAME	FOUR-DIGIT EPC ID	ACTIVITY	DATE	START DATE	END DATE	TIME	COORDINATE	LONGITUDE			
Water/Water Resources	709310	Sample from zone	7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
Water/Water Resources	709310	Sample from zone	7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
Water/Water Resources	709310	Sample from zone	7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			7/26/01	6/27/01			150752.47				
			Water/Water Resources	709310	Sample from zone	7/26/01	6/27/01			150752.47	
						7/26/01	6/27/01			150752.47	
7/26/01	6/27/01						150752.47				
7/26/01	6/27/01						150752.47				
7/26/01	6/27/01						150752.47				
7/26/01	6/27/01						150752.47				
7/26/01	6/27/01						150752.47				
7/26/01	6/27/01						150752.47				
7/26/01	6/27/01						150752.47				
7/26/01	6/27/01						150752.47				
7/26/01	6/27/01						150752.47				
7/26/01	6/27/01						150752.47				
7/26/01	6/27/01						150752.47				
7/26/01	6/27/01						150752.47				



Inter-Agency Environmental Sampling Log

DRAFT

UNIQUE ID	DATE COLLECTED	COMMENTS	PAUL ACTIVITY	ZONE	SAMPLE CASIN	END DATE	END TIME	SOURCE	LATITUDE	LONGITUDE
				District 1 Non Zone	709323					
				District 2 Non Zone	709323					
				District 3 Non Zone	709323					
				District 4 Non Zone	709323					
				District 5 Non Zone	709323					
				District 6 Non Zone	709323					
				District 7 Non Zone	709323					
				District 8 Non Zone	709323					
				District 9 Non Zone	709323					
				District 10 Non Zone	709323					
				District 11 Non Zone	709323					
				District 12 Non Zone	709323					
				District 13 Non Zone	709323					
				District 14 Non Zone	709323					
				District 15 Non Zone	709323					
				District 16 Non Zone	709323					
				District 17 Non Zone	709323					
				District 18 Non Zone	709323					
				District 19 Non Zone	709323					
				District 20 Non Zone	709323					
				District 21 Non Zone	709323					
				District 22 Non Zone	709323					
				District 23 Non Zone	709323					
				District 24 Non Zone	709323					
				District 25 Non Zone	709323					
				District 26 Non Zone	709323					
				District 27 Non Zone	709323					
				District 28 Non Zone	709323					
				District 29 Non Zone	709323					
				District 30 Non Zone	709323					
				District 31 Non Zone	709323					
				District 32 Non Zone	709323					
				District 33 Non Zone	709323					
				District 34 Non Zone	709323					
				District 35 Non Zone	709323					
				District 36 Non Zone	709323					
				District 37 Non Zone	709323					
				District 38 Non Zone	709323					
				District 39 Non Zone	709323					
				District 40 Non Zone	709323					
				District 41 Non Zone	709323					
				District 42 Non Zone	709323					
				District 43 Non Zone	709323					
				District 44 Non Zone	709323					
				District 45 Non Zone	709323					
				District 46 Non Zone	709323					
				District 47 Non Zone	709323					
				District 48 Non Zone	709323					
				District 49 Non Zone	709323					
				District 50 Non Zone	709323					
				District 51 Non Zone	709323					
				District 52 Non Zone	709323					
				District 53 Non Zone	709323					
				District 54 Non Zone	709323					
				District 55 Non Zone	709323					
				District 56 Non Zone	709323					
				District 57 Non Zone	709323					
				District 58 Non Zone	709323					
				District 59 Non Zone	709323					
				District 60 Non Zone	709323					
				District 61 Non Zone	709323					
				District 62 Non Zone	709323					
				District 63 Non Zone	709323					
				District 64 Non Zone	709323					
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				District 66 Non Zone	709323					
				District 67 Non Zone	709323					
				District 68 Non Zone	709323					
				District 69 Non Zone	709323					
				District 70 Non Zone	709323					
				District 71 Non Zone	709323					
				District 72 Non Zone	709323					
				District 73 Non Zone	709323					
				District 74 Non Zone	709323					
				District 75 Non Zone	709323					
				District 76 Non Zone	709323					
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				District 91 Non Zone	709323					
				District 92 Non Zone	709323					
				District 93 Non Zone	709323					
				District 94 Non Zone	709323					
				District 95 Non Zone	709323					
				District 96 Non Zone	709323					
				District 97 Non Zone	709323					
				District 98 Non Zone	709323					
				District 99 Non Zone	709323					
				District 100 Non Zone	709323					

Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
November 27, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Ave. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	39	09:45:00	10	00:15:00	100	0.0	1.5	11.1	248.9
2	-74.198262	40.566883	2295	1	39	09:45:00	10	00:15:00	100	0.0	0.0	32.8	256.6
3	-74.198685	40.570054	2011	1	39	09:45:00	10	00:15:00	100	0.0	18.4	38.4	140.9
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	43	10:45:00	10	00:15:00	100	0.0	17.7	38.0	179.7
8	-74.203019	40.561915	2363	1	43	10:45:00	10	00:15:00	100	0.0	19.2	40.8	214.6

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/27/01 Early

RST: Alex Becker

Location	Time	PM10 (µg/m³)	PM2.5 (µg/m³)	LEL (%)	O <sub>3</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0807	ND	ND	ND	20.9	ND	ND	ND	ND	ND	ND	ND	<0.05
M	0807	0.1	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.05
N	0822	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.05
J	0925	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.05
F	0931	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.05
G	0936	ND	ND	ND	20.8	1	ND	ND	ND	ND	<1.00	ND	<0.05
A	0950	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00	ND	<0.05
R	0955	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00	ND	<0.05
C	1010	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00	ND	<0.05
H	1020	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00	ND	<0.05
T	1029	ND	ND	ND	20.8	2	ND	ND	ND	ND	<1.00	ND	<0.05
D	1035	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00	ND	<0.05
K	1043	ND	0.1	ND	20.8	1	ND	ND	ND	ND	<1.00	ND	<0.05
T	1055	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00	ND	<0.05
U	1100	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00	ND	<0.05
V	1110	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.05
S	1120	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.05
P	1125	ND	ND	ND	20.9	5*	ND	ND	ND	ND	<1.00	ND	<0.05
E	1125	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.00	ND	<0.05

\* high traffic area

MF - 5PM  
MCL - 0.0055 LMS  
COCL<sub>2</sub> - 0.0005 LMS

- Location A: Berkeley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Helipad
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/27/01 LT

RST: Alex Becker

Location	Time	FD (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1215	ND	ND	1*	20.9	ND	ND	ND	ND	ND	ND	ND	ND
M1	1225	ND	ND	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
N	1225	ND	ND	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
J	1240	ND	ND	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
J	1300	ND	ND	ND	20.9	3	ND	ND	ND	ND	ND	ND	ND
E	1305	ND	ND	ND	20.9	3	ND	ND	ND	ND	ND	ND	ND
A	1310	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND
B	1315	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND
C	1320	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND
H	1330	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND
T	1335	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND
D	1340	ND	ND	ND	21.0	4	ND	ND	ND	ND	ND	ND	ND
X	1345	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	50.05
T	1355	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	50.05
U	1400	ND	ND	ND	21.0	2	ND	ND	ND	ND	ND	ND	50.05
V	1405	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	50.05
S	1410	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	50.05
P	1415	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	50.05
E	1420	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	50.05
													ND

\* faint vapor of gasoline odor possibly from barge

H11 - 5PM  
H2 - 5PM  
C112 - 5PM (L-0)  
DANGER CONT (K-C)

- Location A: Berkeley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: State Street High School
- Location M1: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Renner and South East
- Location T: Pier 6 Helipad
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: Alex Becker

U.S. EPA: Norrell

Date: 11/27/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2648	2646	2647			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	0759	0803	0822			
Stop Time	1451	1452	1456			
Run Time (Minutes)	478	416	398			
Minimum Concentration (ug/m3)	0.4	0.0	0.0			
Maximum Concentration (ug/m3)	141.5	165.4	518.4			
Average Concentration (TWA) (ug/m3)	35.7	42.7	36.8			

NO QC EVALUATION HAS BEEN PERFORMED.  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/27/01

File Name	NYC276	NYC277	NYC278	NYC279	NYC281	NYC280
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	Austin Tobin Plaza	North Tower Plume	South Tower Plume
Sample Number			A07151	A07153	A07152	A07154
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	250 mL	100 mL
Reporting Limit (RL)	20	20	20	20	20	50
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	RL	66	RL
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	44	59
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	RL	99	200
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	24	RL
2-Butanone	RL	RL	RL	RL	RL	RL
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	RL	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	240	200
Heptane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	75	RL
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethane	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	59	RL
Ethylbenzene	RL	RL	RL	RL	RL	RL
m,p-Xylenes	RL	RL	RL	RL	RL	RL
O-Xylene	RL	RL	RL	RL	RL	RL
Styrene	RL	RL	RL	RL	RL	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

NYC Emergency Response  
 Silica - Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/15/01 0825 to 1620

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
11/15/01	11273	A	1000	Air	0.01 J	<0.02	<0.02
11/15/01	11274	B	1000	Air	<0.01	<0.02	<0.02
11/15/01	11276	C	1000	Air	<0.01	<0.02	<0.02
11/15/01	11277	D	1000	Air	<0.01	<0.02	<0.02
11/15/01	11280	E	1000	Air	<0.01	<0.02	<0.02
11/15/01	11278	P	1000	Air	<0.01	<0.02	<0.02
11/15/01	11279	S	1000	Air	<0.01	<0.02	<0.02
11/15/01	11271	TAGA	990	Air	<0.01	<0.02	<0.02
11/15/01	11272	TAGA	1000	Air	0.01 J	<0.02	<0.02
11/15/01	11275	Location 3B Church & Vesey	1000	Air	<0.01	<0.02	<0.02

codr 04134

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St
- C: Trinity (a.k.a. Church) & Liberty
- CT: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- N: Western end of Harrison St. at West St. (on tree next to bulkhead)
- P: South side of Pier 25 (next to volleyball court)
- Q: Barclay & West St. & Albany
- R: TAGA Bus Location
- S: Rector & South End
- Location 3B Church & Vesey

NS: Not sampled

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NIOSH 7500: Silica crystalline by XRD

J denotes that value is in between the level of detection and the level of quantitation

Table 1.1 Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ER site

Client ID Location Air Volume (L) Date Collected	Media Blank #1		Media Blank #2		Media Blank #3		11211 Field Blank		11212 Lot Blank		11203 TAGA 5280 11/12/01	
	Lab	Conc µg/filter	Lab	Conc µg/filter	Lab	Conc µg/filter	Lab	Conc µg/filter	Lab	Conc µg/filter	Lab	Conc µg/m <sup>3</sup>
Parameter	Analysis Method	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Aluminum	ICAP	1.3	U	1.3	U	1.3	U	1.3	U	1.3	0.29	0.24
Antimony	AA-Fur	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.0095
Arsenic	AA-Fur	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.0095
Barium	ICAP	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.024
Beryllium	ICAP	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.0095
Cadmium	ICAP	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.024
Calcium	ICAP	3.9	2.5	4.3	2.5	3.9	2.5	U	2.5	U	0.90	0.47
Chromium	ICAP	0.68	0.13	0.90	0.13	0.88	0.13	U	0.13	U	0.13	0.024
Cobalt	ICAP	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.047
Copper	ICAP	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.047
Iron	ICAP	0.63	U	0.63	U	0.63	U	0.63	U	0.63	0.63	0.12
Lead	AA-Fur	0.05	U	0.05	U	0.05	U	0.05	U	0.05	0.019	0.0095
Magnesium	ICAP	13	U	13	U	13	U	13	U	13	U	2.4
Manganese	ICAP	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.024
Nickel	ICAP	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.047
Potassium	ICAP	50	U	50	U	50	U	50	U	50	U	9.5
Selenium	AA-Fur	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.0095
Silver	ICAP	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.024
Sodium	ICAP	13	U	13	U	13	U	13	U	13	2.5	2.4
Thallium	AA-Fur	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.0095
Vanadium	ICAP	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.047
Zinc	ICAP	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.047

MDL denotes Method Detection Limit



U denotes less than the MDL (not detected)  
 Average Media Blank concentration subtracted from all sample results  
 COC: 04058

Table 1.1 (cont.) Results of the Analysis for Metals in Air  
 WA # 0-236 New York (WTC) ER site

Client ID Location Air Volume (L) Date Collected	11204 A-BARCLAY & DEY ST. 4800 11/12/01		11205 B-CHURCH & DEY ST. 4710 11/12/01		11206 C-LIBERTY ST. & CHURCH ST. 4720 11/12/01		11207 D-GREENWICH & ALBANY ST. 4470 11/12/01		11208 P-ALBANY ST. & SOUTH END AVE. 4800 11/12/01		11209 S-RECTOR PLACE & SOUTH END AVE. 4810 11/12/01		
	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	
Parameter	Analysis Method	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³
Aluminum	ICAP	0.93	0.26	1.1	0.27	0.96	0.26	1.3	0.28	0.89	0.26	0.29	0.26
Antimony	AA-Fur	U	0.01	U	0.011	0.013	0.011	0.018	0.011	U	0.01	U	0.01
Arsenic	AA-Fur	U	0.01	U	0.011	U	0.011	0.022	0.011	U	0.01	U	0.01
Barium	ICAP	0.035	0.026	0.035	0.027	0.03	0.026	0.048	0.028	0.03	0.026	U	0.026
Beryllium	ICAP	U	0.01	U	0.011	U	0.011	U	0.011	U	0.01	U	0.01
Cadmium	ICAP	U	0.026	U	0.027	U	0.026	U	0.028	U	0.026	U	0.026
Calcium	ICAP	8.0	0.52	8.0	0.53	9.9	0.53	12	0.56	4.5	0.52	1.5	0.52
Chromium	ICAP	U	0.026	U	0.027	U	0.026	0.099	0.028	U	0.026	0.028	0.026
Cobalt	ICAP	U	0.052	U	0.053	U	0.053	U	0.056	U	0.052	U	0.052
Copper	ICAP	0.055	0.052	0.10	0.053	0.077	0.053	0.14	0.056	0.085	0.052	U	0.052
Iron	ICAP	2.0	0.13	2.0	0.13	1.8	0.13	2.6	0.14	2.0	0.13	0.72	0.13
Lead	AA-Fur	0.037	0.01	0.023	0.011	0.029	0.011	0.19	0.011	0.024	0.01	0.013	0.01

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Magnesium	ICAP	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6
Manganese	ICAP	0.042	0.026	0.043	0.026	0.18	0.028	0.034	0.026	U	0.026
Nickel	ICAP	U	0.052	U	0.053	U	0.056	U	0.052	U	0.052
Potassium	ICAP	U	10	U	11	U	11	U	10	U	10
Selenium	AA-Fur	U	0.01	U	0.011	U	0.011	U	0.01	U	0.01
Silver	ICAP	U	0.026	U	0.027	U	0.028	U	0.026	U	0.026
Sodium	ICAP	U	2.6	U	2.7	U	2.8	U	2.6	U	2.6
Thallium	AA-Fur	U	0.01	U	0.011	U	0.011	U	0.01	U	0.01
Vanadium	ICAP	U	0.052	U	0.053	U	0.056	U	0.052	U	0.052
Zinc	ICAP	0.23	0.052	0.26	0.053	0.35	0.056	0.20	0.052	0.15	0.052

MDL denotes Method Deflection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration subtracted from all sample results

COC 04058

Table 1.1 (cont.) Results of the Analysis for Metals in Air  
 WA # 0-236 New York (WTC) ER site

Client ID 11210  
 Location E-LIBERTY ST. &  
 SOUTH END AVE.  
 4830  
 Air Volume (L) 11/12/01  
 Date Collected 11/12/01  
 Parameter Analysis Conc MDL  
 Method  $\mu\text{g}/\text{m}^3$   $\mu\text{g}/\text{m}^3$

Aluminum	ICAP	0.78	0.26
Antimony	AA-Fur	U	0.01
Arsenic	AA-Fur	U	0.01
Barium	ICAP	0.033	0.026
Beryllium	ICAP	U	0.01
Cadmium	ICAP	U	0.026
Calcium	ICAP	6.8	0.52
Chromium	ICAP	0.03	0.026
Cobalt	ICAP	U	0.052
Copper	ICAP	0.052	0.052
Iron	ICAP	1.9	0.13
Lead	AA-Fur	0.024	0.01
Magnesium	ICAP	U	2.6
Manganese	ICAP	0.038	0.026
Nickel	ICAP	U	0.052
Potassium	ICAP	U	10
Selenium	AA-Fur	U	0.01
Silver	ICAP	U	0.026
Sodium	ICAP	U	2.6
Thallium	AA-Fur	U	0.01
Vanadium	ICAP	U	0.052
Zinc	ICAP	0.28	0.052

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration subtracted from all sample results

COC 04058

Table 1.1. Results of the Analysis for Metals in Air  
 WA # 0-236 New York (WTC) ER site

Client ID Location Air Volume (L) Date Collected	Media Blank #1		Media Blank #2		Media Blank #3		11261 Field Blank		11262 Lot Blank		11251 TACA 4980 11/15/01	
	Lab	Conc µg/filter	MDL µg/filter	Lab	Conc µg/filter	MDL µg/filter	Lab	Conc µg/filter	MDL µg/filter	Lab	Conc µg/filter	MDL µg/m <sup>3</sup>
Parameter	Analysis Method	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>
Aluminum	ICAP	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	0.69
Antimony	AA-Flur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Arsenic	AA-Flur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Barium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	0.043
Beryllium	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Cadmium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Calcium	ICAP	3.3	2.5	3.3	2.5	3.1	2.5	U	2.5	U	2.5	2.6
Chromium	ICAP	0.74	0.13	0.78	0.13	0.57	0.13	0.19	0.13	U	0.13	0.028
Cobalt	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Copper	ICAP	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	1.7
Iron	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	0.031
Lead	AA-Flur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Magnesium	ICAP	U	13	U	13	U	13	U	13	U	13	2.5
Manganese	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	0.038
Nickel	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	0.025
Potassium	ICAP	U	50	U	50	U	50	U	50	U	50	U
Selenium	AA-Flur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Silver	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Sodium	ICAP	U	13	U	13	U	13	U	13	U	13	U
Thallium	AA-Flur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Vanadium	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Zinc	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	0.12

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration subtracted from all sample res Jits

COC 04144

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Table 1.1 (cont.) Results of the Analysis for Metals in Air  
WA # 0-218 New York (WTC) ER site

Client ID Location	11252 TAGA	11253 A-BARCLAY ST. & WEST BROADWAY 4900	11254 B-CHURCH & DEV ST. 4910	11255 LOC 38 CHURCH & VESEY ST. 4800	11256 C-LIBERTY ST. & CHURCH 4920	11257 O-GREENWICH & ALBANY ST. 4880	Conc		MDL		
							µg/m³	µg/m³	µg/m³	µg/m³	
Air Volume (L) Date Collected	5010 11/15/01		11/15/01		11/15/01		11/15/01		11/15/01		
	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	
Parameter	Analysis Method	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
Aluminum	ICAP	0.78	0.25	2.3	0.25	1.4	0.26	1.7	0.25	1.2	0.26
Antimony	AA-Fur	U	0.01	0.049	0.01	0.038	0.01	0.027	0.01	0.014	0.01
Arsenic	AA-Fur	U	0.01	0.015	0.01	U	0.01	U	0.01	U	0.01
Barium	ICAP	0.043	0.025	0.082	0.025	0.069	0.025	0.11	0.025	0.074	0.025
Beryllium	ICAP	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01
Cadmium	ICAP	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025
Calcium	ICAP	2.7	0.5	23	0.51	15	0.52	12	0.51	7.2	0.51
Chromium	ICAP	U	0.025	U	0.025	0.042	0.025	0.027	0.025	U	0.025
Cobalt	ICAP	U	0.05	U	0.051	U	0.051	U	0.051	U	0.051
Copper	ICAP	0.05	0.05	0.38	0.051	0.33	0.051	0.23	0.052	0.19	0.051
Iron	ICAP	1.8	0.12	40	0.13	12	0.13	6.6	0.13	3.7	0.13
Lead	AA-Fur	0.033	0.01	0.11	0.01	0.14	0.01	0.11	0.01	0.096	0.01
Magnesium	ICAP	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Manganese	ICAP	0.038	0.025	0.15	0.025	0.18	0.025	0.10	0.025	0.12	0.025
Nickel	ICAP	U	0.05	U	0.051	U	0.051	U	0.052	U	0.051
Potassium	ICAP	U	10	U	10	U	10	U	10	U	10
Selenium	AA-Fur	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01
Silver	ICAP	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025
Sodium	ICAP	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Sulfur	ICAP	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01
Thallium	AA-Fur	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01
Vanadium	ICAP	U	0.05	U	0.051	U	0.052	U	0.052	U	0.051
Zinc	ICAP	0.13	0.05	1.4	0.051	1.3	0.051	1.0	0.052	0.82	0.051

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample results

Table 1.1 (cont.) Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ER site

Client ID Location	11258		11259		11260				
	PALMERY ST. & SOUTHEND 4670 11/15/01	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	S-RECTOR PLACE & SOUTHEND 4660 11/15/01	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	ELIBERTY ST. & SOUTHEND 4650 11/15/01	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Parameter	Analysis Method	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Aluminum	ICAP	1.0	0.26	0.95	0.26	2.5	0.26		
Antimony	AA-Fur	0.011	0.01	0.012	0.01	0.012	0.01		
Arsenic	AA-Fur	U	0.01	U	0.01	U	0.01		
Barium	ICAP	0.07	0.026	0.065	0.026	0.081	0.026		
Beryllium	ICAP	U	0.01	U	0.01	U	0.01		
Cadmium	ICAP	U	0.026	U	0.026	U	0.026		
Calcium	ICAP	4.2	0.51	4.1	0.51	16	0.52		
Chromium	ICAP	0.035	0.026	U	0.026	U	0.026		
Cobalt	ICAP	U	0.051	U	0.051	U	0.052		
Copper	ICAP	0.092	0.051	0.061	0.051	0.11	0.052		
Iron	ICAP	2.9	0.13	2.8	0.13	4.4	0.13		
Lead	AA-Fur	0.056	0.01	U	2.6	U	2.6		
Magnesium	ICAP	U	2.6	U	2.6	U	2.6		
Manganese	ICAP	0.054	0.026	0.05	0.026	0.097	0.026		
Nickel	ICAP	U	0.051	U	0.051	U	0.052		
Potassium	ICAP	U	10	U	10	U	10		
Selenium	AA-Fur	U	0.01	U	0.01	U	0.01		
Silver	ICAP	U	0.026	U	0.026	U	0.026		
Sodium	ICAP	U	2.6	U	2.6	U	2.6		
Thallium	AA-Fur	U	0.01	U	0.01	U	0.01		
Vanadium	ICAP	U	0.051	U	0.051	U	0.052		
Zinc	ICAP	0.28	0.051	0.28	0.051	0.34	0.052		

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample res.xls

Table 1.0 Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ER site

Client ID Location Air Volume (L) Date Collected	Media Blank #1		Media Blank#2		Media Blank#3		11883 Field Blank		11884 Lot Blank		11873 TAGA 4800 11/06/01		
	Lab	Conc µg/ritter	MDL µg/ritter	Lab	Conc µg/ritter	MDL µg/ritter	Lab	Conc µg/ritter	MDL µg/ritter	Lab	Conc µg/ritter	MDL µg/m³	
Parameter	Analysis Method	Conc µg/ritter	MDL µg/ritter	Conc µg/ritter	MDL µg/ritter	Conc µg/ritter	MDL µg/ritter	Conc µg/ritter	MDL µg/ritter	Conc µg/ritter	MDL µg/ritter	Conc µg/m³	MDL µg/m³
Aluminum	ICAP	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.26
Antimony	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01
Arsenic	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01
Barium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.026
Beryllium	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01
Cadmium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.026
Calcium	ICAP	3.5	2.5	4.1	2.5	3.8	2.5	U	2.5	U	2.5	1.0	0.52
Chromium	ICAP	0.67	0.13	0.76	0.13	0.83	0.13	U	0.13	0.13	0.13	U	0.026
Cobalt	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.052
Copper	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.052
Iron	ICAP	2.0	0.63	U	0.63	1.6	0.63	U	0.63	U	0.63	U	0.13
Lead	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01
Magnesium	ICAP	U	13	U	13	U	13	U	13	U	13	U	2.6
Manganese	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.026
Nickel	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.052
Potassium	ICAP	U	50	U	50	U	50	U	50	U	50	U	10
Polassium	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01
Selenium	AA-Fur	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.026
Silver	ICAP	U	13	U	13	U	13	U	13	U	13	U	2.6
Sodium	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01
Thallium	AA-Fur	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.052
Vanadium	ICAP	0.28	0.25	U	0.25	0.29	0.25	U	0.25	U	0.25	U	0.052
Zinc	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.052

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample results

Table 1.1 (cont.) Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ER site

Client ID Location	11258 P-ALBANY ST. & SOUTHEND 4870 11/15/01	11259 S-RECTOR PLACE & SOUTHEND 4860 11/15/01	11260 E-LIBERTY ST. & SOUTHEND 4850 11/15/01	Conc		MDL	
				µg/m³	MDL µg/m³	µg/m³	MDL µg/m³
Parameter	Analysis Method	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³
Aluminum	ICAP	1.0	0.26	0.95	0.26	2.5	0.26
Antimony	AA-Fur	0.011	0.01	0.012	0.01	0.012	0.01
Arsenic	AA-Fur	U	0.01	U	0.01	U	0.01
Barium	ICAP	0.07	0.026	0.065	0.026	0.081	0.026
Beryllium	ICAP	U	0.01	U	0.01	U	0.01
Cadmium	ICAP	U	0.026	U	0.026	U	0.026
Calcium	ICAP	4.2	0.51	4.1	0.51	16	0.52
Chromium	ICAP	0.035	0.026	U	0.026	U	0.026
Cobalt	ICAP	U	0.051	U	0.051	U	0.052
Copper	ICAP	0.092	0.051	0.061	0.051	0.11	0.052
Iron	ICAP	2.9	0.13	2.8	0.13	4.4	0.13
Lead	AA-Fur	0.056	0.01	0.052	0.01	0.075	0.01
Magnesium	ICAP	U	2.6	U	2.6	U	2.6
Manganese	ICAP	0.054	0.026	0.05	0.026	0.097	0.026
Nickel	ICAP	U	0.051	U	0.051	U	0.052
Potassium	ICAP	U	10	U	10	U	10
Selenium	AA-Fur	U	0.01	U	0.01	U	0.01
Silver	ICAP	U	0.026	U	0.026	U	0.026
Sodium	ICAP	U	2.6	U	2.6	U	2.6
Thallium	AA-Fur	U	0.01	U	0.01	U	0.01
Vanadium	ICAP	U	0.051	U	0.051	U	0.052
Zinc	ICAP	0.28	0.051	0.28	0.051	0.34	0.052

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample res. JIS



Table 1.0 Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ER site

Client ID Location Air Volume (L) Date Collected	Media Blank #1		Media Blank#2		Media Blank#3		11883 Field Blank		11884 Lot Blank		11873 TAGA 4800	
	Lab	Conc µg/filter	MDL µg/filter	Lab	Conc µg/filter	MDL µg/filter	Lab	Conc µg/filter	MDL µg/filter	Lab	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Parameter	Analysis Method	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>
Aluminum	ICAP	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
Antimony	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Arsenic	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Barium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Beryllium	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Cadmium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Calcium	ICAP	3.5	2.5	4.1	2.5	3.8	2.5	U	2.5	U	2.5	1.0
Chromium	ICAP	0.67	0.13	0.76	0.13	0.83	0.13	U	0.13	U	0.13	U
Cobalt	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Copper	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Iron	ICAP	2.0	0.63	U	0.63	1.6	0.63	U	0.63	U	0.63	U
Lead	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Magnesium	ICAP	U	13	U	13	U	13	U	13	U	13	U
Manganese	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Nickel	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Potassium	ICAP	U	50	U	50	U	50	U	50	U	50	U
Selenium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Silver	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Sodium	ICAP	U	13	U	13	U	13	U	13	U	13	U
Thallium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Vanadium	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Zinc	ICAP	0.28	0.25	U	0.25	0.29	0.25	U	0.25	U	0.25	0.26

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample results

Table 1.0 Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ER site

Client ID Location Air Volume (L) Date Collected	Media Blank #1		Media Blank#2		Media Blank#3		11883 Field Blank		11884 Lot Blank		11873 TAGA 4800 11/06/01		
	Lab	Conc µg/filter	MDL µg/filter	Lab	Conc µg/filter	MDL µg/filter	Lab	Conc µg/filter	MDL µg/filter	Lab	Conc µg/filter	MDL µg/m <sup>3</sup>	
Parameter	Analysis Method	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	
Aluminum	ICAP	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.26
Antimony	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01
Arsenic	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01
Barium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.026
Beryllium	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01
Cadmium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.026
Calcium	ICAP	3.5	2.5	4.1	2.5	3.8	2.5	U	2.5	U	2.5	U	1.0
Chromium	ICAP	0.67	0.13	0.76	0.13	0.83	0.13	U	0.13	U	0.13	U	0.026
Cobalt	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.052
Copper	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.052
Iron	ICAP	2.0	0.63	U	0.63	1.6	0.63	U	0.63	U	0.63	U	0.13
Lead	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01
Magnesium	ICAP	U	13	U	13	U	13	U	13	U	13	U	2.6
Manganese	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.026
Nickel	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.052
Potassium	ICAP	U	50	U	50	U	50	U	50	U	50	U	10
Selenium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01
Silver	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.026
Sodium	ICAP	U	13	U	13	U	13	U	13	U	13	U	2.6
Thallium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01
Vanadium	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.052
Zinc	ICAP	0.28	0.25	U	0.25	0.29	0.25	U	0.25	U	0.25	U	0.052

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample results

Table 1.0 (cont.) Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ER site

Client ID Location Air Volume (L) Date Collected	11874 TAGA 4800 11/06/01	11875 A-BARCLAY ST. & WEST BROADWAY 4800 11/06/01	11876 B-CHURCH & DEV ST. 4800 11/06/01	11877 LOC 3A BETWEEN WTC 4 + 5 4800 11/06/01	11878 C-CHURCH & LIBERTY 4820 11/06/01	11879 D-GREENWICH & ALBANY ST. 4850 11/06/01	Conc		MDL		
							µg/m³	µg/m³	µg/m³	µg/m³	
Parameter	Analysis Method	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
Aluminum	ICAP	0.45	0.26	1.3	0.26	0.94	0.26	2.4	0.26	2.7	0.26
Antimony	AA-Fur	U	0.01	U	0.01	0.011	0.01	0.019	0.01	0.054	0.01
Arsenic	AA-Fur	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01
Barium	ICAP	U	0.026	0.038	0.03	0.027	0.03	0.056	0.03	0.053	0.03
Beryllium	ICAP	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01
Cadmium	ICAP	U	0.026	U	0.03	U	0.03	U	0.03	U	0.03
Calcium	ICAP	1.8	0.52	13	0.52	9.0	0.52	29	0.52	37	0.52
Chromium	ICAP	U	0.026	U	0.03	U	0.03	U	0.03	U	0.03
Cobalt	ICAP	U	0.052	U	0.05	U	0.05	U	0.05	U	0.05
Copper	ICAP	U	0.052	0.11	0.05	0.077	0.05	0.25	0.05	0.39	0.05
Iron	ICAP	0.50	0.13	2.5	0.13	1.3	0.13	7.1	0.13	3.8	0.13
Lead	AA-Fur	0.014	0.01	0.082	0.01	0.028	0.01	0.076	0.01	0.13	0.01
Magnesium	ICAP	U	2.6	U	2.6	U	2.6	4.3	2.6	U	2.6
Manganese	ICAP	0.027	0.026	0.048	0.03	0.03	0.03	0.13	0.03	0.11	0.03
Nickel	ICAP	U	0.052	U	0.05	U	0.05	U	0.05	U	0.05
Potassium	ICAP	U	10	U	10	U	10	U	10	U	10
Selenium	AA-Fur	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01
Silver	ICAP	U	0.026	U	0.03	U	0.03	U	0.03	U	0.03
Sodium	ICAP	4.0	2.6	U	2.6	U	2.6	U	2.6	2.7	2.6
Thallium	AA-Fur	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01

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Vanadium	ICAP	U	0.052	U	0.05	U	0.052
Zinc	ICAP	0.17	0.052	0.28	0.05	0.60	0.052

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample results

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WA # 0-236 New York (WTC) ER site

Client ID 11880 11881 11882  
 Location P-ALBANY ST. & S-RECTOR PLACE & E-LIBERTY ST. &  
 SOUTHEND SOUTHEND SOUTHEND  
 4820 4840 4840  
 Air Volume (L) 11/06/01 11/06/01 11/06/01  
 Date Collected

Parameter	Analysis Method	11880		11881		11882	
		Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³
Aluminum	ICAP	0.85	0.26	U	0.26	0.75	0.26
Antimony	AA-Fur	U	0.01	U	0.01	U	0.01
Arsenic	AA-Fur	U	0.01	U	0.01	U	0.01
Barium	ICAP	0.034	0.026	U	0.03	U	0.03
Beryllium	ICAP	U	0.01	U	0.01	U	0.01
Cadmium	ICAP	U	0.026	U	0.03	U	0.03
Calcium	ICAP	5.2	0.52	0.94	0.52	5.4	0.52
Chromium	ICAP	U	0.026	U	0.03	U	0.03
Cobalt	ICAP	U	0.052	U	0.05	U	0.05
Copper	ICAP	0.066	0.052	U	0.05	0.06	0.05
Iron	ICAP	1.6	0.13	0.16	0.13	1.0	0.13
Lead	AA-Fur	0.023	0.01	U	0.01	0.018	0.01
Magnesium	ICAP	U	2.6	U	2.6	U	2.6
Manganese	ICAP	0.034	0.026	U	0.03	0.026	0.03
Nickel	ICAP	U	0.052	U	0.05	U	0.05
Potassium	ICAP	U	10	U	10	U	10
Selenium	AA-Fur	U	0.01	U	0.01	U	0.01
Silver	ICAP	U	0.026	U	0.03	U	0.03
Sodium	ICAP	U	2.6	U	2.6	3.3	2.6
Thallium	AA-Fur	U	0.01	U	0.01	U	0.01
Vanadium	ICAP	U	0.052	U	0.05	U	0.05
Zinc	ICAP	0.29	0.052	0.078	0.05	0.26	0.05

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MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample results  
COC 04862

**NYC Emergency Response  
Air Samples - floxin and furan results  
Sampling Date 10/20/11**

Sample No.	11587 R-TAGA			11588 R-TAGA			11589 A-Randolph & West Broadway			11590 B-Church & Day St.			11591 Loc 3A Between WTC 4 & WTC 5			
	WG6273-1 Method Blank 0	Result ng	EMPC ng	MDL ng	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>
2376-TCDF	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020
2376-PCDF	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10
2376-Fur	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10
23478-TCDF	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10
23478-PCDF	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10
23478-Fur	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10
234878-TCDF	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020
234878-PCDF	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10
234878-Fur	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10
23478-TCDF	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020
23478-PCDF	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10
23478-Fur	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10
Total TCDFs	U		U		U		U		U		U		U	0.153	U	0.0028
Total PCDFs	U		U		U		U		U		U		U	0.100	U	0.012
Total Fur	U		U		U		U		U		U		U	0.0009	U	0.014
Total HCDFs	0.0073		U	0.0064		U		0.0008		U		0.0023		0.0009		0.014
Total TCDFs	U		U		U		U		U		U		U	0.0308	U	0.0028
Total PCDFs	U		U		U		U		U		U		U	0.0308	U	0.0028
Total Fur	U		U		U		U		U		U		U	0.0009	U	0.014
Total HCDFs	U		U		U		U		U		U		U	0.0009	U	0.014
Total Adjusted Conc	0.0083		U	0.0080		U		0.0000		U		0.0007		0.0050		0.0028
TEQ (NB=1/2)	0.0053		U	0.0010		U		0.0010		U		0.0020		0.0034		0.0028

COCs a/c/s  
B= Not detected due to blank contamination  
EMPC= Estimated Maximum Possible Concentration  
TCDF= Toxicity Equivalent  
The TEQ (NB=1/2) is calculated using 1/2 of the estimated detection limit for U (non-detect) values.

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Table 1.0 (cont.) Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ER site

Client ID	11880	11881	11882				
Location	P-ALBANY ST. & SOUTHWEND 4820	S-RECTOR PLACE & SOUTHWEND 4840	E-LIBERTY ST. & SOUTHWEND 4840				
Air Volume (L)	4820	4840	4840				
Date Collected	11/06/01	11/06/01	11/06/01				
Parameter	Analysis Method	Conc $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$	Conc $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$	Conc $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$
Aluminum	ICAP	0.85	0.26	U	0.26	0.75	0.26
Antimony	AA-Fur	U	0.01	U	0.01	U	0.01
Arsenic	AA-Fur	U	0.01	U	0.01	U	0.01
Barium	ICAP	0.034	0.026	U	0.03	U	0.03
Beryllium	ICAP	U	0.01	U	0.01	U	0.01
Cadmium	ICAP	U	0.026	U	0.03	U	0.03
Calcium	ICAP	5.2	0.52	0.94	0.52	5.4	0.52
Chromium	ICAP	U	0.026	U	0.03	U	0.03
Cobalt	ICAP	U	0.052	U	0.05	U	0.05
Copper	ICAP	0.066	0.052	U	0.05	0.06	0.05
Iron	ICAP	1.6	0.13	0.46	0.13	1.0	0.13
Lead	AA-Fur	0.023	0.01	U	0.01	0.018	0.01
Magnesium	ICAP	U	2.6	U	2.6	U	2.6
Manganese	ICAP	0.034	0.026	U	0.03	0.026	0.03
Nickel	ICAP	U	0.052	U	0.05	U	0.05
Potassium	ICAP	U	10	U	10	U	10
Selenium	AA-Fur	U	0.01	U	0.01	U	0.01
Silver	ICAP	U	0.026	U	0.03	U	0.03
Sodium	ICAP	U	2.6	U	2.6	3.3	2.6
Thallium	AA-Fur	U	0.01	U	0.01	U	0.01
Vanadium	ICAP	U	0.052	U	0.05	U	0.05
Zinc	ICAP	0.29	0.052	0.078	0.05	0.26	0.05

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MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample results  
COC 04862



AWC Emergency Response  
Sampling Data: 10/23/2021  
Form: R007

Sample No.	Site/Location	11592 Clenny St & Church 7200	11593 O'Connell's Albany St 7200	11594 P. Albany St & South Eng 7200	11595 S. Reactor Plume & South End Ave 7200	11596 H. Linnit, St & South End Ave 7200	11597 Field Blank 0	11598 Lab Blank 0
Volume (Liters)		7200	7200	7200	7200	7200		
Analyte	Result	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>
22378-PVC-D0	U	0.0013 J	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U
22378-PVC-D1	U	0.014 U	0.0045 J	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
22378-PVC-D2	U	0.014 U	0.0045 J	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
22378-PVC-D3	U	0.014 U	0.0045 J	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
224478-HKC-D0	U	0.015 U	0.0052 J	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
224478-HKC-D1	U	0.015 U	0.0052 J	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
224478-HKC-D2	U	0.015 U	0.0052 J	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
224478-HKC-D3	U	0.015 U	0.0052 J	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
22178-TCDF	U	0.004 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U
22178-PVC-D4	U	0.0014 J	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
22178-PVC-D5	U	0.0014 J	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
22178-PVC-D6	U	0.0014 J	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
22178-PVC-D7	U	0.0014 J	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
22378-HKC-D0	U	0.0017 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
22378-HKC-D1	U	0.0017 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
22378-HKC-D2	U	0.0017 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
22378-HKC-D3	U	0.0017 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
224678-HKC-D4	U	0.0061 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
224678-HKC-D5	U	0.0061 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
224678-HKC-D6	U	0.0061 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
224678-HKC-D7	U	0.0061 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
224678-HKC-D8	U	0.0061 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Total PCBs	U	0.18 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U
Total HCBs	U	0.028 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
Total HCDBs	U	0.0059 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U
Total HxCDBs	U	0.016 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U
Total TCDFs	U	0.027 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Total PCBDFs	U	0.056 U	0.0051 U	0.0051 U	0.0051 U	0.0051 U	0.0051 U	0.0051 U
Total HxCDFs	U	0.0068 U	0.0051 U	0.0051 U	0.0051 U	0.0051 U	0.0051 U	0.0051 U
Total HxCDFs	U	0.0068 U	0.0051 U	0.0051 U	0.0051 U	0.0051 U	0.0051 U	0.0051 U
Total PCBs and CDFs	U	0.0068 U	0.0051 U	0.0051 U	0.0051 U	0.0051 U	0.0051 U	0.0051 U
TEQ (NB=1)	U	0.0008 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
TEQ (NB=1)	U	0.0008 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
TEQ (NB=1)	U	0.0008 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
TEQ (NB=1)	U	0.0008 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
COOL (NB=2)	U	0.0008 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U

EMPC: Estimated Maximum Possible Concentration  
MDL: Method Detection Limit  
The TEQ (NB=1/2) is calculated using 1/2 of the estimated detection limit for U (non-detect) values.

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Thursday and Friday, November 29 and 30, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of November 30, 2001 at 5:30 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 110 samples taken in and around ground zero from November 25 through November 26. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on November 20-22 for a total of 89 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,711, with 28 samples above the standard (27 were collected prior to September 30 and one was collected on October 9).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected from November 20 -21 from these locations showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Fifty-four samples were collected on November 26 - 28. All of these samples were below the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on November 27 at the Staten Island Landfill. Nothing of significant readings reported.

**Particulate Monitoring** - EPA used portable monitors to collect samples on November 28 at the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). Particulate levels at all locations were below the OSHA time-weighted permissible exposure limit.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted November 27 at Pace University, Borough of Manhattan Community College, and the Coast Guard building in Battery Park. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 20 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**PM10** - Monitoring for particulate matter (particles less than 10 microns in diameter) was conducted on November 26 and 27 at a monitoring site on Wall Street. The twenty-four hour averages for these readings were *27.61ug/m<sup>3</sup> and 32.88 ug/m<sup>3</sup>*, well below EPA's Ambient Air Quality Standard of *150ug/m<sup>3</sup>*.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on November 28 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene exceeded the OSHA standard at one location on the debris pile of the South Tower at ground level. Two other samples taken at Austin Tobin Plaza and the EPA's Wash Tent showed no detectable levels of benzene. Similar results were found for samples taken on November 22.

**Dioxin** - Ten samples were collected on November 2 and analyzed for dioxin/furans. Three samples showed results above the level at which EPA would take some type of action to reduce people's exposure. This action guideline is based on a 30-year exposure. However, none of the samples were above the EPA action guideline adjusted to a one-year exposure. These levels do not pose a short-term health affect but should be monitored if they persist for a long period of time.

**Direct Air Readings** - No significant readings found on November 28.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Thursday, November 29, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Nov 25, 1200 - 2359 hrs)

All 19 samples analyzed were below the TEM AHERA standard.  
3 samples (Locations H, D, T) were not collected due to equipment malfunction.

NYC / ER (Nov 26, 0001 - 1200 hrs)

All 14 samples analyzed were below the TEM AHERA standard.  
7 samples (Locations L, N, J, F, D, U, P) were not collected due to equipment malfunction.  
Note: Low sample volumes reported.

Landfill Ambient Air Sampling Locations

Fresh Kills (Nov 26, 1719 - Nov 27, 0719) - Asbestos

All 18 samples analyzed were below the TEM AHERA standard.

Fresh Kills (Nov 27, 0651 - 1840) - Asbestos

All 17 samples analyzed were below the TEM AHERA standard.  
1 sample ("Perimeter" #7) was determined to be invalid due to no sample volume.

Fresh Kills (Nov 28) - Particulate Monitoring (Dataram)

Nothing of significance reported based on daily average concentrations.

Ambient Air Sampling Locations

NYC / ER (Nov 27) - Particulate Monitoring (PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was *13.53 ug/m<sup>3</sup>*.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *17.08 ug/m<sup>3</sup>*.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *12.78 ug/m<sup>3</sup>*.  
Wall Street - No data reported.

All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).  
Note: Park Row (Site 1) is the location formerly identified as Pace University.  
Note: The Wall Street location represents a new addition to the TEOM system. The location is bounded by Wall St., Exchange Pl., William St., and Broad St.

NYC / ER (Nov 26) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **27.61 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 27) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **32.88 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

## NYC / ER (Nov 20-21) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Pace University (Site 1)
- Manhattan Boro Community College (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 15 samples were collected from these monitoring sites.  
All of the samples were below the TEM AHERA standard.

## NYC / ER (Nov 28) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.

Instruments operated approximately 5.5 hours

Station L values ranged from 18.5 to 176.7 ug/m<sup>3</sup> with an average of 59.9 ug/m<sup>3</sup>.

Station N values ranged from 60.6 to 219.3 ug/m<sup>3</sup> with an average of 99.3 ug/m<sup>3</sup>.

Station R values ranged from 17.9 to 210.6 ug/m<sup>3</sup> with an average of 67.7 ug/m<sup>3</sup>.

## NYC / ER (Nov 14) - Volatile Organics (Mobile Laboratory)

**Errata:** Previously noted on Tuesday, November 20<sup>th</sup> that 1,3-Butadiene exceeded OSHA PEL (1 ppm) and OSHA ST (5 ppm) at one location (North Tower) on the debris pile in the plume at ground level on November 10<sup>th</sup>. The exceedance actually occurred on November 8<sup>th</sup>.

**Errata:** Previously noted on Tuesday, November 20<sup>th</sup> that 1,3-Butadiene exceeded OSHA PEL (1 ppm) at one location (North Tower) on the debris pile in the plume at ground level on October 24<sup>th</sup>. The exceedance actually occurred on October 23<sup>rd</sup>.

## NYC / ER (Nov 28) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at one location (South Tower) on the debris pile in the plume at ground level.

2 other samples (Wash Tent and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

1586

Direct Reading Instruments

NYC / ER (Nov 28)

Nothing of significance reported.



NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/20/01 1200 to 2400

Data Validation Date: 11/28/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)				
					f/mm <sup>2</sup>	f/cc	Structures (#)		S/mm <sup>2</sup>	S-f/cc*	
								0.5µ - 5µ	5µ		
11/20/01	7093-18-0054	Pace Univ.	1050***	Air	<7.0	<0.003	0	0	0	<13.23	<0.00485
11/20/01	7093-19-0054	BMCC	1210	Air	<7.0	<0.002	0	0	0	<13.23	<0.0042
11/20/01	7093-20-0054	Coast Guard	1244	Air	<7.0	<0.002	0	0	0	<15.87	<0.0049
11/20/01	7093-15-0053	Manhattan PS #143	1440	Air	<7.0	<0.002	0	0	0	<15.87	<0.0042
11/20/01	7094-09-0047	Bronx PS #154	820***	Air	<7.0	<0.003	0	0	0	<9.92	<0.0047
11/20/01	7096-12-0049	Queens PS #199	1170***	Air	<7.0	<0.002	0	0	0	<13.23	<0.0044
11/20/01	7095-98-0050	Brooklyn PS #274	1152***	Air	<7.0	<0.002	0	0	0	<13.23	<0.0044
11/20/01	7097-18-0047	Staten Is. PS #44	1440	Air	<7.0	<0.002	0	0	0	<15.87	<0.0042

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/21/2001 1200 to 2400  
 Data Validation Date: 11/28/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					fimm <sup>2</sup>	ficc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
							0.5µ - 5µ	5µ		
11/21/01	7093-18-0055	Pace Univ.	1202	Air	<7.0	<0.002	0	0	<13.23	<0.0042
11/21/01	7093-19-0055	BMCC	1086***	Air	<7.0	<0.002	0	0	<13.23	<0.0047
11/21/01	7093-20-0055	Coast Guard	1098***	Air	<7.0	<0.002	0	0	<13.23	<0.0046
11/21/01	7093-15-0054	Manhattan PS #143	1440	Air	<7.0	<0.002	0	0	<15.87	<0.0042
11/21/01	7095-98-0051	Brooklyn PS #274	1018***	Air	<7.0	<0.003	0	0	<13.23	<0.0050
11/21/01	7096-12-0050	Queens PS #199	1408	Air	<7.0	<0.002	0	0	<15.87	<0.0043
11/21/01	7097-1B-0048 <sup>(1)</sup>	Staten Island PS #44	688***	Air	<7.0	<0.004	0	0	<7.94	<0.0044
		Bronx PS #154								NC

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysolite
- (1) - Sample not listed on chain of custody
- n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/25/01 1200 to 2359  
 Data Validation Date: 11/27/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
11/25/01	RST-01119	L	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/25/01	RST-01120	M1	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/25/01	RST-01121	N	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/25/01	RST-01122	J	354	Air	<7.0	<0.008	0	0	<8.89	<0.0087
11/25/01	RST-01123	F	248	Air	<7.0	<0.011	0	1***	6	0.0124
11/25/01	RST-01124	Q	419	Air	<7.0	<0.006	0	0	<8.0	<0.0074
11/25/01	RST-01125	A	628	Air	<7.0	<0.004	0	0	<8.0	<0.0049
11/25/01	RST-01126	B	720	Air	<7.0	<0.004	0	0	<8.0	<0.0043
11/25/01	RST-01127	C	720	Air	8.29	0.004	0	0	<8.0	<0.0043
11/25/01	RST-01128	H	720	Air	<7.0	<0.004	0	0	<8.89	<0.0046
11/25/01	RST-01129	D	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/25/01	RST-01130	K-Duplicate	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/25/01	RST-01131	T-Duplicate	543	Air	<7.0	<0.005	0	0	<8.0	<0.0057
11/25/01	RST-01132	U	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/25/01	RST-01133	V	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/25/01	RST-01134	S	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/25/01	RST-01135	P	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/25/01	RST-01136	E	720	Air	<7.0	<0.004	1***	0	8.89	0.0048
11/25/01	RST-01137	W	405	Air	<7.0	<0.007	0	0	<8.0	<0.0075
11/26/01	TB112891	Trip Blank	0	Air	<7.0	n/a	NA <sup>21</sup>	NA <sup>21</sup>	NA <sup>21</sup>	NA <sup>21</sup>
11/26/01	FB112891	Field Blank	0	Air	<7.0	n/a	NA <sup>21</sup>	NA <sup>21</sup>	NA <sup>21</sup>	NA <sup>21</sup>

**Key:**  
 - Sample volume (filters) is below recommended limit for the TEM method; volume is based on pump reading  
 - Structure (S) is roughly equivalent to fiber (f)  
 - NA<sup>1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested

**Sampling Locations:**  
 A. NE corner of West Broadway & Barclay  
 B. SE corner of Church & Dey St.  
 C. Trinity (a.k.a. Church) & Liberty  
 D. East end of Albany St (Greenwich St)  
 E. East end of Liberty St at South End Ave  
 F. Western end of Liberty St at South End Ave  
 G. Northern median strip of Vesey & West St  
 H. Church and Dey St  
 I. SE corner of Church & Broadway  
 J. NE corner of Warren & West St  
 K. West St. & Albany in median strip  
 L. On walkway toward North Park rec. area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M. Western end of Harrison St. at West St.  
 N. (on tree next to bulkhead)  
 O. West St. - 30 yards south of Harrison St. at bulkhead  
 P. South side of Pier 25 (next to volleyball c)  
 Q. NE corner of South End Ave. & Albany  
 R. Barclay & West St. (center island) in proximity to USCC command post  
 S. TAGA location  
 T. Pier 6 South End  
 U. Pier 6 Helipad  
 V. Pier 6 Bus Stop  
 W. Wash Tent Common Area

**TEM (AHERA):**  
 X. Western end of Harrison St. at West St.  
 Y. West St. - 30 yards south of Harrison St. at bulkhead  
 Z. South side of Pier 25 (next to volleyball c)  
 AA. NE corner of South End Ave. & Albany  
 AB. Barclay & West St. (center island) in proximity to USCC command post  
 AC. TAGA location  
 AD. Pier 6 South End  
 AE. Pier 6 Helipad  
 AF. Pier 6 Bus Stop  
 AG. Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/26/01 0001 to 1200  
 Data Validation Date: 11/27/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	f/m <sup>3</sup>	f/cc	PCM by NIOSH 7400			TEM (AHERA)		
							0.5µ	5µ	5µ	Structures (#)	S-fiber**	S-fiber**
11/26/01	RST-01138	M1	327	Air	<7.0	<0.009	0	0	<8.0	<0.0064		
		N				Not Collected						
		J				Not Collected						
		F				Not Collected						
11/26/01	RST-01139	Q	276	Air	<7.0	<0.010	0	0	<8.0	<0.0111		
11/26/01	RST-01140	A	696	Air	<7.0	<0.004	0	0	<8.0	<0.0044		
11/26/01	RST-01141	B	720	Air	11.46	0.006	0	0	<8.89	<0.0048		
11/26/01	RST-01142	C	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048		
11/26/01	RST-01143	H	696	Air	<7.0	<0.004	0	0	<8.0	<0.0044		
11/26/01	RST-01144	I	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048		
11/26/01	RST-01145	K	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048		
11/26/01	RST-01146	T	260	Air	<7.0	<0.010	0	0	<8.0	<0.0118		
		U				Not Collected						
11/26/01	RST-01147	V	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048		
11/26/01	RST-01148	V-Duplicate	393	Air	<7.0	<0.007	0	0	<8.0	<0.0078		
11/26/01	RST-01149	S	28**	Air	<7.0	<0.098	0	0	<8.0	<0.1100		
		P				Not Collected						
11/26/01	RST-01150	E	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048		
11/26/01	RST-01151	W	410	Air	<7.0	<0.007	0	0	<8.0	<0.0075		
11/26/01	TB112691	Trip Blank	0			n/a			NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/26/01	FB112691	Field Blank	0			n/a			NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Minimum low sample volume  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty St.  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vespy & West St  
 H: Church and Duane St.  
 I: East side of West St & Broadway  
 J: SE corner of Warren & West St  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec. area in north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St.  
 N: (on tree next to bulkhead)  
 O: West St. - 50 yards south of Harrison St. at bulkhead  
 P: South side of Pier 25 (next to volleyball c)  
 Q: NE corner of South End Ave. & Albany  
 R: Barclay & West St. (center island) in proximity to USOC command post  
 S: TAGA Bus Location  
 T: Pier 6  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AHERA):**  
 M: Western end of Harrison St. at West St.  
 N: (on tree next to bulkhead)  
 O: West St. - 50 yards south of Harrison St. at bulkhead  
 P: South side of Pier 25 (next to volleyball c)  
 Q: NE corner of South End Ave. & Albany  
 R: Barclay & West St. (center island) in proximity to USOC command post  
 S: TAGA Bus Location  
 T: Pier 6  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM); 70 S/mmm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/26/01 17:19 to 11/27/01 07:19  
 Data Validation Date: 11/28/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					fmm <sup>2</sup>	f/cc	Structures (#) 0.5µ-5µ	S/mm <sup>2</sup>	S-f/cc**	
11/26/01	LF01107	P-1	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01108	P-2	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01109	P-3	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01110	P-4	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01111	P-5	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01112	P-6	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01113	P-7	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01114	P-8	574	Air	<7.0	<0.005	0	<8.75	<0.0059	
11/26/01	LF01115	W-11	720	Air	<7.0	<0.004	1***	17.5	0.0094	
11/26/01	LF01116	W-12A	675	Air	<7.0	<0.004	1***	8.75	0.0050	
11/26/01	LF01117	W-12B	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01118	B-13	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01119	B-14	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01120	T-15	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01121	T-16	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01122	O-17	548	Air	<7.0	<0.005	0	<8.75	<0.0061	
11/28/01	LF01123	O-18	610	Air	<7.0	<0.004	0	<8.75	<0.0055	
11/26/01	LF01124	O-19	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
11/26/01	LF01125	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	
11/26/01	LF01126	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/27/01 0651 to 11/27 1840  
 Data Validation Date: 11/28/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	5µm	5µm <sup>2</sup>	S-f/cc**
11/27/01	LF01127	P-1	558	Air	<7.0	<0.005	0	<7.87	<0.0054	<0.0051
11/27/01	LF01128	P-2	592	Air	<7.0	<0.005	0	<7.87	<0.0051	<0.0051
11/27/01	LF01129	P-3	592	Air	<7.0	<0.005	0	<7.87	<0.0051	<0.0051
11/27/01	LF01130	P-4	648	Air	<7.0	<0.004	0	<7.87	<0.0047	<0.0047
11/27/01	LF01131	P-5	648	Air	<7.0	<0.004	0	<7.87	<0.0047	<0.0047
11/27/01	LF01132	P-6	648	Air	<7.0	<0.004	0	<7.87	<0.0047	<0.0047
11/27/01	LF01133	P-8	0	Air	R	R	R	R	R	R
11/27/01	LF01134	P-8	48	Air	<7.0	<0.004	0	<7.87	<0.0047	<0.0047
11/27/01	LF01135	W-11	648	Air	36.76	0.026	0	<7.87	<0.0046	<0.0046
11/27/01	LF01136	W-12A	660	Air	36.22	0.022	0	<7.87	<0.0046	<0.0046
11/27/01	LF01137	W-12B	653	Air	<7.0	<0.004	1***	<7.87	<0.0047	<0.0047
11/27/01	LF01138	B-13	648	Air	<7.0	<0.004	0	<7.87	<0.0047	<0.0047
11/27/01	LF01139	B-14	648	Air	45.86	0.027	0	<7.87	<0.0046	<0.0046
11/27/01	LF01140	T-15	652	Air	17.83	0.011	0	<7.87	<0.0047	<0.0047
11/27/01	LF01141	T-16	651	Air	<7.0	<0.005	0	<7.87	<0.0050	<0.0050
11/27/01	LF01142	O-17	462	Air	<7.0	<0.005	0	<7.87	<0.0051	<0.0051
11/27/01	LF01143	O-18	496	Air	<7.0	<0.005	0	<7.87	<0.0051	<0.0051
11/27/01	LF01144	O-19	496	Air	<7.0	<0.005	0	<7.87	<0.0051	<0.0051
11/27/01	LF01145	Lot Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>
11/27/01	LF01146	Trip Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Sample not collected  
 NR - Not requested  
 RS - Sample not submitted due to no sample volume  
 R - Sample data rejected due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/16/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 5µm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
November 28, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	45	11:15:00	10	00:15:00	100	0.0	6.1	20.8	430.0
2	-74.198262	40.566883	2295	1	44	11:00:00	10	00:15:00	100	0.0	17.8	55	349.4
3	-74.198685	40.570054	2011	1	44	09:45:00	10	00:15:00	100	0.0	18.7	63.7	197.6
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	44	11:00:00	10	00:15:00	100	0.0	22.7	65.1	326.8
8	-74.203019	40.561915	2363	1	44	11:00:00	10	00:15:00	100	0.0	5.4	66.7	341.2

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/28/01

File Name	NYC284	NYC285	NYC286	NYC287	NYC288	NYC289
Sample Location	Instrument Blank	Tedar Bag Blank	Washing Tank	Austin Tobin Plaza	North Tower	South Tower
Sample Number			Acrobat Air	Acrobat Air	Pume	Pume
Sample Height			ACT155	ACT155	ACT157	ACT158
Sample Volume		250 mL	Breathing Level	Breathing Level	Ground Level	Ground Level
Reporting Limit (RL)	20	20	20	20	25	50
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	RL	85	2800
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	83	2400
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	220
Bromochloroethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isobutyl Acetate	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	RL	170	6000
Trichlorofluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	120
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	46	1400
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	30	180
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	190	1200
Heptane	RL	RL	RL	RL	RL	140
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	78
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	120	430
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	81
Tetrachloroethane	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	120	87
m,p-Xylenes	RL	RL	RL	RL	83	88
o-Xylene	RL	RL	RL	RL	RL	55
Styrene	RL	RL	RL	RL	RL	240
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL



**United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet**

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: A. Becker

U.S. EPA: Norrell

Date: 11/28/01

RST Site Project Manager Brennan

Location	<u>R</u>	<u>L</u>	<u>N</u>			
DataRAM ID No.	<u>2645</u>	<u>2648</u>	<u>2646</u>			
Flow Rate (Liters / Minute)	<u>2.0</u>	<u>2.0</u>	<u>2.0</u>			
Start Time	<u>0723</u>	<u>0726</u>	<u>0739</u>			
Stop Time	<u>1411</u>	<u>1416</u>	<u>1419</u>			
Run Time (Minutes)	<u>358</u>	<u>337</u>	<u>340</u>			
Minimum Concentration (ug/m <sup>3</sup> )	<u>17.9</u>	<u>18.5</u>	<u>606</u>			
Maximum Concentration (ug/m <sup>3</sup> )	<u>210.6</u>	<u>176.7</u>	<u>219.3</u>			
Average Concentration (TWA) (ug/m <sup>3</sup> )	<u>67.7</u>	<u>59.9</u>	<u>99.3</u>			<u>AD</u>

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



EARLY

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/28/01

RST: B. Hoffman

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0727	ND	ND	ND	20.1	ND	ND	ND	ND	ND	<1.00	ND	<0.50
M	0733	ND	ND	ND	20.1	ND	ND	ND	ND	ND	<1.00	ND	<0.50
N	0734	ND	ND	ND	20.1	1	ND	ND	ND	ND	<1.00	ND	<0.50
J	0751	ND	ND	ND	20.1	1	ND	ND	ND	ND	<1.00	ND	<0.50
F	0759	ND	ND	ND	20.1	ND	ND	ND	ND	ND	<1.00	ND	<0.50
S	0804	ND	ND	ND	20.1	ND	ND	ND	ND	ND	<1.00	ND	<0.50
A	0811	ND	ND	ND	20.1	1	ND	ND	ND	ND	<1.00	ND	<0.50
S	0817	ND	ND	ND	20.2	ND	ND	ND	ND	ND	<1.00	ND	<0.50
L	0823	ND	ND	ND	20.2	ND	ND	ND	ND	ND	<1.00	ND	<0.50
H	0833	ND	ND	ND	20.1	ND	ND	ND	ND	ND	<1.00	ND	<0.50
I	0846	ND	ND	ND	20.1	3	ND	ND	ND	ND	<1.00	ND	<0.50
U	0855	ND	ND	ND	20.2	2	ND	ND	ND	ND	<1.00	ND	<0.50
K	0900	ND	ND	ND	20.2	1	ND	ND	ND	ND	<1.00	ND	<0.50
T	0911	ND	ND	ND	20.2	1	ND	ND	ND	ND	<1.00	ND	<0.50
U	0916	ND	ND	ND	20.2	ND	ND	ND	ND	ND	<1.00	ND	<0.50
V	0923	ND	ND	ND	20.2	3	ND	ND	ND	ND	<1.00	ND	<0.50
S	0932	ND	ND	ND	20.3	ND	ND	ND	ND	ND	<1.00	ND	<0.50
F	0937	ND	ND	ND	20.3	5	ND	ND	ND	ND	<1.00	ND	<0.50
E	0942	ND	ND	ND	20.3	1	ND	ND	ND	ND	<1.00	ND	<0.50

HCL, CCl<sub>4</sub> → DRAMC-5  
HF → SP1

- Location A: Berkeley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Helipad
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



LATE

Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

DATE: 11/28/61

RST: B. Hoffmann

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	1214	ND	ND	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
M	1216	ND	ND	ND	20.3	2	ND	ND	ND	ND	ND	ND	ND
N	1220	ND	ND	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
U	1226	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
F	1232	ND	ND	ND	20.4	2	ND	ND	ND	ND	ND	ND	ND
A	1237	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
G	1244	ND	ND	ND	20.5	2	ND	ND	ND	ND	ND	ND	ND
S	1250	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
C	1255	ND	ND	ND	20.5	2	ND	ND	ND	ND	ND	ND	ND
H	1303	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
I	1310	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
D	1312	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
R	1324	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
T	1329	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
U	1331	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
V	1333	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
S	1343	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
P	1345	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
E	1353	ND	ND	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND

HCL, HF, COCl<sub>2</sub> → SPM

- Location A: Barlday and West Broadway
- Location B: Church and Day
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Reactor and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Friday, November 30, 2001

Landfill Ambient Air Sampling Locations

Fresh Kills (Nov 27, 1645 - Nov 28, 0803) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.  
Sampling location O-19 represents a new off-site point located near the intersection of Woodrow Road and Huguenot Avenue.  
Sampling location MPHS-20 represents a new perimeter point located near the Mess Tent, approximately half way between "Perimeter" #1 and #8. It is situated approximately 18 feet above the landfill surface.

Ambient Air Sampling Locations

NYC / ER (Nov 2) - Dioxin .

3 of 10 samples (Locations A, B, and 3A) collected were above the EPA Removal Action guidelines (based on a 30-year exposure).  
No samples were identified above the EPA Removal Action guidelines adjusted to a 1-year exposure.  
Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for the long-term (chronic exposure).

NYC / ER (Nov 22) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Pace University (Site 1)
- Manhattan Boro Community College (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St, Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 7 samples were collected from these monitoring sites.  
All of the samples were below the TEM AHERA standard.  
A sample was not collected from Site 5.

NYC / ER (Nov 23) - Asbestos Monitoring (Particulate Monitoring Stations)

**Errata:** The corrected table (attached) revises the sample collection date identified at the top of the table to correspond with the date identified within the table (Nov 23). These results were previously presented in the November 28 Sampling Situation Report.  
All results remain the same.

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NYC / ER (Nov 22) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) on the debris pile in the plume at ground level.  
2 other samples (Wash Tent and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/27/01 1645 to 11/29/01 0803  
 Data Validation Date: 11/29/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume <sup>(1)</sup>	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	f/m <sup>2</sup>	f/cc	S-fiber <sup>(2)</sup>
11/27/01	LF01147	P-1	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/27/01	LF01148	P-2	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/27/01	LF01149	P-3	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/27/01	LF01150	P-4	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/27/01	LF01151	P-5	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/27/01	LF01152	P-6	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/27/01	LF01153	P-7	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/27/01	LF01154	P-8	552	Air	<7.0	<0.005	0	<7.87	<0.0047	<0.0047
11/27/01	LF01155	W-11	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/27/01	LF01156	W-12A	658	Air	<7.0	<0.004	1***	15.75	0.0092	0.0092
11/27/01	LF01157	W-12B	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/27/01	LF01158	B-13	720	Air	<7.0	<0.004	1***	8.75	0.0047	0.0047
11/27/01	LF01159	B-14	700	Air	<7.0	<0.004	0	<9.84	<0.0054	<0.0054
11/27/01	LF01160	T-15	809	Air	<7.0	<0.003	0	<9.84	<0.0047	<0.0047
11/27/01	LF01161	T-16	810	Air	8.92	0.004	0	<9.84	<0.0047	<0.0047
11/27/01	LF01162	O-17	551	Air	<7.0	<0.005	0	<7.87	<0.0047	<0.0047
11/27/01	LF01163	O-18	545	Air	<7.0	<0.005	0	<7.87	<0.0055	<0.0055
11/27/01	LF01164	O-19	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/27/01	LF01165	MPHS-20	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
11/27/01	LF01166	Lot Blank	0	Air	n/a	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/27/01	LF01167	Trip Blank	0	Air	<7.0	<7.0	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/22/2001 1200 to 2400  
 Data Validation Date: 11/28/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					fimm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
11/22/01	7093-18-0056	Pace Univ.	1160***	Air	<7.0	<0.002	0	0	<13.23	<0.0044
11/22/01	7093-18-0056	BMCC	1264	Air	<7.0	<0.002	0	0	<15.87	<0.0048
11/22/01	7093-20-0056	Coast Guard	1180***	Air	<7.0	<0.002	0	0	<13.23	<0.0043
11/22/01	7093-15-0055	Marhalian PS #143	1196***	Air	<7.0	<0.002	0	0	<13.23	<0.0043
11/22/01	7096-12-0051	Queens PS #199	1194***	Air	<7.0	<0.002	0	0	<13.23	<0.0043
11/22/01	7095-98-0052	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<15.87	<0.0042
11/22/01	7097-18-0049	Staten Island PS #44	1440	Air	<7.0	<0.002	0	0	<15.87	<0.0042
		Bronx PS #154								
Not Collected										

Key:  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/23/01 1200 to 2400  
 Data Validation Date: 11/27/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>		S-f/cc*
							0.5µ - 5µ	5µ		
11/23/01	7093-18-0057	Pace Univ.	1180***	Air	<7.0	<0.002	0	0	<13.23	<0.0044
11/23/01	7093-19-0057	BMCC	1106***	Air	<7.0	<0.002	0	0	<13.23	<0.0046
11/23/01	7093-20-0057	Coast Guard	1118***	Air	<7.0	<0.002	0	0	<13.23	<0.0046
11/23/01	7093-15-0056	Manhattan PS #143	1440	Air	<7.0	<0.002	0	0	<16	<0.0043
-	-	Bronx PS #154	-	-	-	-	Not Collected			
11/23/01	7096-12-0052	Queens PS #199	1438	Air	<7.0	<0.002	0	0	<16	<0.0043
11/23/01	7095-98-0053	Brooklyn PS #274	1114***	Air	<7.0	<0.002	0	0	<13.33	<0.0046
11/23/01	7097-18-0050	Staten Is. PS #44	1392***	Air	<7.0	<0.002	0	0	<16	<0.0044

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/04  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Emergency Response  
Air Samples - dioxin and furan results  
Sampling Date 11/02/01

Sample No.	Volume (Liters)	WQS200.1 Method Blank	11624 R- TAGA 7210	11625 R- TAGA 7468	11625 A-B Barclay & West Broadway 7105	11626 B-Church & Day-St. 7335	11627 Loc. 3A Between WTC 4 & WTC 5 7350
Analyte	Result	EMPC ng	MDL ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>
2378-TCDD	U	0.026	U	U	U	U	U
123476-HCDD	0.0085 J	0.014	0.014	0.014	0.014	0.014	0.014
123476-PCDD	U	0.10	U	U	U	U	U
123476-HCDD	U	0.10	U	U	U	U	U
123476-HCDD	U	0.10	U	U	U	U	U
123476-PCDD	U	0.10	U	U	U	U	U
1234678-HPCDD	0.0100 J	0.028	U	U	U	U	U
CCDD	0.0950 J	0.20	U	U	U	U	U
6378-TCDF	U	0.026	U	U	U	U	U
2378-PCDF	U	0.038	U	U	U	U	U
23476-PCDF	U	0.10	U	U	U	U	U
123476-PCDF	U	0.030	U	U	U	U	U
123476-HCDF	U	0.024	U	U	U	U	U
123478-HCDF	0.0032 J	0.014	0.014	0.014	0.014	0.014	0.014
234678-HCDF	U	0.10	U	U	U	U	U
123789-HCDF	U	0.030	U	U	U	U	U
1234878-HCDF	0.0084 J	0.018	U	U	U	U	U
1234878-HCDF	U	0.018	U	U	U	U	U
1234878-HCDD	U	0.10	U	U	U	U	U
1234878-HCDD	U	0.10	U	U	U	U	U
CCDF	U	0.012	U	U	U	U	U
Total TCDDs	U	0.023	U	U	U	U	U
Total PCDDs	0.026	0.20	U	U	U	U	U
Total HCDDs	U	0.20	U	U	U	U	U
Total HPCDDs	0.0148	0.030	U	U	U	U	U
Total TCDFs	U	U	U	U	U	U	U
Total PCDFs	U	0.057	U	U	U	U	U
Total HCDFs	0.0066	0.024	U	U	U	U	U
Total HPCDFs	0.0060	0.0095	U	U	U	U	U
Total Adjusted Conc							
TEQ (ND=1)	0.0022	0.0009	0.0059	0.0151	0.0046	0.0151	0.0354
TEQ (ND=1/2)	0.0046	0.0009	0.0059	0.0151	0.0093	0.0151	0.0358

COCC rules  
B= Not detected due to blank contamination  
EMPC= Estimated Maximum Possible Concentration  
TEQ= Toxicity Equivalent

The TEQ (ND=1/2) is calculated using 1/2 of the estimated detection limit for U (non detect) values.

ERTC 11/29/01 5:50 AM

NYC Emergency Response  
 Air Sampling and Test Results  
 Sampling Date: 11/02/01

Sample No.	Sampling Location	11629	11629	11630	11631	11632	11633	11634
Volume (liters)	Analyte	CL Beatty St. & Church	D-Greenwich & Albany St	P-Albany St & South End	S-Rocher Place & South End Ave	E-Libby St. & South End Ave	Field Blank	Lot Blank
		7205	7275	6889	7245	7200	0	0
		Result	Result	Result	Result	Result	Result	Result
		EMPC	EMPC	EMPC	EMPC	EMPC	EMPC	EMPC
		ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng	ng
		MDL	MDL	MDL	MDL	MDL	MDL	MDL
		ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng	ng
23128-TCDD	U	0.0027	U	0.0027	U	0.0026	U	0.0026
123152-PeCDD	UB	0.014	U	0.014	U	0.014	U	0.014
123478-HxCDD	U	0.014	U	0.014	U	0.014	U	0.014
123878-HxCDD	U	0.014	U	0.014	U	0.014	U	0.014
124078-HxCDD	U	0.014	U	0.014	U	0.014	U	0.014
1234678-HxCDD	UB	0.014	UB	0.014	UB	0.014	UB	0.014
OCDD	UB	0.027	UB	0.027	UB	0.026	UB	0.026
23178-TCDF	U	0.0027	U	0.0027	U	0.0026	U	0.0026
123152-PeCDF	U	0.014	U	0.014	U	0.014	U	0.014
123478-HxCDF	U	0.014	U	0.014	U	0.014	U	0.014
123878-HxCDF	U	0.014	U	0.014	U	0.014	U	0.014
124078-HxCDF	U	0.014	U	0.014	U	0.014	U	0.014
1234678-HxCDF	UB	0.014	UB	0.014	UB	0.014	UB	0.014
OCDF	UB	0.027	UB	0.027	UB	0.026	UB	0.026
Total TCDDs	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Total PeCDDs	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
Total HxCDDs	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Total TCDFs	U	0.0013	U	0.0013	U	0.0013	U	0.0013
Total PeCDFs	U	0.013	U	0.013	U	0.013	U	0.013
Total HxCDFs	U	0.0004	U	0.0004	U	0.0004	U	0.0004
Total HpCDFs	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Total Adjusted Conc.	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
TEQ (MD-17)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005

coax inks  
 B= Not detected due to blank contamination  
 EMPC, Estimated Maximum Possible Concentration  
 TEC, Toxicity Equivalent

The TEC (MD-17) is calculated using 1/2 of the estimated detection limit for U (non detect) values.

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/20/01

File Name	NYC284	NYC285	NYC286	NYC287	NYC288	NYC289
Sample Location	Instrument Blank	Tedlar Bag Blank	Waiting Tent Ambient Air	Austin Tobin Plaza	North Tower Plume	South Tower Plume
Sample Number			A07153	A07156	A07157	A07158
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	200 mL	100 mL
Reporting Limit (RL)	20	20	20	20	25	50
Sample Conc. Units	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Propylene	RL	RL	RL	RL	85	2800
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	83	2400
1,1,1-Chloro	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	220
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Acetate	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	RL	170	6000
Trichlorofluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	120
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	46	1400
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	30	110
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	190	1200
Benzene	RL	RL	RL	RL	RL	140
Heptane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	78
cis-1,3-Dichlorocyclohexane	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	120	430
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	81
Tetrachloroethane	RL	RL	RL	RL	RL	RL
Dichlorodichloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromomethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	120	97
Ethylbenzene	RL	RL	RL	RL	83	59
m&o-Xylenes	RL	RL	RL	RL	RL	55
p-Xylene	RL	RL	RL	RL	RL	240
Styrene	RL	RL	RL	RL	RL	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Saturday, December 1, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 1, 2001 at 12:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 33 samples taken in and around ground zero on November 27 and November 28. All but one sample showed less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. The one sample with results above this standard was taken from Stuyvesant High School (at West St. and Chambers) with a reading of 124.44 S/mm<sup>2</sup>.

In addition, EPA sampled for asbestos at three additional lower Manhattan locations on November 24 for a total of 36 samples. These samples all showed results below the school re-entry standard. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,747, with 29 samples above the standard (27 of these above-standard readings were collected prior to September 30 and one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected from November 24 from these locations showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Fifty-seven samples were collected on November 28 and 29. All of these samples were below the school re-entry standard.

**PM10** - Monitoring for particulate matter (particles less than 10 micrometers in diameter) was conducted from November 6 through 16 at Pace University, Borough of Manhattan Community College, the Coast Guard building, Public School (P.S.) 274 in Brooklyn, and the Canal Street Post Office. All 24-hour average values were below the National Ambient Air Quality Standard

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of 150 ug/m<sup>3</sup> for all available stations.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on November 29 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene exceeded the OSHA standard at two locations on the debris pile - the North Tower and the South Tower. One of two other samples taken at EPA's Wash Tent (West St. and Murray) showed no detectable levels of benzene.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Saturday, December 1, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Nov 26, 1200 - 2359 hrs)

Results pending.

NYC / ER (Nov 27, 0001 - 1200 hrs)

Results pending.

NYC / ER (Nov 27, 1200 - 2359 hrs)

All 21 samples analyzed were below the TEM AHERA standard.  
1 sample (Location L) was not collected due to equipment malfunction.

NYC / ER (Nov 28, 0001 - 1200 hrs)

1 of 22 samples analyzed was above the TEM AHERA standard.  
Exceedance of the TEM AHERA standard occurred at Location L (124.44 S/mm<sup>2</sup>).

Landfill Ambient Air Sampling Locations

Fresh Kills (Nov 28, 0650 - 1849) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Fresh Kills (Nov 28, 1710 - Nov 29, 0703) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Fresh Kills (Nov 29, 0650 - 1923) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Ambient Air Sampling Locations

NYC / ER (Nov 24) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Manhattan Boro Community College (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St, Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 6 samples were collected from these monitoring sites.  
All of the samples were below the TEM AHERA standard.

A sample was not collected from Sites 5 and 9.

NYC / ER (Nov 6) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was  $20.6 \text{ ug/m}^3$ .  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was  $19.2 \text{ ug/m}^3$ .  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was  $20.3 \text{ ug/m}^3$ .  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was  $15.9 \text{ ug/m}^3$ .  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was  $23.0 \text{ ug/m}^3$ .  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 7) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was  $41.9 \text{ ug/m}^3$ .  
Manhattan Boro Community College (Site 2) - No data reported.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was  $35.6 \text{ ug/m}^3$ .  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was  $32.5 \text{ ug/m}^3$ .  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was  $25.0 \text{ ug/m}^3$ .  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 8) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was  $33.7 \text{ ug/m}^3$ .  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was  $40.4 \text{ ug/m}^3$ .  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was  $35.2 \text{ ug/m}^3$ .  
Canal Street Post Office (Site 4) - No data available.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was  $29.9 \text{ ug/m}^3$ .  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 9) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was  $37.3 \text{ ug/m}^3$ .  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was  $33.9 \text{ ug/m}^3$ .  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was  $32.5 \text{ ug/m}^3$ .  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was  $29.2 \text{ ug/m}^3$ .  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - No data reported.  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

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NYC / ER (Nov 10) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **57.8 ug/m<sup>3</sup>**.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **37.5 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **28.0 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **39.2 ug/m<sup>3</sup>**.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **26.8 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 11) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **33.0 ug/m<sup>3</sup>**.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **25.3 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **22.0 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **19.1 ug/m<sup>3</sup>**.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **17.5 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 12) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **20.9 ug/m<sup>3</sup>**.  
Manhattan Boro Community College (Site 2) - 24-hr average concentration for this period was **18.6 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **16.4 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **19.9 ug/m<sup>3</sup>**.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **14.5 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 13) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hour average concentration for this period was **46.1 ug/m<sup>3</sup>**.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **43.6 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **33.2 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **40.3 ug/m<sup>3</sup>**.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **29.6 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).



NYC / ER (Nov 14) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hour average concentration for this period was **67.0 ug/m<sup>3</sup>**.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **51.0 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **47.7 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **52.9 ug/m<sup>3</sup>**.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **41.6 ug/m<sup>3</sup>**.  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 15) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hour average concentration for this period was **75.8 ug/m<sup>3</sup>**.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **62.8 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **66.2 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - 24-hour average concentrations for this period was **63.8 ug/m<sup>3</sup>**.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **56.0 ug/m<sup>3</sup>**.  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 16) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hour average concentration for this period was **64.1 ug/m<sup>3</sup>**.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **59.9 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **76.2 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **55.6 ug/m<sup>3</sup>**.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - No data reported.  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

## NYC / ER (Nov 29) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) on the debris pile in the plume at ground level.  
 1 of 2 other samples (Wash Tent) did not note any benzene above the detection limit (20 ppbv).

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/28/01 0650 to 1049  
 Data Validation Date: 11/29/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	0.5µm - 5µm	5µm	S-f/cc**
11/28/01	LF01168	P-1	545	Air	<7.0	<0.005	0	<6.55	0	<0.0046
11/28/01	LF01169	P-2	642	Air	<7.0	<0.004	0	<7.87	0	<0.0047
11/28/01	LF01170	P-3	675	Air	<7.0	<0.004	0	<7.87	0	<0.0045
11/28/01	LF01171	P-4	668	Air	<7.0	<0.004	0	<7.87	0	<0.0045
11/28/01	LF01172	P-5	668	Air	<7.0	<0.004	0	<7.87	0	<0.0045
11/28/01	LF01173	P-6	666	Air	<7.0	<0.004	0	<7.87	0	<0.0045
11/28/01	LF01174	P-7	666	Air	<7.0	<0.004	0	<7.87	0	<0.0046
11/28/01	LF01175	P-8	666	Air	<7.0	<0.004	0	<7.87	0	<0.0046
11/28/01	LF01176	W-11	667	Air	14.01	0.008	1***	7.87	0	0.0045
11/28/01	LF01177	W-12A	651.5	Air	<7.0	<0.004	0	<7.87	0	<0.0046
11/28/01	LF01178	B-12B	595	Air	<7.0	<0.004	0	<7.87	0	<0.0050
11/28/01	LF01179	B-13	670	Air	<7.0	<0.004	0	<7.87	0	<0.0049
11/28/01	LF01180	B-14	670	Air	<7.0	<0.004	0	<7.87	0	<0.0049
11/28/01	LF01181	T-15	613	Air	11.46	0.007	0	<7.87	0	<0.0049
11/28/01	LF01182	T-16	614	Air	<7.0	<0.004	0	<7.87	0	<0.0049
11/28/01	LF01183	O-17	475	Air	<7.0	<0.006	0	<7.87	0	<0.0064
11/28/01	LF01184	O-18	510	Air	<7.0	<0.005	0	<7.87	0	<0.0059
11/28/01	LF01185	O-19	510	Air	<7.0	<0.005	0	<7.87	0	<0.0059
11/28/01	LF01186	MPHS-20	608	Air	<7.0	<0.004	0	<7.87	0	<0.0050
11/28/01	LF01187	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/28/01	LF01188	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/16/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/28/01 1710 to 11/28/01 0703  
 Data Validation Date: 11/30/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S-f/cc**	
11/28/01	LF01189	P-1	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01190	P-2	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01191	P-3	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01192	P-4	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01193	P-5	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01194	P-6	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01195	P-7	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01196	P-8	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01197	W-11	720	Air	11.46	0.006	0	0	0	<8.75	<0.0047
11/28/01	LF01198	W-12A	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01199	W-12B	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01200	B-13	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01201	T-14	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01202	T-15	760	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01203	T-16	767	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01204	O-17	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01205	O-18	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01206	O-19	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01207	MPHS-20	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
11/28/01	LF01208	Lot Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	<8.75	<0.0047
11/28/01	LF01209	Trip Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	<8.75	<0.0047

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/04  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM); 70 S/mm<sup>2</sup>, volume 7200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/29/01 0650 to 1923  
 Data Validation Date: 11/30/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	5µm	S/mm <sup>2</sup>	S-f/cc**
11/29/01	LF01210	P-1	548	Air	<7.0	<0.005	0	0	<6.56	<0.0046
11/29/01	LF01211	P-2	360	Air	<7.0	<0.0075	0	0	<4.63	<0.0050
11/29/01	LF01212	P-3	700	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/29/01	LF01213	P-4	688	Air	<7.0	<0.004	0	0	<8.75	<0.0049
11/29/01	LF01214	P-5	690	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/29/01	LF01215	P-6	696	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/29/01	LF01216	P-7	690	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/29/01	LF01217	P-8	688	Air	<7.0	<0.004	0	0	<8.75	<0.0049
11/29/01	LF01218	W-11	685	Air	<7.0	<0.004	0	0	<8.75	<0.0049
11/29/01	LF01219	W-12	690	Air	<7.0	<0.004	0	0	<8.75	<0.0049
11/29/01	LF01220	W-15A	690	Air	<7.0	<0.004	2***	1**	26.26	0.0146
11/29/01	LF01221	B-13	651	Air	<7.0	<0.004	1***	0	8.75	0.0048
11/29/01	LF01222	B-14	650	Air	<7.0	<0.004	0	0	<7.87	<0.0047
11/29/01	LF01223	T-15	692	Air	<7.0	<0.004	0	0	<8.75	<0.0049
11/29/01	LF01224	T-16	686	Air	<7.0	<0.004	0	0	<8.75	<0.0048
11/29/01	LF01225	O-17	490	Air	<7.0	<0.006	0	0	<6.06	<0.0048
11/29/01	LF01226	O-18	485	Air	<7.0	<0.005	0	0	<6.06	<0.0047
11/29/01	LF01227	O-19	455	Air	<7.0	<0.006	0	0	<5.62	<0.0048
11/29/01	LF01228	MPHS-20	685	Air	<7.0	<0.004	0	0	<7.87	<0.0046
11/29/01	LF01229	Lot Blank	0	Air	n/a	n/a	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>
11/29/01	LF01230	Trip Blank	0	Air	<7.0	n/a	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fibers/cc (PCM); 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/27/01 1200 to 2359  
 Data Validation Date: 11/30/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)							
					f/mm <sup>2</sup>	f/cc	Structures (f)	Structures (f)	S-f/cc**	S-f/cc**	S-f/cc**	S-f/cc**		
11/27/01	NC	L	NC	NC	NC	NC	0.5µ - 5µ	5µ	NC	NC	NC	NC	NC	NC
11/27/01	RST-01193	M1	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01194	N	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01195	J	330	Air	<7.0	<0.008	1***	0	8	0.0093	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01197	F-Duplicate	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01198	Q	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01199	Q-Duplicate	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01200	W	720	Air	<7.0	<0.004	1***	0	26.87	0.0143	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01201	B	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01202	C	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01203	H	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01204	I	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01205	D	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01206	K	637	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01207	T	720	Air	<7.0	<0.004	1***	0	8	0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01208	U	720	Air	<7.0	<0.004	0	0	<8.00	<0.0043	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01209	V	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01210	S	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01211	P	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/27/01	RST-01212	E	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048	<8.89	<0.0048	<8.89	<0.0048
11/28/01	FB112801	Field Blank	0	Air	<7.0	<0.004	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/28/01	TB112801	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Sampling Locations:

- A: NE corner of Broadway & Blandy
- B: SE corner of Church & Dev St.
- C: Trinity (a.k.a. Church) & Liberty
- CT: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St.
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Reactor & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

Key:  
 \* Sample volume filters is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysolite  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AHERA)  
 Standard criteria: EPA 40 CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Responses  
 Astabos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/28/01 00:01 to 1200

Data Validation Date: 11/30/01  
 TEM (AHERA)

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc**	S/mm <sup>2</sup>
11/28/01	RST-01214	L	720	Air	<7.0	<0.004	14***	0	124.44
11/28/01	RST-01215	M1	344	Air	<7.0	<0.008	0	0	<0.0090
11/28/01	RST-01216	N	357	Air	<7.0	<0.007	0	0	<0.0094
11/28/01	RST-01217	J	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01218	F	454	Air	<7.0	<0.006	1***	0	0.0085
11/28/01	RST-01219	Q	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01220	A	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01221	A-Duplicate	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01222	B-Duplicate	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01223	C	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01224	H	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01225	I	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01226	T	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01227	D	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01228	K	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01229	T	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01230	U	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01231	V	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01232	S	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01233	R	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01234	E	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	RST-01235	W	720	Air	<7.0	<0.004	0	0	<0.0048
11/28/01	FB112801	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/28/01	TB112801	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to filter (f)  
 \*\*\* Chrysothrix  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NS - Not requested  
 NS - Not sampled

Sampling Locations:  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty St.  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St  
 H: Church and Duane St.  
 I: South side of Chase Manhattan Plaza at Pine St.  
 J: SE corner of Wall St. & Broadway  
 K: NE corner of Warren & West St.  
 L: On sidewalk (near fire hydrant) area fourth side of West St. & Albany (High) access to TAGA bus area  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Reactor & South End  
 T: Pier 6 Heliport  
 U: Pier 6 East  
 V: Pier 6 Bus Stop  
 W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/1/94  
 Astabos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/24/01 1200 to 2400  
 Data Validation Date: 11/29/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
11/24/01	7093-18-0058	Park Row (1)	1142***	Air	<7.0	<0.002	0	0	<13.33	<0.0045
11/24/01	7093-19-0058	BMCC	1220	Air	<7.0	<0.002	0	0	<13.33	<0.0042
11/24/01	7093-20-0058	Coast Guard	1192***	Air	<7.0	<0.002	0	0	<13.33	<0.0043
11/24/01	7093-15-0057	Manhattan PS #143	1224	Air	<7.0	<0.002	0	0	<13.33	<0.0042
-	-	Bronx PS #154				Not Collected				
-	-	Queens PS #199				Not Collected				
11/24/01	7095-98-0054	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<13.33	<0.0036
11/24/01	7097-18-0051	Staten Is. PS #44	1440	Air	<7.0	<0.002	0	0	<16	<0.0043

Key:  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis  
 (1) Previously identified as Pace University

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/29/01

File Name	NYC293	NYC294	NYC295	NYC296	NYC300	NYC298
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent	Austin Tobin Plaza	North Tower	South Tower
			Ambient Air		Plume	Plume
Sample Number			A07159	A07161	A07160	A07162
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	20 mL	20 mL
Reporting Limit (RL)	20	20	20	20	250	250
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	RL	2100	2600
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	600	4500
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	880
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	RL	55	RL	500
Acetone	RL	RL	RL	740	6700	19000
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MFSB	RL	RL	RL	RL	RL	270
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	250
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	69	1100	2500
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	23	320	970
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	24	2200	6200
Heptane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	55	RL	280
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	520
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	1500	2000
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	500
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	2700	1600
m&p-Xylenes	RL	RL	RL	RL	RL	260
o-Xylene	RL	RL	RL	RL	RL	RL
Styrene	RL	RL	RL	RL	370	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL



**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Sunday - Monday, December 2-3, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 3, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 83 samples taken in and around ground zero on November 26 through and November 29. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on November 26 for a total of 86 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,833, with 29 samples above the standard (27 of these above-standard readings were collected prior to September 30 and one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected from November 26 from these locations showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Fifty-six samples were collected on November 29 and 30. All of these samples were below the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on December 1 and 2 at the Staten Island Landfill. No significant readings reported.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted November 28 through 30 at Pace University, Borough of Manhattan Community College, and the Coast Guard building in Battery Park and on Wall Street. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that

air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**PM10** - Monitoring for particulate matter (particles less than 10 micrometers in diameter) was conducted from November 28 through 30 at a location on Wall Street. All 24-hour average values were below the National Ambient Air Quality Standard of 150 ug/m3.

**Particulate Monitoring** - EPA used portable monitors to collect samples on November 30 and December 1 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on November 30 and December 1 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene exceeded the OSHA standard at two locations on the debris pile - the North Tower (Nov. 30 and Dec. 1) and the South Tower (Nov. 30). Four other samples taken at EPA's Wash Tent (West St. and Murray) and Austin Tobin Plaza showed no detectable levels of benzene.

**Direct Air Readings** - No significant readings found on November 30 and December 1.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Monday, December 3, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Nov 26, 1200 - 2359 hrs)

All 21 samples analyzed were below the TEM AHERA standard.  
1 sample (Location H - duplicate) was not collected due to equipment malfunction.

NYC / ER (Nov 27, 0001 - 1200 hrs)

All 21 samples analyzed were below the TEM AHERA standard.  
1 sample (Location T) was not collected due to equipment malfunction.

NYC / ER (Nov 28, 1200 - 2359 hrs)

All 20 samples analyzed were below the TEM AHERA standard.  
2 samples (Locations K and E) were not collected due to equipment malfunction.

NYC / ER (Nov 29, 0001 - 1200 hrs)

All 21 samples analyzed were below the TEM AHERA standard.  
1 sample (Location E) was not collected due to equipment malfunction.

Landfill Ambient Air Sampling Locations

Fresh Kills (Nov 29, 1719 - Nov 30, 0717) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Fresh Kills (Nov 30, 0700 - 1858) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.  
Note: Low sample volume recorded.

Fresh Kills (Nov 30, 1717 - Dec 1, 0839) - Asbestos

All 18 samples analyzed were below the TEM AHERA standard.  
1 sample (Location "Perimeter" #8) was not collected due to equipment malfunction.  
Note: Low sample volume recorded.

Fresh Kills (Dec 1) - Particulate Monitoring (Dataram)

Nothing of significance reported based on daily average concentrations.  
Measurements not taken on Nov 29 and 30 due to weather conditions.

Fresh Kills (Dec 2) - Particulate Monitoring (Dataram)

Nothing of significance reported at four stations based on daily average concentrations.

Ambient Air Sampling Locations

## NYC / ER (Sep 22 - 25) - Volatile Organics (EPA-ORD)

7 grab samples collected at four locations (A, C, K, 290 Broadway). Locations A, C, and K correspond to the fixed ambient air sampling stations for asbestos. 290 Broadway location is a station situated at the 16<sup>th</sup> floor. 3 of 7 samples (Location A - Sep 22, Location A - Sep 25, Location C - Sep 23) collected during this period were above the EPA Removal Action guidelines (based on a 30-year exposure) for benzene. 2 of 7 samples (Location A - Sep 25, Location C - Sep 23) collected during this period were above the non-cancer screening level for benzene. 3 of 7 samples (Location A - Sep 22, Location A - Sep 25, Location C - Sep 23) collected during this period were above the EPA Removal Action guidelines (based on a 30-year exposure) for 1,3-butadiene. No levels exceeded EPA Removal Action guidelines adjusted for a 1-year exposure.

## NYC / ER (Nov 26) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Manhattan Boro Community College (Site 2)
- Coast Guard Building - Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 8 samples were collected from these monitoring sites. All of the samples were below the TEM AHERA standard.

Note: Low sample volume recorded.

NYC / ER (Nov 28) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **19.40 ug/m<sup>3</sup>**.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **20.35 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **20.47 ug/m<sup>3</sup>**.  
Wall Street - No data reported.  
 All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Nov 29) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **18.29 ug/m<sup>3</sup>**.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **16.25 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **16.26 ug/m<sup>3</sup>**.  
Wall Street - 24-hour average concentrations for this period was **20.18 ug/m<sup>3</sup>**.  
 All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Nov 30) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **20.16 ug/m<sup>3</sup>**.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was **23.48 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **18.80 ug/m<sup>3</sup>**.  
Wall Street - 24-hour average concentrations for this period was **19.01 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Nov 28) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **39.81 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 29) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **36.46 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 30) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **31.02 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

## NYC / ER (Nov 30) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.  
Instruments operated approximately 8 hours  
Station L values ranged from 39.3 to 318.5 ug/m<sup>3</sup> with an average of 80.0 ug/m<sup>3</sup>.  
Station N values ranged from 40.8 to 357.2 ug/m<sup>3</sup> with an average of 76.7 ug/m<sup>3</sup>.  
Station R values ranged from 52.0 to 255.3 ug/m<sup>3</sup> with an average of 81.3 ug/m<sup>3</sup>.

## NYC / ER (Dec 1) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.  
Instruments operated approximately 8 hours  
Station L values ranged from 53.8 to 243.7 ug/m<sup>3</sup> with an average of 90.5 ug/m<sup>3</sup>.  
Station N values ranged from 0.5 to 99.3 ug/m<sup>3</sup> with an average of 30.8 ug/m<sup>3</sup>.  
Station R values ranged from 1.1 to 87.5 ug/m<sup>3</sup> with an average of 31.4 ug/m<sup>3</sup>.

## NYC / ER (Nov 30) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) on the debris pile in the plume at ground level.  
Both of the other samples (Wash Tent and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

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NYC / ER (Dec 1) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) on the debris pile in the plume at ground level.  
Both of the other samples (Wash Tent and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

Direct Reading Instruments

NYC / ER (Nov 30)

Nothing of significance reported.

NYC / ER (Dec 1)

Nothing of significance reported.

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/29/01 1719 to 11/30/01 0717  
 Data Validation Date: 12/02/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)				
					f/m <sup>2</sup>	f/cc	Structures (#)	5µ	5µ	S-f/cc**	
11/29/01	LF01231	P-1	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01232	P-2	658	Air	<7.0	<0.004	0	0	0	<7.87	<0.0046
11/29/01	LF01233	P-3	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01234	P-4	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01235	P-5	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01236	P-6	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01237	P-7	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01238	P-8	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01239	W-11	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	1**	0	0	8.75	0.0047
11/29/01	LF01240	W-12A	720	Air	7.64	0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01241	W-12B	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01242	B-13	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01243	B-14	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01244	T-15	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01245	T-16	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01246	O-17	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01247	O-18	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01248	O-19	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01249	MPHS-20	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/29/01	LF01250	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	<8.75	<0.0047
11/29/01	LF01251	Tip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	<8.75	<0.0047

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile

NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/30/01 0700 to 1858  
 Data Validation Date: 12/02/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S-f/cc**
11/30/01	LF01252	P-1	675	Air	<7.0	<0.004	0	0	<8.75	<0.0050
11/30/01	LF01253	P-2	507	Air	<7.0	<0.005	0	0	<6.55	<0.0050
11/30/01	LF01254	P-3	684	Air	<7.0	<0.004	0	0	<8.75	<0.0049
11/30/01	LF01255	P-4	678	Air	<7.0	<0.004	0	0	<8.75	<0.0050
11/30/01	LF01256	P-5	676	Air	<7.0	<0.004	0	0	<8.75	<0.0050
11/30/01	LF01257	P-6	674	Air	<7.0	<0.004	0	0	<8.75	<0.0050
11/30/01	LF01258	P-7	675	Air	<7.0	<0.004	0	0	<8.75	<0.0050
11/30/01	LF01259	P-8	674	Air	<7.0	<0.004	0	0	<8.75	<0.0050
11/30/01	LF01260	W-11	674.4	Air	<7.0	<0.004	0	0	<8.75	<0.0049
11/30/01	LF01261	W-12A	114	Air	<7.0	<0.004	0	0	<8.75	<0.0049
11/30/01	LF01262	W-12B	634	Air	<7.0	<0.004	0	0	<8.75	<0.0049
11/30/01	LF01263	B-13	609.6	Air	<7.0	<0.004	0	0	<8.75	<0.0049
11/30/01	LF01264	B-14	639	Air	<7.0	<0.004	0	0	<8.75	<0.0049
11/30/01	LF01265	T-15	697	Air	10.19	0.006	0	0	<8.75	<0.0049
11/30/01	LF01266	T-16	689	Air	7.64	0.004	0	0	<8.75	<0.0049
11/30/01	LF01267	O-17	474	Air	<7.0	<0.006	0	0	<8.06	<0.0049
11/30/01	LF01268	O-18	509	Air	<7.0	<0.005	0	0	<6.56	<0.0050
11/30/01	LF01269	O-19	510	Air	<7.0	<0.005	0	0	<6.56	<0.0050
11/30/01	LF01270	MPHS-20	620	Air	<7.0	<0.004	0	0	<7.87	<0.0049
11/30/01	LF01271	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/30/01	LF01272	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/1994  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 11/30/01 1717 to 12/01/01 0839

Data Validation Date: 12/02/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	Structures (f)	0.05- 0.2µ	0.2- 0.5µ	S-f/cc**	
11/30/01	LF01273	P-1	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01274	P-2	450	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01275	P-3	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01276	P-4	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01277	P-5	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01278	P-6	133	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01279	P-7	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01280	P-8	NS	Air	NS	NS	NS	NS	NS	NS	NS
11/30/01	LF01281	W-11	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01282	W-12A	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01283	W-12B	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01284	B-13	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01285	B-14	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01286	T-15	818	Air	7.64	0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01287	T-16	818	Air	<7.0	<0.003	0	0	0	<8.75	<0.0047
11/30/01	LF01288	O-17	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01289	O-18	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01290	O-19	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01291	MPHS-20	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
11/30/01	LF01292	Trip Blank	0	Air	n/a	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(4)</sup>	NA <sup>(5)</sup>
11/30/01	LF01293	Lot Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(4)</sup>	NA <sup>(5)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected  
 NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/26/01 1200 to 2359

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/26/01 1200 to 2359

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	S/m <sup>2</sup>	S/fcc**	S/m <sup>2</sup>
11/26/01	RST-01152	L	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01153	M	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01154	N	720	Air	10.19	0.005	0	<4.89	<0.0048	0
11/26/01	RST-01155	N	720	Air	<0.004	<0.004	0	8.89	0.0048	0
11/26/01	RST-01156	F	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01157	Q	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01158	A	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01159	B	720	Air	8.95	0.005	0	<4.89	<0.0048	0
11/26/01	RST-01160	C	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01161	C-Duplicate	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01162	H	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01		H-Duplicate	NS	Air	NS	NS	NS	NS	NS	NS
11/26/01	RST-01163	I	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01164	D	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01165	K	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01166	T	526	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01167	U	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01168	V	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/26/01	RST-01169	S	720	Air	8.92	0.005	0	<4.89	<0.0048	0
11/26/01	RST-01170	P	720	Air	11.46	0.005	0	<4.89	<0.0048	0
11/26/01	RST-01171	W	720	Air	8.92	0.005	0	<4.89	<0.0048	0
11/26/01	RST-01172	W	720	Air	<0.004	<0.004	0	<4.89	<0.0048	0
11/27/01	TB112701	Tripl. Blank	0	Air	n/a	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/27/01	FB112701	Field Blank	0	Air	<0.004	<0.004	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Sampling Locations:**  
 A: NE corner of Westch & Barclay  
 B: SE corner of Westch & Day St  
 C: Trinity (a.k.a. Church) & Liberty St  
 C1: SW corner of Broadway & Liberty St  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on the actual sample volume.  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Extremely low sample volume  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume

**PCM by NIOSH 7400:**  
 f/m<sup>2</sup> - fiber/m<sup>2</sup>  
 f/cc - fiber/cc  
 Structures (#) - number of structures  
 S/m<sup>2</sup> - structure/m<sup>2</sup>  
 S/fcc\*\* - structure/fiber/cc

**TEM (AHERA):**  
 S/m<sup>2</sup> - structure/m<sup>2</sup>  
 S/fcc\*\* - structure/fiber/cc

**Other:**  
 M: Western end of Harrison St. at West St.  
 (on fire next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Reactor & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Ekt 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Data Validation Date: 11/30/00  
Sampling Date and Time: 11/27/01 0001 to 1200

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/cc	f/m <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
11/27/01	RST-01173	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	RST-01174	M	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	RST-01175	N	677	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	RST-01177	J	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	RST-01178	K	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	RST-01179	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	RST-01180	B	632	Air	<7.0	<0.004	2***	<8.89	<0.0048	
11/27/01	RST-01181	C	593	Air	<7.0	<0.0045	1***	8	0.0052	
11/27/01	RST-01182	H	720	Air	<7.0	<0.004	1***	8	0.0048	
11/27/01	RST-01183	I	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	RST-01184	I-Duplicate	720	Air	10.83	0.006	0	<8.89	<0.0048	
11/27/01	RST-01185	D	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	-	D-Duplicate	NS	NS	NS	NS	NS	NS	NS	
11/27/01	RST-01186	K	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	-	T	-	-	-	-	Not Collected	-	-	
11/27/01	RST-01187	U	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	RST-01188	V	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	RST-01189	S	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	RST-01190	P	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	RST-01191	E	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	RST-01192	W	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
11/27/01	TB112701	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	
11/27/01	FB112701	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on the sample volume.  
 \*\* S-f/cc (S) is roughly equivalent to fiber (f)  
 \*\*\* Extremely low sample volume  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Day St.  
 C: Trinity (d.k.a. Church) & Liberty St.  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chas. Washington Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Wall & West St  
 K: West St & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on the mt. to bulkhead)  
 N1: West St. at 5th floor (to walkway C)  
 N: South side of Pier 25 (to walkway C)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AHERA):**  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/28/01 1200 to 2359

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/28/01 1200 to 2359

Data Validation Date: 12/02/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/ftm <sup>2</sup>	f/cc	Structures (#)	S-f/cc**
11/28/01	RST-01236	N	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01237	M1	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01238	M1-Dup	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01239	L	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01240	L-Dup	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01241	J	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01242	F	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01243	A	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01244	A	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01245	B	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01246	C	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01247	H	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01248	I	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01249	D	720	Air	7.64	0.004	1***	6.89
11/28/01	RST-01250	K	NS	Air	NS	NS	NS	NS
11/28/01	RST-01251	T	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01252	U	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01253	V	152	Air	<7.0	<0.018	0	<8.89
11/28/01	RST-01254	S	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01255	P	720	Air	<7.0	<0.004	0	<8.89
11/28/01	RST-01255	E	NS	Air	NS	NS	NS	NS
11/28/01	RST-01255	W	720	Air	<7.0	<0.004	0	<8.89
11/28/01	FB112801	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>
11/28/01	TB112801	Tip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Key:**  
 \* Sample volume (filters) is below recommended limit for the TEM method; volume is based on the filter area.  
 \*\* S-fiber (S) is roughly equivalent to fiber (f)  
 \*\*\* Chromatite  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Not sampled

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Day St.  
 C: Trinity (a.k.a. Church) & Liberty  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany Water Ship  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TACA bus area

M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 30 yards south of Harrison St. at bulkhead  
 N: South side of West St. at Vesey (Boydall Ct)  
 P: NE corner of South End Ave & Albany  
 C: Barclay & West St. (center island) in proximity to USGS command post  
 R: TACA Bus Location  
 S: Pier 6 & South End  
 T: Pier 6 Head Post  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/29/01 0001 to 1200  
 Data Validation Date: 12/02/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		S-fiber**
					f/ftm <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ - 10µ	
11/29/01	RST-01257	N-Dup	376	Air	<7.0	<0.007	0	0	<8.89	<0.0048
11/29/01	RST-01258	N	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	RST-01259	M1	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	RST-01260	L	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	RST-01261	J	720	Air	<7.0	<0.007	0	0	<8.89	<0.0048
11/29/01	RST-01262	J-Dup	376	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	RST-01263	C	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	RST-01264	A	720	Air	<7.0	<0.004	1***	0	<8.89	<0.0048
11/29/01	RST-01265	B	720	Air	<7.0	<0.004	1***	0	<8.89	<0.0048
11/29/01	RST-01266	C	720	Air	<7.0	<0.004	1***	0	<8.89	<0.0048
11/29/01	RST-01267	H	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	RST-01268	I	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	RST-01269	D	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	RST-01270	K	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	RST-01271	T	720	Air	<7.0	<0.004	2***	0	<8.89	<0.0048
11/29/01	RST-01272	U	697	Air	<7.0	<0.004	1***	0	<8.89	<0.0048
11/29/01	RST-01273	V	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	RST-01274	S	711	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	RST-01275	P	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	RST-01276	E	NS	Air	NS	NS	NS	NS	NS	NS
11/29/01	RST-01277	W	NS	Air	NS	NS	NS	NS	NS	NS
11/29/01	FB112901	Field Blank	0	Air	<7.0	<0.004	0	0	<8.89	<0.0048
11/29/01	TB112901	Trip Blank	0	Air	n/a	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended amount for the TEM method; volume is based on the reading.  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Not sampled

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Day St.  
 C: Trinity (E.k.a. Church & Liberty St.  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chatham Manhattan Plaza at Pine St.  
 I: SW corner of Wall St. & Broadway  
 J: NE corner of Wall St. & West St  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suryesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St.  
 (on Pier 6 to bulkhead)  
 M1: West St. 50' from Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball C)  
 P: NE corner of South End Ave. & Albany  
 C: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AHERA):**  
 Structures (#)  
 0.5µ - 5µ  
 5µ - 10µ

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/26/01 1200 to 2400

Data Validation Date: 12/02/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
11/26/01	7093-18-0060	Park Row	1218	Air	<7.0	<0.002	0	0	0	<13.33	<0.0042
11/26/01	7093-19-0060	BMCC	1248	Air	<7.0	<0.002	0	0	0	<16.00	<0.0049
11/26/01	7093-20-0060	Coast Guard	1234	Air	<7.0	<0.002	0	0	0	<13.33	<0.0042
11/26/01	7097-18-0053	Staten Is. PS #44	162***	Air	<7.0	<0.017	0	0	0	<8.00	<0.0190
11/26/01	7095-98-0056	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	0	<16.00	<0.0043
11/26/01	7096-12-0054	Queens PS #199	1386	Air	<7.0	<0.002	0	0	0	<16.00	<0.0044
11/26/01	7094-09-0051	Bronx PS #154	1356	Air	<7.0	<0.002	0	0	0	<16.00	<0.0045
11/26/01	7093-15-0059	Manhattan PS # 143	1182***	Air	<7.0	<0.002	0	0	0	<13.33	<0.0043

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysotile
- NR - analysis not requested
- NS - Sample not submitted for analysis
- n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume ≥200 L, for 25 mm filter (TEM)

DATA VALIDITY IS UNSUBSTANTIATED  
AND THE DATA SHOULD BE USED WITH DISCRETION  
WTC TEDLAR BAG AIR ANALYSIS, TD-15 MODIFIED METHOD  
DRAFT GC/MS Results for 12/01/01

File Name	NYC318	NYC319	NYC320	NYC321	NYC324	NYC322
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	Austin Tobin Plaza	North Tower Plume	South Tower Plume
Sample Number			A07167	A07169	A07168	A07170
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	100 mL	100 mL
Reporting Limit (RL)	20	20	20	20	50	50
Sample Conc. Units	ppb <sub>v</sub>	ppb <sub>v</sub>	ppb <sub>v</sub>	ppb <sub>v</sub>	ppb <sub>v</sub>	ppb <sub>v</sub>
Propylene	RL	RL	RL	RL	2100	RL
Freon 22	RL	RL	RL	RL	23	RL
Dichlorodifluoromethane	RL	RL	RL	RL	330	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	32	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	37	30
Chloroethane	RL	RL	RL	RL	68	4800
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	23	68	4800	580
Acetone	RL	RL	RL	RL	RL	RL
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	130	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	680	57
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	560	22
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	70	RL
Benzene	RL	RL	RL	RL	4600	11
Heptane	RL	RL	RL	RL	85	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	16	110	38
Methyl Isobutyl Ketone	RL	RL	RL	RL	64	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	2600	RL
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	98	RL
Tetrachloroethane	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	17	RL
Ethylbenzene	RL	RL	RL	RL	2500	RL
m&p-Xylenes	RL	RL	RL	RL	120	RL
O-Xylene	RL	RL	RL	RL	120	RL
Styrene	RL	RL	RL	RL	210	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	79	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	150	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	67	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	27	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

NO QC EVALUATION HAS BEEN PERFORMED.  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/30/01

File Name	NYC306	NYC307	NYC308	NYC309	NYC314	NYC310
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent	Austin Tobin Plaza	North Tower	South Tower
Sample Number			A07163	A07165	A07164	A07166
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	20 mL	20 mL
Reporting Limit (RL)	20	20	20	20	250	250
Sample Conc. Units	ppb,	ppb,	ppb,	ppb,	ppb,	ppb,
Propylene	RL	RL	RL	RL	18000	1200
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	18000	3400
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	420	RL
Chloroethane	RL	RL	RL	RL	550	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	RL	72	330	1500
Acetone	RL	RL	RL	430	29000	25000
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethane	RL	RL	RL	RL	RL	PI
Hexane	RL	RL	RL	RL	1400	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	55	7400	3500
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	6400	1800
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	26000	4400
Heptane	RL	RL	RL	RL	1000	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	55	480	510
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	690
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	15000	1200
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	670	540
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	16000	660
m&p-Xylenes	RL	RL	RL	RL	1200	350
O-Xylene	RL	RL	RL	RL	1000	RL
Styrene	RL	RL	RL	RL	3300	600
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	700	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	760	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	510	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL



United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: Schmitt

U.S. EPA: Norrell

Date: 12/1/01

RST Site Project Manager Brennan

Location	L	R	N			
DataRAM ID No.	2646	2647	2643			
Flow Rate (Liters / Minute)	2 L/M	2 L/M	2 L/M			
Start Time	07:18	07:20	07:24			
Stop Time	15:49	15:50	15:53			
Run Time (Minutes)	510	510	508			
Minimum Concentration (ug/m3)	53.8	1.1	0.5			
Maximum Concentration (ug/m3)	243.7	87.5	99.3			
Average Concentration (TWA) (ug/m3)	90.5	31.4	30.8			

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 10/1/01

RST: Kathleen Bigelow

Location	Time	FID (units)	FID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	8:40	0.2	ND	ND	20.3	ND	ND	ND	ND	ND	0.0	*	0.05
M	8:50	ND	ND	ND	20.3	ND	ND	ND	ND	ND	0.0		0.05
N	8:58	ND	ND	ND	20.3	ND	ND	ND	ND	ND	0.0		0.05
J	9:05	ND	ND	ND	20.3	ND	ND	ND	ND	ND	0.0		0.05
G	9:09	ND	ND	ND	20.3	1	ND	ND	ND	ND	0.0		0.05
F	9:15	ND	ND	ND	20.3	ND	ND	ND	ND	ND	0.0		0.05
A	9:25	ND	ND	ND	20.4	ND	ND	ND	ND	ND	0.0		0.05
B	9:29	ND	ND	ND	20.4	ND	ND	ND	ND	ND	0.0		0.05
C	9:35	ND	ND	ND	20.4	ND	ND	ND	ND	ND	0.0		0.05
H	9:48	ND	ND	ND	20.4	ND	ND	ND	ND	ND	0.0		0.05
I	10:04	ND	ND	ND	20.4	ND	ND	ND	ND	ND	0.0		0.05
D	10:14	ND	ND	ND	20.4	2	ND	ND	ND	ND	0.0		0.05
K	10:23	ND	ND	ND	20.4	ND	ND	ND	ND	ND	0.0		0.05
T	10:41	ND	ND	ND	20.4	ND	ND	ND	ND	ND	0.0		0.05
U	10:53	ND	ND	ND	20.5	ND	ND	ND	ND	ND	0.0		0.05
V	11:05	ND	ND	ND	20.5	ND	ND	ND	ND	ND	0.0		0.05
S	11:14	ND	ND	ND	20.5	ND	ND	ND	ND	ND	0.0		0.05
P	11:24	ND	ND	ND	20.5	ND	ND	ND	ND	ND	0.0		0.05
E	11:30	ND	ND	ND	20.5	ND	ND	ND	ND	ND	0.0		0.05

\* No HF readings taken.

- Location A: Barkley and West Broadway
- Location B: Church and Day
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Surveystant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Helipad
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/01/09

RST: Kathleen Bigelow

Location	Time	FID (units)	FID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	12:59	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND	*	ND
M1	13:20	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND		ND
N	13:23	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND		ND
J	13:32	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND		ND
K	13:34	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND		ND
F	13:37	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND		ND
A	13:41	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND		ND
B	13:43	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND		ND
C	13:45	ND	ND	ND	20.5	ND	ND	ND	ND	ND	ND		ND
H	14:02	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND		ND
I	14:09	ND	ND	ND	20.5	2	ND	ND	ND	ND	ND		ND
D	14:14	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND		ND
R	14:17	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND		ND
T	14:30	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND		ND
U	14:33	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND		ND
V	14:36	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND		ND
S	14:37	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND		ND
P	14:59	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND		ND
W	15:00	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND		ND

Location A: Barkley and West Broadway  
Location B: Church and Day  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Stuyvesant High School  
Location M1: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: JLT C.A.

U.S. EPA: Norrell

Date: 11/20/01

RST Site Project Manager Brennan

Location	R	L	N			
DanaRAM ID No.	<del>2643</del> 2646	2646	2647			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	<del>0722</del> 0722	0718	0729			
Stop Time	1519	1516	1522			
Run Time (Minutes)	476	<del>478</del> 476	473			
Minimum Concentration (ug/m3)	52.0	39.3	40.8			
Maximum Concentration (ug/m3)	255.3	318.5	357.2			
Average Concentration (TWA) (ug/m3)	81.3	80.0	76.7			

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



EARLY

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/30/01

RST: B Hoffman

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>3</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)	
L	0836	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	ND	<0.050
M1	0843	ND	ND	ND	20.7	ND	ND	ND	ND	ND	21.00	ND	<0.050
N	0850	ND	ND	ND	20.7	ND	ND	ND	ND	ND	<1.00	*	<0.050
J	0859	ND	ND	ND	20.7	ND	ND	ND	ND	ND	<1.00		<0.050
Q	0905	0.3	ND	ND	21.0	2	1	ND	ND	ND	<1.00		<0.050
F	0914	0.6	ND	ND	20.9	1	ND	ND	ND	ND	<1.00		<0.050
A	0923	0.3	ND	ND	20.9	2	1	ND	ND	ND	<1.00		<0.050
R	0928	ND	ND	ND	20.7	1	ND	ND	ND	ND	<1.00		<0.050
C	0935	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00		<0.050
H	0944	ND	ND	ND	20.9	3	ND	ND	ND	ND	<1.00		<0.050
I	0951	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00		<0.050
D	1002	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00		<0.050
K	1011	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00		<0.050
T	1020	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00		<0.050
U	1025	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.00		<0.050
V	1028	ND	ND	ND	20.9	2	ND	ND	ND	ND	<1.00		<0.050
S	1043	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1.00		<0.050
P	1055	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.00		<0.050
** E													

\* HF Single point monitor display is not working.  
\*\* Access to pump location (sampling location) denied due to Pison m.w. Sharon @ grid. zero

- Location A: Berkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway
- Location J: West and Warren
- Location K: Albany and West
- Location L: Shuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling
- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



LATE

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 11/30/01

RST: B. Hoffman

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1251	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	*	ND
M1	1256	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	*	ND
N	1301	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	*	ND
J	1305	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	*	ND
F	1312	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	*	ND
Q	1315	ND	ND	ND	21.0	2	ND	ND	ND	ND	ND	*	ND
A	1322	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	*	ND
B	1325	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	*	ND
C	1328	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	*	ND
H	1344	ND	ND	ND	21.1	2	ND	ND	ND	ND	ND	*	ND
I	1353	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	*	ND
D	1400	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	*	ND
K	1409	ND	ND	ND	21.0	3	ND	ND	ND	ND	ND	*	ND
T	1419	ND	ND	ND	21.0	1	ND	ND	ND	ND	ND	*	ND
U	1420	ND	ND	ND	21.1	ND	ND	ND	ND	ND	ND	*	ND
V	1422	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	*	ND
P	1432	ND	ND	ND	21.0	ND	ND	ND	ND	ND	ND	*	ND
S	1433	ND	ND	ND	21.1	1	ND	ND	ND	ND	ND	*	ND
E	1438	ND	ND	ND	21.0	2	ND	ND	ND	ND	ND	*	ND

\* HF Single point monitor display is not working.  
\*\* COCl<sub>2</sub> Single point monitor continuously cycles thru its start-up process. Switched to Draeger at ppm.

- Location A: Barkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway
- Location J: West and Warren
- Location K: Albany and West
- Location L: Shuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling
- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 December 1, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	27	06:45:00	10	00:15:00	100	0.0	1.6	19.1	363.3
2	-74.198262	40.566883	2295	1	27	06:45:00	10	00:15:00	100	0.0	.8	29.0	288.7
3	-74.198685	40.570054	2011	1	27	06:45:00	10	00:15:00	100	0.0	2.7	24.3	141.7
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	26	06:30:00	10	00:15:00	100	0.0	4.0	16.6	178.0
8	-74.203019	40.561915	2363	1	25	06:15:00	10	00:15:00	100	0.0	3.0	18.1	461.8

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 December 2, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	19	04:45:00	10	00:15:00	100	0.0	16.6	31.7	378.1
2	-74.198262	40.566883	2295	1	19	04:45:00	10	00:15:00	100	0.0	15.6	24.8	273.1
3	-74.198685	40.570054	2011	1	19	04:45:00	10	00:15:00	100	0.0	17.6	36.8	354.1
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	18	04:30:00	10	00:15:00	100	0.0	21.6	27.0	178.1
8	-74.203019	40.561915	2363	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0



**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Tuesday, December 4, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 4, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 42 samples taken in and around ground zero on November 30 and December 1. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on November 28 and 29 for a total of 48 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,881, with 29 samples above the standard (27 of these above-standard readings were collected prior to September 30 and one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected from November 28 and 29 from these locations showed no exceedances of the AHERA re-entry standard.

**Air: Fixed Monitors in New Jersey:**

Asbestos - Four air samples were taken in New Jersey on November 26. All samples showed results less than school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 203, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Fifteen samples were collected on November 18 and 19. All of these samples were below the school re-entry standard. Two samples taken at Wash Location #12A and Supply Tent Location #16 were not analyzed due to filter overloading.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on December 3 at the Staten Island Landfill. No significant readings reported.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted December 1 and 2 at Pace University, Borough of Manhattan Community College, and the Coast Guard building in Battery Park and on Wall Street. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**PM<sub>10</sub>** - Monitoring for particulate matter (particles less than 10 micrometers in diameter) was conducted on December 1 and 2 at a location on Wall Street. All 24-hour average values were below the National Ambient Air Quality Standard of 150 ug/m<sup>3</sup>.

**Particulate Monitoring** - EPA used portable monitors to collect samples on December 2 and 3 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on December 2 and 3 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene exceeded the OSHA standard at two locations on the debris pile - the North Tower (Dec. 2 and 3) and the South Tower (Dec. 2). Four out of five other samples taken at EPA's Wash Tent (West St. and Murray) and Austin Tobin Plaza showed no detectable levels of benzene.

**VOCs - EPA's Office of Research and Development (ORD)** has been conducting some specialized monitoring at and around the World Trade Center site since late September. Some of the results of the monitoring, which have been subjected to an extensive quality assurance/quality control process have just been finalized and are now available. The findings are generally consistent with the ongoing monitoring that has been conducted since September 11. Here are the first results, which are from seven samples taken from September 22 to September 25 at West Broadway and Barclay (Location A), Trinity and Liberty (Location C) and West Street and Albany (Location K): three of seven samples - taken at Location A and C - showed levels of benzene above EPA's action level for cancer based on a 30-year exposure. Two of seven samples - taken at Location A and C - showed levels of benzene above EPA's non-cancer screening level, also based on a 30-year exposure. Three of seven samples - taken at Location A and C - showed levels of 1,3-butadiene above EPA's action level based on a 30-year exposure. No levels found exceeded EPA's action levels based on a 1-year exposure.

**Direct Air Readings** - No significant readings found on December 2 and 3.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Tuesday, December 4, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Nov 29, 1200 - 2359 hrs)

Results pending.

NYC / ER (Nov 30, 0001 - 1200 hrs)

Results pending.

NYC / ER (Nov 30, 1200 - 2359 hrs)

All 20 samples analyzed were below the TEM AHERA standard.  
2 samples (Locations M1 and B) were not collected due to equipment malfunction.

NYC / ER (Dec 1, 0001 - 1200 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NJ / ER (Nov 26)

All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

Fresh Kills (Nov 18, 1915 - Nov 19, 0745) - Asbestos

All 15 samples analyzed were below the TEM AHERA standard.  
2 samples (indoor "Wash" Location #12A and Supply "Tent" Location #16) were not analyzed due to overloading of particulates.

Fresh Kills (Dec 3) - Particulate Monitoring (Dataram)

Nothing of significance reported at four stations (P-1, P-3, P-4, and P-7) based on daily average concentrations.

Ambient Air Sampling Locations

NYC / ER (Nov 28-29) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Manhattan Boro Community College (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 16 samples were collected from these monitoring sites. All of the samples were below the TEM AHERA standard.

NYC / ER (Dec 1) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was *16.68 ug/m<sup>3</sup>*.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *15.22 ug/m<sup>3</sup>*.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *11.84 ug/m<sup>3</sup>*.  
Wall Street - 24-hour average concentrations for this period was *14.98 ug/m<sup>3</sup>*.  
All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 2) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was *14.47 ug/m<sup>3</sup>*.  
Manhattan Boro Community College (Site 2) - 24-hour average concentration for this period was *15.97 ug/m<sup>3</sup>*.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *13.00 ug/m<sup>3</sup>*.  
Wall Street - 24-hour average concentrations for this period was *18.81 ug/m<sup>3</sup>*.  
All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 1) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was *27.87 ug/m<sup>3</sup>*.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Dec 2) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was *32.46 ug/m<sup>3</sup>*.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Dec 2) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.  
Instruments operated approximately 8.5 hours, except for Location N (3 hours).  
Station L values ranged from 6.6 to 172.7 ug/m<sup>3</sup> with an average of 29.0 ug/m<sup>3</sup>.  
Station N values ranged from 14.5 to 94.1 ug/m<sup>3</sup> with an average of 28.0 ug/m<sup>3</sup>.  
Station R values ranged from 6.6 to 69.0 ug/m<sup>3</sup> with an average of 30.2 ug/m<sup>3</sup>.

NYC / ER (Dec 3) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.  
Instruments operated approximately 7 to 7.5 hours.  
Station L values ranged from 26.8 to 384.9 ug/m<sup>3</sup> with an average of 81.2 ug/m<sup>3</sup>.  
Station N values ranged from 19.0 to 256.3 ug/m<sup>3</sup> with an average of 59.8 ug/m<sup>3</sup>.  
Station R values ranged from 20.7 to 187.6 ug/m<sup>3</sup> with an average of 68.7 ug/m<sup>3</sup>.

NYC / ER (Dec 2) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) on the debris pile in the plume at ground level.  
Both of the other samples (Wash Tent and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

NYC / ER (Dec 3) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) on the debris pile in the plume at ground level.  
2 of the 3 other samples (Wash Tent and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

Direct Reading Instruments

NYC / ER (Dec 2)

Nothing of significance reported.

NYC / ER (Dec 3)

Nothing of significance reported.

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/30/01 1200 to 2359  
 Date Validation Date: 12/03/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCMI by NIOSH 7400		TEM (AHERA)		
					ftm <sup>2</sup>	floc	Structures (f)	S-floc**	
11/30/01	RST-01320	M1	NS	NS	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01321	N	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01322	J	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01323	Q	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01324	F	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01325	A	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01326	C	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01327	H	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01328	I	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01329	D	720	Air	7.01	0.004	0	<8.89	<0.0048
11/30/01	RST-01330	K	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01331	T	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01332	T-Duplicate	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01333	U	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01334	V	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01335	V-Duplicate	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01336	W	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01337	P	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01338	E	720	Air	<7.0	<0.004	0	<8.89	<0.0048
11/30/01	RST-01339	W	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	FB120101	Field Blank	0	Air	<7.0	0/0	0	<8.89	<0.0048
12/01/01	TB120101	Tape Blank	0	Air	<7.0	0/0	0	<8.89	<0.0048

**Key:**  
 \* Sample volume (fters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to filter (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 CT: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St.  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**PCMI by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 C: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Recker & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AHERA):**  
 Structures (f) 0  
 S-floc\*\* <0.0048

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 7, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCMI), 70 SImm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Responses  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/01/01 0001 to 1200  
 Data Validation Date: 12/03/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					fmm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
12/01/01	RST-01340	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01341	M1	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01342	N	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01343	J	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01344	Q	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01345	A	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01346	B	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01347	C	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01348	H	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01349	I	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01350	D	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01351	K	509	Air	<7.0	<0.005	0	<8.89	<0.0067
12/01/01	RST-01352	T	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01353	U	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01354	U-Duplicate	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01355	V	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01356	S	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01357	S-Duplicate	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01358	P	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01359	E	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	RST-01360	W	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/01/01	FB120101	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/01/01	TB120101	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: ninity (a.k.a. Church) & Liberty
- D: SW corner of Broadway & Liberty St.
- E: East end of Albany St. at Greenwich St.
- F: Western end of Liberty St. at South End Ave
- G: Northern median strip of Vesey & West St
- H: Church and Duane St.
- I: South side of Chase Manhattan Plaza at Pine St.
- J: SE corner of Wall St. & Broadway
- K: NE corner of Wall St. & West St
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Pileout
- U: Pier 6 Air Stack
- V: Pier 6 Bus Stop
- W: Wash Tent Common Area

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/28/01 1200 to 2400

Data Validation Date: 12/03/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
11/28/01	7093-19-0062	Park Row	754***	Air	<7.0	<0.004	0	0	<8.89	<0.0045
11/28/01	7093-19-0062	BMCC	826***	Air	7.01	0.003	0	0	<8.89	<0.0041
11/28/01	7093-20-0062	Coast Guard	822***	Air	<7.0	<0.003	0	0	<10.00	<0.0047
11/28/01	7093-15-0061	Manhattan PS #143	1252	Air	<7.0	<0.002	0	0	<16.00	<0.0049
11/28/01	7094-09-0053	Bronx PS #154	1292	Air	<7.0	<0.002	0	0	<16.00	<0.0048
11/28/01	7096-12-0056	Queens PS #199	1380	Air	<7.0	<0.002	0	0	<16.00	<0.0045
11/28/01	7095-98-0058	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
11/28/01	7097-18-0055	Staten Island PS #44	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysotile
- NR - analysis not requested
- NS - Sample not submitted for analysis
- n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
Asbestos Air Sampling Results for WTC Extended Network  
Sampling Date and Time: 11/29/01 1200 to 2400

Data Validation Date: 12/03/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					fmm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>		
							0.5µ - 5µ	5µ	S-f/cc*	
11/29/01	7093-18-0063	Park Row	1268	Air	<7.0	<0.002	0	0	<16.00	<0.0049
11/29/01	7093-19-0063	BMCC	1129***	Air	<7.0	<0.002	0	0	<13.33	<0.0046
11/29/01	7093-20-0063	Coast Guard	1110***	Air	<7.0	<0.002	0	0	<13.33	<0.0046
11/29/01	7093-15-0062	Manhattan PS # 143	1386	Air	<7.0	<0.002	0	0	<16.00	<0.0044
11/29/01	7094-09-0054	Bronx PS #154	1398	Air	<7.0	<0.002	0	0	<16.00	<0.0044
11/29/01	7096-12-0057	Queens PS #199	1186***	Air	<7.0	<0.002	0	0	<13.33	<0.0043
11/29/01	7095-98-0059	Brooklyn PS #274	1138***	Air	<7.0	<0.002	0	0	<13.33	<0.0045
11/29/01	7097-18-0056	Staten Is. PS #44	1386	Air	<7.0	<0.002	0	0	<16.00	<0.0044

Key:

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  - \*\* Sample volume is based on pump reading
  - \*\*\* Sample volume is below recommended limit for TEM analysis
  - \*\*\*\* Chrysothile
  - NR - analysis not requested
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  - n/a - Not applicable
- NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 11/18/01 19:15 to 11/19/01 07:45<sup>(a)</sup>  
 Data Validation Date: 11/20/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/cc	f/m <sup>3</sup>	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
11/18/01	LF00824	P-1	694	Air	<7.0	<0.004	0	<8.75	<0.00485
11/18/01	LF00825	P-2	695	Air	<7.0	<0.004	0	<8.75	<0.0048
11/18/01	LF00826	P-3	693	Air	<7.0	<0.004	0	<8.75	<0.0049
11/18/01	LF00827	P-4	695	Air	<7.0	<0.004	0	<8.75	<0.0046
11/18/01	LF00828	P-5	695	Air	<7.0	<0.004	0	<8.75	<0.0048
11/18/01	LF00829	P-6	693	Air	<7.0	<0.004	0	<8.75	<0.0048
11/18/01	LF00830	P-7	692	Air	<7.0	<0.004	0	<8.75	<0.0049
11/18/01	LF00831	P-8	691	Air	<7.0	<0.004	0	<8.75	<0.0049
11/18/01	LF00832	W-11	669	Air	20.38	0.011	0	<8.75	<0.0049
11/18/01	LF00833	W-12A	713	Air	27.38	0.015	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/18/01	LF00834	W-12B	714	Air	<7.0	<0.004	0	<8.75	<0.0047
11/18/01	LF00835	B-13	694	Air	<7.0	<0.004	0	<8.75	<0.00485
11/18/01	LF00836	B-14	694	Air	<7.0	<0.004	0	<8.75	<0.00485
11/18/01	LF00837	T-15	720	Air	7.64	0.004	2***	17.5	0.0094
11/18/01	LF00838	T-16	720	Air	14.01	0.007	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(1)</sup>
11/18/01	LF00839 <sup>(b)</sup>	O-17	720	Air	<7.0	<0.004	0	<8.75	<0.0047
11/18/01	LF00840	O-18	720	Air	<7.0	<0.004	1***	8.75	0.0047
11/18/01	LF00841	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
11/18/01	LF00842	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (filters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 (a) - The filter for sample LF00839, O-17, could not be removed during the 11/18/01 evening hours due to the closing off of the area. The air sample was collected from 11/18/01 09:00 to 21:00; a total of 720 minutes. The filter was removed on 11/18/01am.  
 NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Asbestos Air Sampling Results NYC ER/NJ/DEP  
 Sampling Date and Time: 11/26/2001 1040 to 2300  
 Data Validation Date: 11/28/2001

Date Sampled	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ	S/mm <sup>2</sup>	S-f/cc*
11/26/01	1LIB112601	Liberty Park	466**	Air	<7.0	<0.006	0	0	<8.00	<0.0066
11/26/01	2CIT112601	CITGO Terminal	1188	Air	<7.0	<0.002	0	0	<13.33	<0.0044
11/26/01	3FMC112601	FMC Terminal	1098**	Air	<7.0	<0.002	0	0	<13.33	<0.0047
11/26/01	4SHL112601	Shell Terminal	1200	Air	<7.0	<0.002	0	0	<13.33	<0.0043
11/26/01	9FLD112601	Field Blank	0	Air	<7.0	n/a	NA	NA	NA	NA

COC No. is not available

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading
- \*\*\* Chrysolite
- n/a - Not applicable
- NA - Not analyzed for TEM
- NS - Sample not submitted

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location	Sampling Times
Liberty Park	11/26/2001 1040 to 1433
CITGO Terminal	11/26/2001 1131 to 2110
FMC Terminal	11/26/2001 1235 to 2144
Shell Terminal	11/26/2001 1300 to 2300

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 December 3, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	27	06:45:00	10	00:15:00	100	0.0	2.9	33.3	1312.6
2	-74.198262	40.566883	2295	1	39	09:45:00	10	00:15:00	100	0.0	5.9	35.7	147.0
3	-74.198685	40.570054	2011	1	39	09:45:00	10	00:15:00	100	0.0	9.1	46.2	306.4
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	38	09:30:00	10	00:15:00	100	0.0	7.2	35.6	170.9
8	-74.203019	40.561915	2363	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/03/01

File Name	NYC337	NYC338	NYC339	NYC342	NYC340	NYC344
Sample Location	Instrument Blank	Tedlar Bag Blank	Location R	Austin Tobin Plaza	North Tower	South Tower
			Ambient Air		Plume	Plume
Sample Number			A07175	A07176	A07176	A07177
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	25 mL	100 mL
Reporting Limit (RL)	20	20	20	20	200	50
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	RL	2600	120
Picn 22	RL	RL	RL	RL	RL	80
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	2400	86
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	RL	2200	2000
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	270	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	540	220
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	760	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	5200	120
Heptane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl isobutyl Ketone	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropane	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	2300	50
trans-1,3-Dichloropropane	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	2200	RL
m,p-Xylenes	RL	RL	RL	RL	RL	RL
o-Xylene	RL	RL	RL	RL	RL	RL
Styrene	RL	RL	RL	RL	410	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/3/01

RST: CHAM

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	8:27	*	*	*	21.0	*	*	ND	ND	ND	ND	ND	<0.05
M I	8:35	*	*	*	21.0	*	*	ND	ND	ND	<1.0	ND	<0.05
N	8:50	*	*	*	21.1	*	*	ND	ND	ND	<1.0	ND	<0.05
J	9:00	*	*	*	21.0	*	*	ND	ND	ND	<1.0	ND	<0.05
Q	9:07	*	*	*	21.0	*	*	ND	ND	ND	<1.0	ND	<0.05
PC F	9:15	*	*	*	21.0	*	*	ND	ND	ND	<1.0	ND	<0.05
A	9:24	*	*	*	21.0	*	*	ND	ND	ND	<1.0	ND	<0.05
B	9:33	*	*	*	21.0	*	*	ND	ND	ND	<1.0	ND	<0.05
C	9:40	*	*	*	21.0	*	*	ND	ND	ND	<1.0	ND	<0.05
H	9:50	*	*	*	21.0	*	*	ND	ND	ND	<1.0	ND	<0.05
I	10:05	*	*	*	21.0	*	*	ND	ND	ND	<1.0	ND	<0.05
D	10:15	*	*	*	21.0	*	*	ND	ND	ND	<1.0	*	<0.05
R	10:21	*	*	*	21.0	*	*	ND	ND	ND	<1.0	*	<0.05
T	10:50	*	*	*	21.0	*	*	ND	ND	ND	<1.0	*	<0.05
U	10:55	*	*	*	21.0	*	*	ND	ND	ND	<1.0	*	<0.05
V	11:03	*	*	*	21.0	*	*	ND	ND	ND	<1.0	*	<0.05
S	11:13	*	*	*	21.0	*	*	ND	ND	ND	<1.0	*	<0.05
P	11:17	*	*	*	21.0	*	*	ND	ND	ND	<1.0	*	<0.05
K	11:22	*	*	*	21.0	*	*	ND	ND	ND	<1.0	*	<0.05

\* INSTRUMENTS NOT FUNCTIONING, NOT USED  
\*\* BATTERY DEAD  
NF - EPA  
CC12 - DRABER CMS  
NCL - DRABER TUBE

- Location A: Barkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway
- Location J: West and Warren
- Location K: Albany and West
- Location L: Sunnyside High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling
- Location S: Recter and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12.3.01 (LATE)

RST: BRUNNAN

Location	Time	FID (units)	FID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1305	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.0	ND	<1.05
M1	1311	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.0	ND	<1.05
N	1317	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.0	ND	<1.05
J	1325	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.0	ND	<1.05
O	1331	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.0	ND	<1.05
F	1336	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.0	ND	<1.05
A	1343	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.0	ND	<1.05
B	1349	ND	ND	ND	20.9	2	ND	ND	ND	ND	<1.0	ND	<1.05
C	1354	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.0	ND	<1.05
H	1404	ND	ND	ND	20.9	4	ND	ND	ND	ND	<1.0	ND	<1.05
I	1410	ND	ND	ND	20.9	4	ND	ND	ND	ND	<1.0	ND	<1.05
D	1417	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.0	ND	<1.05
K	1425	ND	ND	ND	20.9	3	ND	ND	ND	ND	<1.0	*	<1.05
T	1434	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.0	*	<1.05
V	1439	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.0	*	<1.05
V	1447	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.0	*	<1.05
S	1465	ND	ND	ND	20.9	3	ND	ND	ND	ND	<1.0	*	<1.05
P	1500	ND	ND	ND	20.9	4	ND	ND	ND	ND	<1.0	*	<1.05
E	1506	ND	ND	ND	20.9	1	ND	ND	ND	ND	<1.0	*	<1.05

\* BATTERY DEAD

MF-61M  
CO<sub>2</sub> - DRABER CMS  
HCL - DRABER TUBE

Location A: Barkley and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Stuyvesant High School  
Location M1: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Helipad  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 10/2/01

RST: Schmitt

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	08:27	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	8	<.05
M1	08:48	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
N	08:56	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1		<.05
J	09:02	ND	0.1	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
Q	09:10	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
F	09:16	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
A	09:24	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
B	09:32	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
C	09:39	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
H	09:48	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
I	09:56	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
D	10:05	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
K	10:12	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
T	10:26	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
U	10:32	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
V	10:40	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
S	10:44	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1		<.05
P	10:55	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1		<.05
E	11:03	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1		<.05

\* No HF readings taken.  
COCl<sub>2</sub> readings taken with Dräger CMs.  
HCl readings taken with Dräger tubes.

- Location A: Berkeley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway
- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M1: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling
- Location S: Rector and South End
- Location T: Pier 6 Helport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location



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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/2/01 - PM

RST: Schmitt

Location	Time	FID (units)	FID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	12:08	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
M1	13:17	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
N	13:19	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
J	13:25	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
Q	13:31	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
F	13:35	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
A	13:43	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
B	13:53	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
C	13:57	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
H	14:05	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
I	14:10	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
D	14:17	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
K	14:22	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
T	14:34	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
U	14:38	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
V	14:40	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
S	14:50	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
P	14:55	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05
E	15:00	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1	ND	<.05

HCl readings taken with Draeger tubes.  
COCl<sub>2</sub> readings taken with Draeger CMS.

- |                                       |                                    |                                  |
|---------------------------------------|------------------------------------|----------------------------------|
| Location A: Barkley and West Broadway | Location J: West and Warren        | Location S: Rector and South End |
| Location B: Church and Dey            | Location K: Albany and West        | Location T: Pier 6 Helipad       |
| Location C: Liberty and Church        | Location L: Stuyvesant High School | Location U: Pier 6 Exit 2        |
| Location D: Albany and Greenwich      | Location M1: West and Warren       | Location V: Pier 6 Bus Sign      |
| Location E: Liberty and South End     | Location N: Pier 25 Volleyball     | Location W: No location          |
| Location F: West and Vesey            | Location O: No location            | Location X: No location          |
| Location G: No location               | Location P: Albany and South End   | Location Y: No location          |
| Location H: Chase Plaza               | Location Q: West and Murray        | Location Z: No location          |
| Location I: Wall Street and Broadway  | Location R: No asbestos sampling   |                                  |

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade CenterSampler: MetzgerU.S. EPA: NorrellDate: 12/3/01RST Site Project Manager Brennan

Location	L	R	N			
DataRAM ID No.	2647	2646	2643			
Flow Rate (Liters / Minute)	2	2	2			
Start Time	0823	0821	0848			
Stop Time	1547	1545	1550			
Run Time (Minutes)	444	444	422			
Minimum Concentration (ug/m <sup>3</sup> )	26.8	20.7	19.0			
Maximum Concentration (ug/m <sup>3</sup> )	384.9	187.6	256.3			
Average Concentration (TWA) (ug/m <sup>3</sup> )	81.2	68.7	59.8			

NO QC EVALUATION HAS BEEN PERFORMED.  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/2/01

File Name	NYC328	NYC329	NYC330	NYC331	NYC332	NYC334
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent	Austin Tobin Plaza	North Tower	South Tower
Sample Number			A07171	A07173	A07172	A07174
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	20 mL	10 mL
Reporting Limit (RL)	20	20	20	20	250	500
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Pfolylene	RL	RL	RL	RL	2400	9200
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	1500	RL
Vinyl Chloride	RL	RL	RL	HL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	RL	5700	5900
Trichlorofluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloropropane	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	1400	750
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	570	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	5400	14,000
Heptane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	3000	7500
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	3200	3800
m,p-Xylenes	RL	RL	RL	RL	RL	RL
O-Xylene	RL	RL	RL	RL	RL	RL
Styrene	RL	RL	RL	RL	530	5600
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Wednesday, December 5, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 5, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 42 samples taken in and around ground zero from November 29 through December 2. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on November 30 for a total of 86 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,967, with 29 samples above the standard (27 of these above-standard readings were collected prior to September 30 and one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected on November 30 from these locations showed no exceedances of the AHERA re-entry standard.

**Air: Fixed Monitors in New Jersey:**

Asbestos - Four air samples were taken in New Jersey on November 29. All samples showed results less than school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 207, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Thirty-eight samples were collected on December 1 and 2. All of these samples were below the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on December 3 at the Staten Island Landfill. No significant readings reported.

**PCBs** - Ten samples were collected on November 8 and analyzed for PCBs. PCBs were not detected in any of the samples.

**Metals** - A total of 20 samples were collected on November 19 and 21. Analysis for all metals were either non-detect or below applicable standards, guidelines and permissible levels established by EPA and OSHA. Final analysis of these samples for chromium showed that chromium is not present.

**PAHs** - A total of 30 samples were collected on November 8, 12 and 15 and analyzed for PAHs. PAHs were not detected in any of these samples.

**Dioxin** - EPA's Office of Research and Development (ORD) has been conducting some specialized monitoring at and around the World Trade Center site since late September. Some of the results of the monitoring, which have been subjected to an extensive quality assurance/quality control process have now been finalized and are available. Air samples were collected over 24-hour and 72-hour periods and analyzed for dioxins. Here are the results:

October 1 - 4: One 72-hr. sample taken at 290 Broadway showed results above EPA's action level based on a 30-year exposure. Levels did not exceed EPA's action level for a 1-year exposure.

October 11-15: Eight 24-hr. samples were taken at Park Row and Borough of Manhattan Community College: two - both at Park Row - were above EPA's action level based on a 30-year exposure. Levels did not exceed EPA's action level for a 1-year exposure.

October 23 - 29: Four 72-hr. samples were taken at Park Row and Borough of Manhattan Community College: two - both at Park Row - were above EPA's action level based on a 30-year exposure. Levels did not exceed EPA's action level for a 1-year exposure.

October 29-November 5: Four 72-hr. samples were taken at Park Row and Borough of Manhattan Community College: there were no exceedances of EPA's action level for a 30-year exposure.

November 5 - 16: Eight 72-hr. samples were taken at Park Row and Borough of Manhattan Community College: there were no exceedances of EPA's action level for a 30-year exposure.

None of the levels found in these samples pose a short-term health concern. However, those samples that exceeded EPA's action level were elevated sufficiently to be of concern for a long-term exposure.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Wednesday, December 5, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Nov 29, 1200 - 2359 hrs)

All 20 samples analyzed were below the TEM AHERA standard.  
1 sample (Location F) was not collected due to equipment malfunction.  
1 sample (Location N) was not analyzed due to particulate overloading.

NYC / ER (Nov 30, 0001 - 1200 hrs)

All 21 samples analyzed were below the TEM AHERA standard.  
1 sample (Location I -duplicate) was not collected due to equipment malfunction.

NYC / ER (Dec 01, 1200 - 2359 hrs)

All 21 samples analyzed were below the TEM AHERA standard.  
1 sample (Location D) was not collected due to equipment malfunction.

NYC / ER (Dec 02, 0001 - 1200 hrs)

All 21 samples analyzed were below the TEM AHERA standard.

NJ / ER (Nov 29)

All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

Fresh Kills (Dec 01, 0815 - 2242) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Fresh Kills (Dec 02, 0803 - 2119) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Ambient Air Sampling Locations

NYC / ER (Oct 1 - 4) - Dioxin (EPA-ORD)

One (1) 72-hour sample was collected during this period at 290 Broadway, 16<sup>th</sup> floor. Results for this sample were above the EPA Removal Action guidelines (based on a 30-year exposure). Levels did not exceed the EPA Removal Action guidelines adjusted to a 1-year exposure. Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for the long-term (chronic) exposure. Data is not attached.

## NYC / ER (Oct 11 - 15) - Dioxin (EPA-ORD)

Eight (8) 24-hour samples were collected during this period at Park Row (4 samples) and Manhattan Boro Community College (4 samples) at roof top locations. 2 of the 8 samples (both at Park Row on Oct 11 and Oct 15) collected were above the EPA Removal Action guidelines (based on a 30-year exposure). Levels did not exceed the EPA Removal Action guidelines adjusted to a 1-year exposure. Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for the long-term (chronic) exposure. Data is not attached.

## NYC / ER (Oct 23 - 29) - Dioxin (EPA-ORD)

Four (4) 72-hour samples were collected during this period at Park Row (2 samples) and Manhattan Boro Community College (2 samples) at roof top locations. 2 of the 4 samples (both at Park Row for the periods Oct 23-26 and Oct 26-29) collected were above the EPA Removal Action guidelines (based on a 30-year exposure). Levels did not exceed the EPA Removal Action guidelines adjusted to a 1-year exposure. Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for the long-term (chronic) exposure. Data is not attached.

## NYC / ER (Oct 29 - Nov 5) - Dioxin (EPA-ORD)

Four (4) 72-hour samples were collected during this period at Park Row (2 samples) and Manhattan Boro Community College (2 samples) at roof top locations. None of the samples collected were above the EPA Removal Action guidelines (based on a 30-year exposure). Data is not attached.

## NYC / ER (Nov 5 - Nov 16) - Dioxin (EPA-ORD)

Eight (8) 72-hour samples were collected during this period at Park Row (4 samples) and Manhattan Boro Community College (4 samples) at roof top locations. None of the samples collected were above the EPA Removal Action guidelines (based on a 30-year exposure). Data is not attached.

## NYC / ER (Nov 08) - PCBs

All 10 samples did not detect any PCBs.

## NYC / ER (Nov 19) - Metals

Ten samples collected. All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead. **Note:** QA/QC review of chromium in air analytical data has revealed that chromium is not present in these samples.

NYC / ER (Nov 21) - Metals

Ten samples collected.

All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.

**Note:** QA/QC review of chromium in air analytical data has revealed that chromium is not present in these samples.

NYC / ER (Nov 8) - PAHs

Ten samples collected.

PAHs were not detected in the samples analyzed.

Data is not attached.

NYC / ER (Nov 12) - PAHs

Ten samples collected.

PAHs were not detected in the samples analyzed.

Data is not attached.

NYC / ER (Nov 15) - PAHs

Ten samples collected.

PAHs were not detected in the samples analyzed.

Data is not attached.

NYC / ER (Nov 30) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Pace University (Site 1)
- Manhattan Boro Community College (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 8 samples were collected from these monitoring sites.

All of the samples were below the TEM AHERA standard.



NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 12/01/01 0615 to 2242<sup>(a)</sup>

Data Validation Date: 12/03/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume <sup>b</sup>	Matrix	f/cc	PCM by NIOSH 7400		TEM (AHERA)		S-fiber <sup>c,c,c</sup>
						f/mm <sup>2</sup>	Structures (#)	0.5µ-5µ	5µ	
12/01/01	LF01284	P-1	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01285	P-2	572	Air	<7.0	<0.005	0	0	<8.75	<0.0059
12/01/01	LF01286	P-3	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01287	P-4	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01288	P-5	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01289	P-6	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01300	P-7	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01301	P-8	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01302	W-11	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01303	W-12A	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01304	W-12B	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01305	B-13	653	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01305	B-14	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01307 <sup>(b)</sup>	T-15	1468	Air	11.46	0.003	0	0	<15.75	<0.0041
12/01/01	LF01308	T-16	495	Air	10.19	0.008	0	0	<8.06	<0.0047
12/01/01	LF01309	O-17	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01310	O-18	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01311	O-19	676	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01312	MPHS-20	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/01/01	LF01313	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/01/01	LF01314	Trp Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected  
 (a) - Sample LF01307, T-15, was collected on 12/02/01 at 0909 due to closing off of area during 12/01 evening hours.  
 Sample pump ran continuously during this period of time.

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/02/01 08:03 to 2:19  
 Data Validation Date: 12/04/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S- f/cc**	S <sub>1</sub> - S <sub>2</sub>	S <sub>3</sub>
12/02/01	LF01315	P-1	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01316	P-2	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01317	P-3	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01318	P-4	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01319	P-5	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01320	P-6	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01321	P-7	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01322	P-8	720	Air	15.29	0.009	0	<8.75	<0.0047	<0.0047
12/02/01	LF01323	W-11	720	Air	20.38	0.011	2***	17.50	0.0094	0.0094
12/02/01	LF01324	W-12A	720	Air	12.74	0.007	0	<8.75	<0.0047	<0.0047
12/02/01	LF01325	W-12B	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01326	B-13	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01327	B-14	700	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01328	T-15	720	Air	22.93	0.012	0	<8.75	<0.0047	<0.0047
12/02/01	LF01329	T-16	720	Air	17.93	0.010	0	<8.75	<0.0047	<0.0047
12/02/01	LF01330	O-17	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01331	O-18	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01332	O-19	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01333	MP-HS-20	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/02/01	LF01334	Lot Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>
12/02/01	LF01335	Trip Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile

NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 11/29/01 1200 to 2359  
Date Valuation Date: 12/03/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S-fiber**	
11/29/01	RST-01278	L	720	Air	<0.004	<0.004	0	0	<0.0048	
11/29/01	RST-01279	M1	59	Air	NA <sup>(9)</sup>	NA <sup>(9)</sup>	NA <sup>(9)</sup>	NA <sup>(9)</sup>	<0.0048	
11/29/01	RST-01280	N	720	Air	<0.004	<0.004	0	0	<0.0048	
11/29/01	RST-01281	O	720	Air	<0.004	<0.004	0	0	<0.0048	
11/29/01	RST-01282	A	720	Air	<0.004	<0.004	0	0	<0.0048	
11/29/01	RST-01283	F	NS	Air	NS	NS	NS	NS	<0.0048	
11/29/01	RST-01284	B	720	Air	22.93	0.012	0	0	<0.0048	
11/29/01	RST-01285	C	715	Air	10.19	0.005	1***	0	8.89	
11/29/01	RST-01286	H	720	Air	<0.004	<0.004	0	0	<0.0048	
11/29/01	RST-01287	I	492	Air	<0.004	<0.004	0	0	<0.0048	
11/29/01	RST-01288	D	720	Air	<0.004	<0.004	0	0	<0.0048	
11/29/01	RST-01289	D-Dup	720	Air	<0.004	<0.004	0	0	<0.0048	
11/29/01	RST-01290	K	720	Air	12.74	0.007	0	0	<0.0048	
11/29/01	RST-01291	T	720	Air	<0.004	<0.004	0	0	<0.0048	
11/29/01	RST-01292	U	720	Air	<0.004	<0.004	0	0	<0.0048	
11/29/01	RST-01293	V	720	Air	<0.004	<0.004	0	0	<0.0048	
11/29/01	RST-01294	S	720	Air	8.92	0.005	0	0	<0.0048	
11/29/01	RST-01295	P	720	Air	7.01	0.004	0	0	<0.0048	
11/29/01	RST-01297	W	720	Air	<0.004	<0.004	0	0	<0.0048	
11/29/01	RST-01298	H-Dup	720	Air	7.94	0.004	0	0	<0.0048	
11/30/01	FBI13901	Field Blank	0	Air	<0.004	na	na	na	<0.0048	
11/30/01	FBI13901	Trip Blank	0	Air	<0.004	na	na	na	<0.0048	

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: NE corner of Church & Vesey
- C: NE corner of Church & Liberty
- D: SW corner of Broadway & Liberty St.
- E: East end of Albany St. at Greenwich St.
- F: Western end of Liberty St. at South End Ave
- G: Northern median strip of Vesey & West St
- H: Church and Duane St
- I: South side of Chase Manhattan Plaza at Pine St.
- J: SE corner of Wall St. & Broadway
- K: NE corner of Warren & West St
- L: West St. & Albany in median strip
- M: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

PCM by NIOSH 7400

- M: Western end of Harrison St. at West St. (on fire next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- O: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Recker & South End
- T: Pier 6 Helipad
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

TEM (AHERA)

- M: Western end of Harrison St. at West St. (on fire next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- O: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Recker & South End
- T: Pier 6 Helipad
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM); 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/20/01 0001 to 1200  
 Data Validation Date: 12/03/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (#)	f/m <sup>3</sup>	f/cc	S-f/cc**
11/20/01	RST-01289	L	720	Air	19.11	0.010	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01300	M1	420	Air	<7.0	<0.005	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01301	N	720	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01302	F	720	Air	7.01	0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01303	J	420	Air	<7.0	<0.005	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01304	Q	720	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01305	B	720	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01306	C	633	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01307	H	545	Air	<7.0	<0.005	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01308	I	720	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01309	I-Dup	NS	Air	NS	NS	NS	NS	NS	NS
11/20/01	RST-01310	D	695	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01311	K	720	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01312	K-Dup	720	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01313	T	720	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01314	U	518	Air	<7.0	<0.005	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01315	V	720	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01316	S	720	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01317	P	720	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01318	E	720	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	RST-01319	VR	720	Air	<7.0	<0.004	0	<8.89	<0.0043	<0.0043
11/20/01	FB113001	Field Blank	0	Air	<7.0	na	na	NA <sup>(9)</sup>	NA <sup>(9)</sup>	NA <sup>(9)</sup>
11/20/01	FB113001	Trip Blank	0	Air	<7.0	na	na	NA <sup>(9)</sup>	NA <sup>(9)</sup>	NA <sup>(9)</sup>

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay St.  
 B: SE corner of West Broadway & Duane St.  
 C: Trinity (St. Ann, Church) & Liberty St.  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St.  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysolite  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 NA<sup>(3)</sup> - Not analyzed due to wet filter  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St.  
 (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany St.  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AHERA):**  
 NA<sup>(9)</sup> - Not analyzed for TEM  
 NA<sup>(10)</sup> - Not analyzed due to wet filter  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 5/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/01/01 1200 to 2359  
 Data Validation Date: 12/04/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400 f/m <sup>3</sup>	TEM (AHERA)		S-f/cc**	
						Structures (#)	5µ		
12/01/01	RST-01362	L	720	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01363	MT	720	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01364	MT-Duplicate	720	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01365	N	720	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01366	J	720	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01367	K	720	Air	8.92	0	0	<8.89	<0.0048
12/01/01	RST-01368	E	720	Air	8.92	0	0	<8.89	<0.0048
12/01/01	RST-01369	A	720	Air	21.66	0	0	<8.89	<0.0048
12/01/01	RST-01370	B	720	Air	82.80	0	0	<8.89	<0.0048
12/01/01	RST-01371	C	628	Air	8.92	0	0	<8.00	<0.0048
12/01/01	RST-01372	H	720	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01373	I	720	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01374	D	NS	NS	NS	NS	NS	NS	NS
12/01/01	RST-01375	T	720	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01376	U	720	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01377	V	720	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01378	S	720	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01379	P-Duplicate	640	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01381	L	720	Air	<7.0	0	0	<8.89	<0.0048
12/01/01	RST-01382	Field Blank	720	Air	7.01	0	0	<8.89	<0.0048
12/02/01	TB120201	Field Blank	0	Air	0.9	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
12/02/01	TB120201	Field Blank	0	Air	<7.0	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Sampling Locations:**  
 B: SE corner of Church & Dev St  
 C: Trinity (s.k.a. Church) & Liberty St  
 Ct: SW corner of Broadway & Liberty St  
 D: East end of Albany St. at Greenwich St  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 MT: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 O: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Reclor & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AHERA):**  
 NA<sup>(3)</sup> - Not analyzed for TEM  
 NA<sup>(3)</sup> - Not analyzed for TEM  
 NA<sup>(3)</sup> - Not analyzed for TEM

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/1994  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/02/01 0001 to 1200  
 Data Validation Date: 12/04/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fiber**
					f/m <sup>2</sup>	f/cc	Structures (#)	5µ	
12/02/01	RST-01383	L	720	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01384	L-Duplicate	720	NS	NS	NS	NS	NS	NS
12/02/01	RST-01385	M-1	720	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01386	N	720	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01387	Q	720	Air	7.64	0.004	0	0	<0.0048
12/02/01	RST-01388	F	720	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01389	A	720	Air	7.64	0.004	0	0	<0.0048
12/02/01	RST-01390	B	720	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01391	C	626	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01392	H	523	Air	<7.0	<0.005	0	0	<0.0048
12/02/01	RST-01393	I	720	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01394	D	720	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01395	K	635	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01396	T	550	Air	<7.0	<0.005	0	0	<0.0048
12/02/01	RST-01397	U	720	Air	7.64	0.004	0	0	<0.0048
12/02/01	RST-01398	V	720	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01399	S	720	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01400	P	683	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01401	E	720	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	RST-01402	E-Duplicate	573	Air	<7.0	<0.005	0	0	<0.0054
12/02/01	RST-01403	W	720	Air	<7.0	<0.004	0	0	<0.0048
12/02/01	FB120201	Field Blank	0	Air	n/a	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/02/01	TB120201	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- D: SW corner of Broadway & Liberty St.
- E: East end of Albany St. at Greenwich St.
- F: Western end of Liberty St. at South End Ave
- G: Northern median strip of Vesey & West St
- H: Church and Duane St.
- I: South side of Chase Manhattan Plaza at Pine St.
- J: SE corner of Wall St. & Broadway
- K: Corner of Warren & West St.
- L: West St. & Albany in median strip
- M: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f) on chrysotile
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NS - Not requested
- NS - Sample not submitted

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rear & South End
- T: Pier 6 Slip 1
- U: Pier 6 Slip 2
- V: Pier 6 Bus Stop
- W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/imm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/30/01 1200 to 2400  
 Data Validation Date: 12/03/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	Structures (#)	Structures (#)	S-f/cc*	
11/30/01	7093-18-0064	Park Row	974***	Air	<7.0	<0.003	0	0	<11.43	<0.0045	
11/30/01	7093-19-0064	BMCC	1022***	Air	7.01	0.003	0	0	<11.43	<0.0043	
11/30/01	7093-20-0064	Coast Guard	1060***	Air	<7.0	<0.003	0	0	<13.33	<0.0048	
11/30/01	7093-15-0063	Manhattan PS # 143	1268	Air	<7.0	<0.002	0	0	<16.00	<0.0049	
11/30/01	7094-09-0055	Bronx PS #154	1298	Air	<7.0	<0.002	0	0	<16.00	<0.0047	
11/30/01	7096-12-0058	Queens PS #199	1370	Air	<7.0	<0.002	0	0	<16.00	<0.0045	
11/30/01	7095-98-0060	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043	
11/30/01	7097-18-0057	Staten Island PS #44	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043	

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysotile
- NR - analysis not requested
- NS - Sample not submitted for analysis
- n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Asbestos Air Sampling Results NYC ERINJDEP  
 Sampling Date and Time: 11/29/2001 1051 to 2202  
 Data Validation Date: 12/04/2001

Date Sampled	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM ( AHERA )			
					f/min <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ	S/mm <sup>2</sup>	S-f/cc*
11/29/01	1LIB112901	Liberty Park	1148**	Air	<7.0	<0.002	0	0	<13.33	<0.0045
11/29/01	2CIT112901	CITGO Terminal	1200	Air	<7.0	<0.002	0	0	<13.33	<0.0043
11/29/01	3FMC112901	FMC Terminal	1160**	Air	<7.0	<0.002	0	0	<13.33	<0.0044
11/29/01	4SHL112901	Shell Terminal	700**	Air	<7.0	<0.004	0	0	<8.69	<0.0049
11/29/01	5FLD112901	Field Blank	0	Air	<7.0	n/a	NA	NA	NA	NA
11/29/01	-	Trip Blank	NS	NS	NS	NS	NS	NS	NS	NS

**Key:**  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\*\* Chrysotile  
 n/a - Not applicable  
 NA - Not analyzed for TEM  
 NS - Sample not submitted

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location	Sampling Times
Liberty Park	11/29/01 1051- 2025
CITGO Terminal	11/29/01 1133 - 2133
FMC Terminal	11/29/01 1222 - 2202
Shell Terminal	11/29/01 1244 - 1834



Table 1.1 Results of the Analysis for Metals in Air  
WA # 0-238 New York (WTC) ER site

Client ID Location Air Volume (L) Date Collected	Media Blank #1		Media Blank#2		Media Blank#3		11334 Field Blank		11335 Lot Blank		11324 TAGA 4200 11/2/01		
	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	
Parameter	Analysis Method	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/filter	MDL µg/filter	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Aluminum	ICAP	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	0.55	0.30
Antimony	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.012
Arsenic	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.012
Barium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	0.04	0.03
Beryllium	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.012
Cadmium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.03
Calcium	ICAP	5.9	2.5	7.0	2.5	5.8	2.5	U	2.5	U	2.5	1.5	0.80
Chromium	ICAP	0.78	0.13	0.82	0.13	0.80	0.13	U	0.13	U	0.13	U	0.03
Cobalt	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.06
Copper	ICAP	U	0.13	U	0.25	U	0.25	U	0.25	U	0.25	0.063	0.06
Iron	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	0.03	0.03
Manganese	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	0.03	0.03
Magnesium	ICAP	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	3.0
Nickel	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.03
Potassium	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.06
Selenium	ICAP	U	50	U	50	U	50	U	50	U	50	U	12
Silver	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.012
Sodium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.03
Sulfur	ICAP	13	13	17	13	13	13	U	13	U	13	U	3.0
Thallium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.012
Vanadium	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.06
Zinc	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	0.11	0.06

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample results

Table 1.1 (cont.) Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ERTC site

Client ID	11325		11326		11327		11328		11329		11330	
	Location	TAGA	A-BARCLAY ST. & WEST BROADWAY	LOC 3B CHURCH & VESEY ST	B-CHURCH & DEY ST.	C-LIBERTY ST. & CHURCH ST.	D-GREENWICH & ALBANY ST.					
Location	4800	4800	4800	4800	4800	4340	4800					
Air Volume (L)	4800	4800	4800	4800	4800	4340	4800					
Date Collected	11/21/01	11/21/01	11/21/01	11/21/01	11/21/01	11/21/01	11/21/01					
Parameter	Analysis Method	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	
Aluminum	ICAP	0.49	0.26	2.4	0.26	8.2	0.26	1.5	0.29	0.79	0.26	
Antimony	AA-Fur	U	0.01	0.058	0.01	0.18	0.01	0.044	0.012	U	0.01	
Arsenic	ICAP	0.031	0.01	0.076	0.026	0.24	0.026	0.16	0.022	0.054	0.026	
Barium	ICAP	U	0.01	0.026	0.01	U	0.01	U	0.012	U	0.01	
Bismuth	ICAP	U	0.026	U	0.026	U	0.026	U	0.029	U	0.026	
Calcium	ICAP	1.3	0.52	31	0.52	26	0.52	15	0.58	3.9	0.52	
Chromium	ICAP	U	0.026	U	0.026	0.033	0.026	U	0.029	U	0.026	
Copper	ICAP	0.053	0.052	U	0.052	U	0.052	U	0.058	U	0.052	
Iron	ICAP	0.99	0.13	8.8	0.13	0.80	0.052	0.22	0.058	0.11	0.052	
Lead	AA-Fur	0.023	0.01	0.12	0.01	7.9	0.13	11	0.14	2.2	0.13	
Magnesium	ICAP	U	2.6	4.2	2.6	U	2.6	U	2.9	U	2.6	
Manganese	ICAP	U	0.026	0.16	0.026	0.15	0.026	0.15	0.029	0.04	0.026	
Nickel	ICAP	U	0.052	U	0.052	U	0.052	U	0.058	U	0.052	
Potassium	ICAP	U	10	U	10	U	10	U	12	U	10	
Selenium	AA-Fur	U	0.01	U	0.01	U	0.01	U	0.012	U	0.01	
Silver	ICAP	U	0.026	U	0.026	U	0.026	U	0.029	U	0.026	
Sodium	ICAP	U	2.6	U	2.6	U	2.6	U	2.9	U	2.6	
Thallium	AA-Fur	U	0.01	U	0.01	U	0.01	U	0.012	U	0.01	
Vanadium	ICAP	U	0.052	U	0.052	U	0.052	U	0.058	U	0.052	
Zinc	ICAP	0.092	0.052	1.2	0.052	6.0	0.052	0.81	0.058	0.38	0.052	

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average field Blank concentration subtracted from all sample results

Table 1.1 (cont.) Results of the Analysis for Metals in Air  
WA # 0-2361 New York (WTC) ER site

Client ID	11331	11332	11333			
Location	P-ALBANY ST. & SOUTH END AVE.	S-RECTOR PLACE & SOUTH END AVE.	E-LIBERTY ST. & SOUTH END AVE.			
Air Volume (L)	4660	4800	4800			
Date Collected	11/21/01	11/21/01	11/21/01			
Parameter	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>
Aluminum	2.0	0.27	0.52	0.26	2.6	0.26
Antimony	U	0.011	U	0.01	U	0.01
AA-Fur	U	0.011	U	0.01	U	0.01
ICAP	0.048	0.027	0.041	0.026	0.069	0.026
Arsenic	U	0.071	U	0.03	U	0.03
Barium	U	0.071	U	0.03	U	0.03
Beryllium	U	0.071	U	0.03	U	0.03
ICAP	2.4	0.54	1.9	0.52	1.4	0.52
Calcium	U	0.027	U	0.026	U	0.026
Chromium	U	0.054	U	0.052	U	0.052
Cobalt	U	0.054	U	0.052	U	0.052
Copper	0.082	0.054	0.06	0.052	0.086	0.052
Iron	1.6	0.13	1.3	0.13	3.5	0.13
Lead	0.028	0.011	0.034	0.01	0.077	0.01
AA-Fur	U	2.7	U	2.6	U	2.6
ICAP	0.027	0.027	U	0.026	0.097	0.026
Magnesium	U	0.054	U	0.052	U	0.052
Manganese	U	0.054	U	0.052	U	0.052
Nickel	U	11	U	10	U	10
Potassium	U	0.011	U	0.01	U	0.01
Selenium	U	0.027	U	0.026	U	0.026
Silver	U	2.7	U	2.6	U	2.6
Sodium	U	0.011	U	0.01	U	0.01
Thallium	U	0.054	U	0.052	U	0.052
Vanadium	U	0.054	U	0.052	U	0.052
Zinc	0.30	0.054	0.26	0.052	0.26	0.052

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample results

Table 1.1 Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ER Site

Client ID Location Air Volume (L) Date Collected	Media Blank #1		Media Blank #2		Media Blank #3		11306 Field Blank		11317 Field Blank		11531 TAGA 4840	
	Lab	Conc µg/liter	Lab	Conc µg/liter	Lab	Conc µg/liter	Lab	Conc µg/liter	Lab	Conc µg/liter	Lab	Conc µg/m <sup>3</sup>
Parameter	Analysis Method	MDL µg/liter	MDL µg/liter	MDL µg/liter	MDL µg/liter	MDL µg/liter	MDL µg/liter	MDL µg/liter	MDL µg/liter	MDL µg/liter	MDL µg/liter	MDL µg/m <sup>3</sup>
Aluminum	ICAP	357	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.57
Arsenic	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Barium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Beryllium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	0.034
Cadmium	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Calcium	ICAP	4.2	2.5	4.0	2.5	4.4	2.5	4.4	2.5	4.4	2.5	1.9
Chromium	ICAP	0.57	0.13	0.66	0.13	0.82	0.13	0.82	0.13	0.82	0.13	0.034
Cobalt	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Copper	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Iron	ICAP	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	0.054
Lead	AA-Fur	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	0.13
Magnesium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	0.023
Manganese	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	0.028
Nickel	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Potassium	ICAP	U	50	U	50	U	50	U	50	U	50	U
Selenium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Silver	ICAP	0.16	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Sodium	ICAP	U	13	U	13	U	13	U	13	U	13	3.4
Thallium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Vanadium	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Zinc	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	0.092

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration subtracted from all sample results  
 \* Suspected aluminum contamination in media blank #1. This aluminum value was not used for average media blank subtraction.

Table 1.1 (cont.) Results of the Analysis for Metals in Air  
WA # 0-236 New York (NY) ERTC site

Client ID Location	11532 TAGA 4840 11/19/01	11533 A-BARCLAY ST. & WEST BROADWAY 4850 11/19/01	11534 B-CHURCH & DEY ST. 4850 11/19/01	11535 LOC 3B CHURCH & VESEY 4820 11/19/01	11536 C-LIBERTY ST. & CHURCH ST. 4870 11/19/01	11537 D-GREENWICH & ALBANY ST. 4680 11/19/01	Conc		MDL		
							µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	
Parameter	Analysis Method	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL	Conc	MDL
Aluminum	ICAP	0.37	0.26	8.7	0.26	1.3	0.26	0.96	0.27	0.96	0.27
Antimony	AA-Fur	U	0.01	0.14	0.01	0.019	0.01	U	0.011	U	0.011
Arsenic	AA-Fur	U	0.01	0.29	0.01	U	0.01	U	0.011	U	0.011
Barium	ICAP	0.028	0.026	0.28	0.026	0.079	0.026	0.036	0.027	0.036	0.027
Beryllium	ICAP	U	0.01	U	0.01	U	0.01	U	0.011	U	0.011
Cadmium	ICAP	U	0.026	0.091	0.026	U	0.026	U	0.027	U	0.027
Calcium	ICAP	1.5	0.52	75	0.52	12	0.54	3.5	0.53	3.5	0.53
Chromium	ICAP	U	0.026	0.049	0.026	U	0.027	0.068	0.026	U	0.027
Cobalt	ICAP	U	0.052	0.87	0.052	0.13	0.054	U	0.051	U	0.053
Copper	ICAP	U	0.052	0.15	0.052	0.13	0.054	0.12	0.051	0.068	0.053
Iron	ICAP	0.96	0.13	24	0.13	8.9	0.14	0.029	0.011	0.029	0.011
Lead	AA-Fur	0.0177	0.01	0.67	0.01	0.088	0.011	0.14	0.026	0.034	0.027
Magnesium	ICAP	U	2.6	6.3	2.6	U	2.7	U	2.6	U	2.7
Manganese	ICAP	U	0.026	0.41	0.026	0.13	0.027	0.14	0.026	0.034	0.027
Nickel	ICAP	U	0.052	0.056	0.052	U	0.054	U	0.051	U	0.053
Potassium	ICAP	U	10	U	10	U	11	U	10	U	11
Selenium	AA-Fur	U	0.01	U	0.01	U	0.011	U	0.011	U	0.011
Silver	ICAP	U	0.026	U	0.026	U	0.027	U	0.026	U	0.027
Sodium	ICAP	3.0	2.6	4.3	2.6	3.4	2.7	3.6	2.6	3.2	2.7
Thallium	AA-Fur	U	0.01	U	0.01	U	0.011	U	0.011	U	0.011
Titanium	ICAP	U	0.052	U	0.052	U	0.054	U	0.051	U	0.053
Vanadium	ICAP	0.065	0.052	6.0	0.052	1.0	0.054	0.90	0.051	0.96	0.053
Zinc	ICAP	U	0.052	U	0.052	U	0.054	U	0.051	U	0.053

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample results

Table 1.1 (cont.) Results of the Analysis for Metals in Air  
 WA # 0-236 New York (WTC) ER site

Client ID Location Air Volume (L) Date Collected	11E38 PALMAY ST. & SOUTH END AVE. 4890 11/19/01		11E39 S RECTOR PLACE & SOUTH END AVE. 4890 11/19/01		11E40 ELIBERTY ST. & SOUTH END AVE. 4910 11/19/01	
	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³
Parameter	Analysis Method					
Aluminum	ICAP	0.46	0.26	0.39	0.26	0.25
Antimony	AA-Fur	U	0.01	U	0.01	0.01
Arsenic	AA-Fur	U	0.01	U	0.01	0.01
Barium	ICAP	0.038	0.026	0.038	0.026	0.025
Beryllium	ICAP	U	0.01	U	0.01	0.01
Caesium	ICAP	U	0.026	U	0.026	U
Calcium	ICAP	2.6	0.51	2.2	0.51	7.0
Chromium	ICAP	U	0.026	U	0.026	U
Chromium	ICAP	U	0.051	U	0.051	U
Cobalt	ICAP	U	0.051	U	0.051	U
Copper	ICAP	U	0.051	U	0.051	0.079
Copper	ICAP	U	0.051	U	0.051	0.051
Iron	ICAP	1.3	0.13	1.2	0.13	4.0
Iron	ICAP	0.02	0.01	0.017	0.01	0.031
Lead	AA-Fur	U	2.6	U	2.6	U
Magnesium	ICAP	U	0.026	U	0.026	0.07
Magnesium	ICAP	U	0.051	U	0.051	U
Nickel	ICAP	U	10	U	10	U
Nickel	ICAP	U	10	U	10	10
Potassium	ICAP	U	0.01	U	0.01	U
Selenium	AA-Fur	U	0.026	U	0.026	U
Silver	ICAP	3.7	2.6	3.7	2.6	4.0
Sodium	ICAP	U	0.01	U	0.01	U
Thallium	AA-Fur	U	0.051	U	0.051	U
Thallium	ICAP	U	0.051	U	0.051	U
Vanadium	ICAP	0.14	0.051	0.21	0.051	0.32
Zinc	ICAP	U	0.051	U	0.051	0.051

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration subtracted from all sample results

NYC Emergency Response  
 Air Samples - Modified Method 680 PCB results  
 Sampling Date 11/08/01

Sample No.	11901		11902		11903		11904		11905		11906	
	WG-6289-1P	R	R	R	A	B	B	B	Loc 3 A	Loc 3 A	C	C
Sampling Location	Method Blank	7725	7725	7830	7860	7860	7860	7860	7895	7895	7305	7305
Sample Volume (L)	0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Analyte	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result
	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
209-DiCB	10.0	U	1.29	U	1.28	U	1.27	U	1.30	U	1.37	U
Sum of MoCBs	10.0	U	1.29	U	1.28	U	1.27	U	1.30	U	1.37	U
Sum of DiCBs	10.0	U	1.29	U	1.28	U	1.27	U	1.30	U	1.37	U
Sum of TriCBs	10.0	U	1.29	U	1.28	U	1.27	U	1.30	U	1.37	U
Sum of TeCBs	10.0	U	1.29	U	1.28	U	1.27	U	1.30	U	1.37	U
Sum of PeCBs	10.0	U	1.29	U	1.28	U	1.27	U	1.30	U	1.37	U
Sum of HxCBs	10.0	U	1.29	U	1.28	U	1.27	U	1.30	U	1.37	U
Sum of HpCBs	10.0	U	1.29	U	1.28	U	1.27	U	1.30	U	1.37	U
Sum of OxCBs	10.0	U	1.29	U	1.28	U	1.27	U	1.30	U	1.37	U
Sum of NoCBs	10.0	U	1.29	U	1.28	U	1.27	U	1.30	U	1.37	U
Total	0	0	0	0	0	0	0	0	0	0	0	0

COC# 04865

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C-1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesley & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- N: Western end of Franson St. at West St. (on tree next to volleyball court)
- P: South side of Pier 23 (next to volleyball court)
- Q: NE corner of South End Ave. & Albany
- R: Barclay & West St. (center island) in proximity to USCG command post
- S: TAGA Bus Location
- S: Rector & South End

Loc 3: SW side of WTC5  
 Loc 3A: Between WTC4 and WTC5

ERT: 11/30/01

NYC Emergency Response  
 Air Samples - Modified Method 680 PCB results  
 Sampling Date 11/08/01

Sample No.	11907		11908		11909		11910		11914		11913	
	D	P	D	P	S	E	E	E	Field Blank	Field Blank	Lot Blank	Lot Blank
Sampling Location	7665	6930	7665	6930	7350	7380	7380	7380	Result	Result	Result	Result
Sample Volume (L)	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL
Analyte	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng	ng	ng	ng
209-DiCB	U	U	U	U	U	U	U	U	U	U	U	U
Sum of MoCBs	1.30	1.44	1.36	1.36	1.36	1.36	1.36	1.36	10.0	10.0	10.0	10.0
Sum of DiCBs	1.30	1.44	1.36	1.36	1.36	1.36	1.36	1.36	10.0	10.0	10.0	10.0
Sum of TriCBs	1.30	1.44	1.36	1.36	1.36	1.36	1.36	1.36	10.0	10.0	10.0	10.0
Sum of TeCBs	1.30	1.44	1.36	1.36	1.36	1.36	1.36	1.36	10.0	10.0	10.0	10.0
Sum of PeCBs	1.30	1.44	1.36	1.36	1.36	1.36	1.36	1.36	10.0	10.0	10.0	10.0
Sum of HxCBs	1.30	1.44	1.36	1.36	1.36	1.36	1.36	1.36	10.0	10.0	10.0	10.0
Sum of HpCBs	1.30	1.44	1.36	1.36	1.36	1.36	1.36	1.36	10.0	10.0	10.0	10.0
Sum of OcCBs	1.30	1.44	1.36	1.36	1.36	1.36	1.36	1.36	10.0	10.0	10.0	10.0
Sum of NoCBs	1.30	1.44	1.36	1.36	1.36	1.36	1.36	1.36	10.0	10.0	10.0	10.0
Total	0	0	0	0	0	0	0	0	0	0	0	0
COC 04865												



**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Thursday, December 6, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 6, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

Asbestos - EPA analyzed 6 samples taken at three additional lower Manhattan locations November 27 and December 1. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 2,973, with 29 samples above the standard (27 of these above-standard readings were collected prior to September 30 and one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

Asbestos - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected on November 27 and December 1 from these locations showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Nineteen samples were collected on December 3. All of these samples were below the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on December 4 at the Staten Island Landfill. No significant readings reported.

**Particulate Monitoring** - EPA used portable monitors to collect samples on December 4 and 5 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on December 4 and 5 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes

grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene exceeded the OSHA standard at two locations on the debris pile - the North Tower and the South Tower - on December 5. There were no OSHA standard exceedances for benzene on December 4. Five of the six samples taken at EPA's Wash Tent (West St. and Murray) and Austin Tobin Plaza showed no detectable levels of benzene.

**Direct Air Readings** - No significant readings found on December 4 and 5.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Thursday, December 6, 2001

Landfill Ambient Air Sampling Locations

Fresh Kills (Dec 3, 0805 - 2157) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Fresh Kills (Dec 4) - Particulate Monitoring (Dataram)

Nothing of significance reported at four stations (P-1, P-2, P-3, and P-7) based on daily average concentrations.

Ambient Air Sampling Locations

NYC / ER (Nov 27) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Chambers St./West St. (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 8 samples were collected from these monitoring sites.

All of the samples were below the TEM AHERA standard.

The location newly labeled as Chambers St./West St. represents the location formerly known as Manhattan Borough Community College (BMCC).

NYC / ER (Dec 1) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Chambers St./West St. (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 7 samples were collected from these monitoring sites.

A sample was not collected at Site 5.

All of the samples were below the TEM AHERA standard.

## NYC / ER (Dec 4) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.

Instruments operated approximately 6 to 6.5 hours.

Station L values ranged from 42.0 to 386.1  $\text{ug}/\text{m}^3$  with an average of 77.3  $\text{ug}/\text{m}^3$ .

Station N values ranged from 35.4 to 254.0  $\text{ug}/\text{m}^3$  with an average of 68.4  $\text{ug}/\text{m}^3$ .

Station R values ranged from 31.0 to 9,520.0  $\text{ug}/\text{m}^3$  with an average of 79.8  $\text{ug}/\text{m}^3$ .

## NYC / ER (Dec 5) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.

Instruments operated approximately 6.5 to 7 hours.

Station L values ranged from 0.4 to 361.0  $\text{ug}/\text{m}^3$  with an average of 52.6  $\text{ug}/\text{m}^3$ .

Station N values ranged from 0.0 to 255.2  $\text{ug}/\text{m}^3$  with an average of 43.7  $\text{ug}/\text{m}^3$ .

Station R values ranged from 16.2 to 216.5  $\text{ug}/\text{m}^3$  with an average of 43.1  $\text{ug}/\text{m}^3$ .

## NYC / ER (Nov 16) - Volatile Organics (Mobile Laboratory)

**Resubmittal** of results from Tuesday, Nov 20 Sampling Situation Report.

Previously reported that vinyl acetate was detected in samples collected on November 16.

Analytical results were revised from vinyl acetate to a TIC compound based on further review.

Therefore, vinyl acetate is not present.

Acetone concentration for Austin Tobin Plaza was also revised.

Revised chart attached.

## NYC / ER (Dec 4) - Volatile Organics (Mobile Laboratory)

Benzene did not exceed OSHA TWA PEL (1 ppm) at any location, including in the debris area.

Only detection of benzene (130 ppbv) occurred in the North Tower debris area in the plume at ground level.

3 of the 4 samples (Wash Tent, Austin Tobin Plaza, South Tower plume at ground level) did not note any benzene above the detection limit (20 ppbv).

## NYC / ER (Dec 5) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) in the debris area in the plume at ground level.

Both of the other samples (Wash Tent and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

Direct Reading Instruments

## NYC / ER (Dec 4)

Nothing of significance reported.

## NYC / ER (Dec 5)

Nothing of significance reported.

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/03/01 0805 to 2157  
 Data Validation Date: 12/05/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHJETA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**	
12/03/01	LF01338	P-1	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01337	P-2	485	Air	<7.0	<0.005	0	<3.75	<0.0068	
12/03/01	LF01338	P-3	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01339	P-4	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01340	P-5	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01341	P-6	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01342	P-7	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01343	P-8	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01344	W-11	720	Air	<7.0	<0.004	1***	8.75	0.0047	
12/03/01	LF01345	W-12A	720	Air	15.29	0.008	0	<3.75	<0.0047	
12/03/01	LF01346	W-12B	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01347	B-13	720	Air	<7.0	<0.004	1***	8.75	0.0047	
12/03/01	LF01348	B-14	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01349	T-15	720	Air	10.19	0.005	0	<3.75	<0.0047	
12/03/01	LF01350	T-16	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01351	O-17	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01352	O-18	989	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01353	80	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01354	MPHS-20	720	Air	<7.0	<0.004	0	<3.75	<0.0047	
12/03/01	LF01355	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	
12/03/01	LF01356	Trp Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile

NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/16/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/01/01 1200 to 2400

Data Validation Date: 12/04/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S/mm <sup>2</sup>
12/01/01	7093-18-0065	Park Row	1232	Air	11.46	0.004	0	1****	13.33	0.0042
12/01/01	7093-19-0065	BMCC	1148***	Air	<7.0	<0.002	1****	0	13.33	0.0045
12/01/01	7093-20-0065	Coast Guard	1200	Air	<7.0	<0.002	0	0	<13.33	<0.0043
12/01/01	7093-15-0064	Manhattan PS # 143	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/01/01	-	Bronx PS #154	NS	NS	NS	NS	NS	NS	NS	NS
12/01/01	7096-12-0059	Queens PS #199	1172***	Air	<7.0	<0.002	0	0	<13.33	<0.0044
12/01/01	7095-98-0061	Brooklyn PS #274	1322	Air	<7.0	<0.002	1****	0	16	0.0047
12/01/01	7097-18-0059	Statens Island PS #44	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysler
- NR - analysis not requested
- NS - Sample not submitted for analysis
- n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for WTC Extended Network  
Sampling Date and Time: 11/27/01 1200 to 2400

Data Validation Date: 12/03/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
11/27/01	7093-15-0060	Manhattan PS #143	1334	Air	8.28	0.002	0	<16.00	<0.0046
11/27/01	7094-09-0052	Bronx PS #154	1336	Air	<7.0	<0.002	0	<16.00	<0.0046
11/27/01	7096-12-0055	Queens PS #199	1236	Air	7.64	0.002	0	<13.33	<0.0042
11/27/01	7095-98-0057	Brooklyn PS #274	1152***	Air	<7.0	<0.002	0	<13.33	<0.0045
11/27/01	7097-18-0054	Staten Is. PS #44	1440	Air	<7.0	<0.002	0	<16.00	<0.0043
11/27/01	7093-19-0061	BMCC	1186**	Air	<7.0	<0.002	0	<13.33	<0.0043
11/27/01	7093-18-0061	Park Row	1244	Air	<7.0	<0.002	0	<13.33	<0.0041
11/27/01	7093-20-0061	Coast Guard	1136***	Air	<7.0	<0.002	0	<13.33	<0.0045

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysler
- NR - analysis not requested
- NS - Sample not submitted for analysis
- n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 December 4, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	45	11:15:00	10	00:15:00	100	0.0	17.4	45.7	142.7
2	-74.198262	40.566883	2295	1	45	11:15:00	10	00:15:00	100	0.0	14.4	35.2	166.7
3	-74.198685	40.570054	2011	1	44	11:00:00	10	00:15:00	100	0.0	17.9	40.2	214.8
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	44	11:00:00	10	00:15:00	100	0.0	16.7	38.7	3556.3
8	-74.203019	40.561915	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0



NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/18/01

Amended 11/23

File Name	NYC164	NYC165	NYC166	NYC168	NYC169	NYC167
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	North Tower Plume	South Tower Plume	Austin Tobin Plaza
Sample Number			A07107	A07108	A07109	A07110
Sample Height			Breathing Level	Ground Level	Ground Level	Breathing Level
Sample Volume		250 mL	250 mL	20 mL	5 mL	250 mL
Reporting Limit (RL)	20	20	20	250	1000	20
Sample Cont. Units	ppb	ppb	ppb	ppb	ppb	ppb
Picoplyene	RL	RL	RL	1200 ppb	66000 ppb	RL
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chlorotrifluoroethane	RL	RL	RL	RL	5500 ppb	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	17000 ppb	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	1500 ppb	120000 ppb <sup>11</sup>	30 ppb
Trichlorofluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MIBK	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	250 ppb	31000 ppb	RL
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	2400 ppb	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	5000 ppb	73000 ppb	RL
Mecicane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
6a-7,3-Dichlorocyclohexene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	1400 ppb	23000 ppb	RL
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	1000 ppb	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	1500 ppb	5000 ppb	RL
m&p-Xylenes	RL	RL	RL	RL	2800 ppb	RL
O-Xylene	RL	RL	RL	RL	2000 ppb	RL
Styrene	RL	RL	RL	340 ppb	4600 ppb	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	1100 ppb	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/5/01 Early

RST: Kathleen Bigelow

Location	Time	FID (units)	FID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0743	*	0.1	ND	20.8	ND	ND	ND	ND	ND	<1.0	ND	<0.05
M1	0802		0.1	ND	20.7	1	ND	ND	ND	ND	<1.0	ND	<0.05
N	0809		ND	ND	20.8	ND	ND	ND	ND	ND	<1.0	ND	<0.05
J	0818		ND	ND	20.8	ND	ND	ND	ND	ND	<1.0	ND	<0.05
G	0830		0.1	ND	20.8	1	ND	ND	ND	ND	<1.0	ND	<0.05
F	0833		0.1	ND	20.8	ND	ND	ND	ND	ND	<1.0	ND	<0.05
A	0846		ND	ND	20.8	1	ND	ND	ND	ND	<1.0	ND	<0.05
B	0853		ND	ND	20.8	ND	ND	ND	ND	ND	<1.0	ND	<0.05
C	0859		ND	ND	20.9	ND	ND	ND	ND	ND	<1.0	ND	<0.05
H	0915		ND	ND	20.9	ND	ND	ND	ND	ND	<1.0	**	<0.05
I	0925		0.7 <sup>+</sup>	ND	20.9	2	ND	ND	ND	ND	<1.0		<0.05
D	0939		ND	ND	20.9	2	ND	ND	ND	ND	<1.0		<0.05
K	0945		0.4	ND	20.9	2	ND	ND	ND	ND	<1.0		<0.05
T	0958		ND	ND	20.9	1	ND	ND	ND	ND	<1.0		<0.05
U	1005		ND	ND	20.9	ND	ND	ND	ND	ND	<1.0		<0.05
V	1013		0.4	ND	20.9	1	ND	ND	ND	ND	<1.0		<0.05
S	1023		ND	ND	21.0	1	ND	ND	ND	ND	<1.0		<0.05
W	1024		ND	ND	20.9	1	ND	ND	ND	ND	<1.0		<0.05
P	1043		ND	ND	21.0	1	ND	ND	ND	ND	<1.0		<0.05

+ heavy traffic area  
\* Flame would not light  
\*\* Battery Dead.

KB

- |                                       |                                    |                                  |
|---------------------------------------|------------------------------------|----------------------------------|
| Location A: Barkley and West Broadway | Location J: West and Warren        | Location S: Rector and South End |
| Location B: Church and Dey            | Location K: Albany and West        | Location T: Pier 6 Heliport      |
| Location C: Liberty and Church        | Location L: Stuyvesant High School | Location U: Pier 6 Exit 2        |
| Location D: Albany and Greenwich      | Location M1: West and Warren       | Location V: Pier 6 Bus Sign      |
| Location E: Liberty and South End     | Location N: Pier 25 Volleyball     | Location W: No location          |
| Location F: West and Vesey            | Location O: No location            | Location X: No location          |
| Location G: No location               | Location P: Albany and South End   | Location Y: No location          |
| Location H: Chase Plaza               | Location Q: West and Murray        | Location Z: No location          |
| Location I: Wall Street and Broadway  | Location R: No asbestos sampling   |                                  |

1693

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/5/01 Lock

RST: Kathleen Bigelow

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	12:58	*	1.3	1*	20.9	ND	ND	ND	ND	ND	11.0	**	10.05
M	12:12		0.8 <sup>15</sup>	1	20.9	ND	ND	ND	ND	ND	11.0		10.05
N	12:20		ND	1	20.9	ND	ND	ND	ND	ND	11.0		10.05
T	12:30		0.6	1	21.1	3	ND	ND	ND	ND	11.0		10.05
G	12:41		ND	1	21.1	4	ND	ND	ND	ND	11.0		10.05
F	12:44		ND	1	21.1	2	ND	ND	ND	ND	11.0		10.05
* KA	12:51		ND	1	21.1	2	ND	ND	ND	ND	11.0		10.05
O	12:55		1.3	ND	21.2	3	ND	ND	ND	ND	11.0		10.05
C	12:59		0.5	ND	21.2	2	ND	ND	ND	ND	11.0		10.05
H	13:14		ND	1	21.2	2	ND	ND	ND	ND	11.0		10.05
I	13:20		0.1	1	21.2	4	ND	ND	ND	ND	11.0		10.05
D	13:22		ND	ND	21.1	3	ND	ND	ND	ND	11.0		10.05
K	13:36		ND	ND	21.2	3	ND	ND	ND	ND	11.0		10.05
T	13:45		ND	ND	21.1	ND	ND	ND	ND	ND	11.0		10.05
U	13:46		0.3	ND	21.2	1	ND	ND	ND	ND	11.0		10.05
V	13:53		0.4	ND	21.2	5	ND	ND	ND	ND	11.0		10.05
S	14:03		0.1	1	21.3	2	ND	ND	ND	ND	11.0		10.05
P	14:08		0.4	1	21.3	ND	ND	ND	ND	ND	11.0		10.05
E	14:10		ND	ND	21.4	4	ND	ND	ND	ND	11.0		10.05

\* Fuel odor in air  
\* Flare would not light  
\* Battery Dead

HCl - Drager tubes  
COCl<sub>2</sub> - Drager OAS

- Location A: Berkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

**United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet**

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: Metzger

U.S. EPA: Norrell

Date: 12/4/11

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2647	2646	2643			
Flow Rate (Liters / Minute)	2	2	2			
Start Time	0820	0823	0824			
Stop Time	1456	1455	1458			
Run Time (Minutes)	416	412	394			
Minimum Concentration (ug/m3)	31.0	42.0	35.4			
Maximum Concentration (ug/m3)	9,520.0	386.1	254.0			
Average Concentration (TWA) (ug/m3)	79.8	77.3	68.4			

**United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet**

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: BRENNAN

U.S. EPA: Norrell

Date: 12/5/00

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2643	2647	2646			
Flow Rate (Liters / Minute)	2.4M	2.4M	2.4M			
Start Time	0738	0742	0810			
Stop Time	1436	1438	1440			
Run Time (Minutes)	418	416	390			
Minimum Concentration (ug/m <sup>3</sup> )	16.2	0.4	0			
Maximum Concentration (ug/m <sup>3</sup> )	216.5	361.0	255.2			
Average Concentration (TWA) (ug/m <sup>3</sup> )	43.1	52.6	43.7			

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))**  
**Sampling Situation Report**  
**Thursday, December 6, 2001**

Landfill Ambient Air Sampling Locations

- Fresh Kills (Dec 3, 0805 - 2157) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Dec 4) - Particulate Monitoring (Dataram)
  - Nothing of significance reported at four stations (P-1, P-2, P-3, and P-7) based on daily average concentrations.

Ambient Air Sampling Locations

- NYC / ER (Nov 27) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Park Row (Site 1)
    - Chambers St./West St. (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
    - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 8 samples were collected from these monitoring sites.
  - All of the samples were below the TEM AHERA standard.
  - The location newly labeled as Chambers St./West St. represents the location formerly known as Manhattan Borough Community College (BMCC).
- NYC / ER (Dec 1) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Park Row (Site 1)
    - Chambers St./West St. (Site 2)
    - Coast Guard Building: Battery Park (Site 3)
    - Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
    - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
    - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
    - Public School 44: 80 Maple Parkway, Staten Island (Site 8)

- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
  - During this period a total of 7 samples were collected from these monitoring sites.
  - A sample was not collected at Site 5.
  - All of the samples were below the TEM AHERA standard.
  
- NYC / ER (Dec 4) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 6 to 6.5 hours.
  - Station L values ranged from 42.0 to 386.1 ug/m<sup>3</sup> with an average of 77.3 ug/m<sup>3</sup>.
  - Station N values ranged from 35.4 to 254.0 ug/m<sup>3</sup> with an average of 68.4 ug/m<sup>3</sup>.
  - Station R values ranged from 31.0 to 9,520.0 ug/m<sup>3</sup> with an average of 79.8 ug/m<sup>3</sup>.
  
- NYC / ER (Dec 5) - Particulate Monitoring (Dataram)
  - Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.
  - Instruments operated approximately 6.5 to 7 hours.
  - Station L values ranged from 0.4 to 361.0 ug/m<sup>3</sup> with an average of 52.6 ug/m<sup>3</sup>.
  - Station N values ranged from 0.0 to 255.2 ug/m<sup>3</sup> with an average of 43.7 ug/m<sup>3</sup>.
  - Station R values ranged from 16.2 to 216.5 ug/m<sup>3</sup> with an average of 43.1 ug/m<sup>3</sup>.
  
- NYC / ER (Nov 16) - Volatile Organics (Mobile Laboratory)
  - **Resubmittal** of results from Tuesday, Nov 20 Sampling Situation Report.
  - Previously reported that vinyl acetate was detected in samples collected on November 16.
  - Analytical results were revised from vinyl acetate to a TIC compound based on further review. Therefore, vinyl acetate is not present.
  - Acetone concentration for Austin Tobin Plaza was also revised.
  - Revised chart attached.
  
- NYC / ER (Dec 4) - Volatile Organics (Mobile Laboratory)
  - Benzene did not exceed OSHA TWA PEL (1 ppm) at any location, including in the debris area.
  - Only detection of benzene (130 ppbv) occurred in the North Tower debris area in the plume at ground level.
  - 3 of the 4 samples (Wash Tent, Austin Tobin Plaza, South Tower plume at ground level) did not note any benzene above the detection limit (20 ppbv).
  
- NYC / ER (Dec 5) - Volatile Organics (Mobile Laboratory)

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- Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) in the debris area in the plume at ground level.
- Both of the other samples (Wash Tent and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

Direct Reading Instruments

- NYC / ER (Dec 4)
  - Nothing of significance reported.
- NYC / ER (Dec 5)
  - Nothing of significance reported.



NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/04/01

File Name	NYC347	NYC348	NYC349	NYC350	NYC354	NYC352
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	Austin Tobin Plaza	North Tower Plume	South Tower Plume
Sample Number			A07179	A07181	A07180	A07182
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	250 mL	250 mL
Reporting Limit (RL)		20	20	20	20	20
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	RL	73	RL
Freon 22	RL	RL	RL	RL	RL	26
Dichlorodifluoromethane	RL	RL	RL	RL	RL	320
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	56	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	140
Isopropyl Alcohol	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	RL	72	56
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	51	RL
NITB	RL	RL	RL	RL	RL	310
trans-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	50
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	RL	RL
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	RL	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	130	RL
Heptane	RL	RL	RL	RL	RL	35
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	38	110
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromochloroethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	31	42
m,p-Xylenes	RL	RL	RL	RL	RL	92
o-Xylene	RL	RL	RL	RL	RL	58
Styrene	RL	RL	RL	RL	RL	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	40
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	23
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))**  
**Sampling Situation Report**  
**Wednesday, December 5, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

- NYC / ER (Nov 29, 1200 - 2359 hrs)
  - All 20 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location F) was not collected due to equipment malfunction.
  - 1 sample (Location N) was not analyzed due to particulate overloading.
- NYC / ER (Nov 30, 0001 - 1200 hrs)
  - All 21 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location I -duplicate) was not collected due to equipment malfunction.
- NYC / ER (Dec 01, 1200 - 2359 hrs)
  - All 21 samples analyzed were below the TEM AHERA standard.
  - 1 sample (Location D) was not collected due to equipment malfunction.
- NYC / ER (Dec 02, 0001 - 1200 hrs)
  - All 21 samples analyzed were below the TEM AHERA standard.
- NJ / ER (Nov 29)
  - All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

- Fresh Kills (Dec 01, 0815 - 2242) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.
- Fresh Kills (Dec 02, 0803 - 2119) - Asbestos
  - All 19 samples analyzed were below the TEM AHERA standard.

Ambient Air Sampling Locations

- NYC / ER (Oct 1 - 4) - Dioxin (EPA-ORD)
  - One (1) 72-hour sample was collected during this period at 290 Broadway, 16<sup>th</sup> floor.

- Results for this sample were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - Levels did not exceed the EPA Removal Action guidelines adjusted to a 1-year exposure.
  - Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for the long-term (chronic) exposure.
  - Data is not attached.
- NYC / ER (Oct 11 - 15) - Dioxin (EPA-ORD)
  - Eight (8) 24-hour samples were collected during this period at Park Row (4 samples) and Manhattan Boro Community College (4 samples) at roof top locations.
  - 2 of the 8 samples (both at Park Row on Oct 11 and Oct 15) collected were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - Levels did not exceed the EPA Removal Action guidelines adjusted to a 1-year exposure.
  - Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for the long-term (chronic) exposure.
  - Data is not attached.
- NYC / ER (Oct 23 - 29) - Dioxin (EPA-ORD)
  - Four (4) 72-hour samples were collected during this period at Park Row (2 samples) and Manhattan Boro Community College (2 samples) at roof top locations.
  - 2 of the 4 samples (both at Park Row for the periods Oct 23-26 and Oct 26-29) collected were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - Levels did not exceed the EPA Removal Action guidelines adjusted to a 1-year exposure.
  - Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for the long-term (chronic) exposure.
  - Data is not attached.
- NYC / ER (Oct 29 - Nov 5) - Dioxin (EPA-ORD)
  - Four (4) 72-hour samples were collected during this period at Park Row (2 samples) and Manhattan Boro Community College (2 samples) at roof top locations.
  - None of the samples collected were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - Data is not attached.
- NYC / ER (Nov 5 - Nov 16) - Dioxin (EPA-ORD)
  - Eight (8) 72-hour samples were collected during this period at Park Row (4 samples) and Manhattan Boro Community College (4 samples) at roof top locations.
  - None of the samples collected were above the EPA Removal Action guidelines (based on a 30-year exposure).
  - Data is not attached.

- NYC / ER (Nov 08) - PCBs
  - All 10 samples did not detect any PCBs.
- NYC / ER (Nov 19) - Metals
  - Ten samples collected.
  - All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.
  - **Note:** QA/QC review of chromium in air analytical data has revealed that chromium is not present in these samples.
- NYC / ER (Nov 21) - Metals
  - Ten samples collected.
  - All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.
  - **Note:** QA/QC review of chromium in air analytical data has revealed that chromium is not present in these samples.
- NYC / ER (Nov 8) - PAHs
  - Ten samples collected.
  - PAHs were not detected in the samples analyzed.
  - Data is not attached.
- NYC / ER (Nov 12) - PAHs
  - Ten samples collected.
  - PAHs were not detected in the samples analyzed.
  - Data is not attached.
- NYC / ER (Nov 15) - PAHs
  - Ten samples collected.
  - PAHs were not detected in the samples analyzed.
  - Data is not attached.
- NYC / ER (Nov 30) - Asbestos Monitoring (Particulate Monitoring Stations)
  - Monitoring sites include:
    - Pace University (Site 1)
    - Manhattan Boro Community College (Site 2)
    - Coast Guard Building: Battery Park (Site 3)

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- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
  - Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
  - Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
  - Public School 44: 80 Maple Parkway, Staten Island (Site 8)
  - Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)
- O During this period a total of 8 samples were collected from these monitoring sites.
- O All of the samples were below the TEM AHERA standard.

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/05/01

File Name	NYC357	NYC358	NYC359	NYC360	NYC364	NYC361
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	Austin Tobin Plaza A07184	North Tower Plume A07185	South Tower Plume A07186
Sample Number						
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	250 mL	250 mL
Reporting Limit (RL)	20	20	20	20	20	20
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	RL	5600	600
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	4600	2200
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	33	37
Chloroethane	RL	RL	RL	RL	230	110
Trichlorofluoromethane	RL	RL	RL	RL	RL	22
Isopropyl Alcohol	RL	RL	RL	RL	220	360
Acetone	RL	RL	RL	RL	12000	12000
Trichloroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	26
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	410	79
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	2800	1200
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	26
Tetrahydrofuran	RL	RL	RL	RL	1100	540
1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	34	RL
Benzene	RL	RL	RL	RL	9400	1500
Heptane	RL	RL	RL	RL	330	82
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	290	100
Methyl Isobutyl Ketone	RL	RL	RL	RL	220	410
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	4600	180
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	210	130
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	120	RL
Ethylbenzene	RL	RL	RL	RL	9500	61
m&p-Xylenes	RL	RL	RL	RL	520	61
O-Xylene	RL	RL	RL	RL	230	23
Styrene	RL	RL	RL	RL	1100	100
Bromochloromethane	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	190	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	220	83
1,2,4-Trimethylbenzene	RL	RL	RL	RL	120	21
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

DATE: 12/4/01 (Early)

RST: Chan

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	8:12	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
M	8:20	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
N	8:30	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
J	8:40	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
B	8:45	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
F	8:50	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
A	9:00	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
B	9:05	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
C	9:10	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
H	9:25	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.05*
I	9:35	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.05
D	9:50	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.05
K	9:57	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	**	<0.05
T	10:10	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	**	<0.05
U	10:13	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	**	<0.05
V	10:20	ND	ND	ND	21.1	ND	ND	ND	ND	ND	<1.0	**	<0.05
S	10:29	ND	ND	ND	21.1	ND	ND	ND	ND	ND	<1.0	**	<0.05
P	10:35	ND	ND	ND	21.1	ND	ND	ND	ND	ND	<1.0	**	<0.05
Z	11:00	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	**	<0.05

\*\* Battery Dead  
\* Changed from Drager tubes  
to Drager CMS due to lack  
of tubes.

HF - SPM  
HCl - Drager tubes  
COCl<sub>2</sub> - Drager tubes & Drager  
CMS

Location A: Barkley and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Shuyesant High School  
Location M: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

1706

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/4/01 Late

RST: Brennan

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	12:20	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
M	12:25	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
N	12:30	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
J	12:35	ND	ND	ND	21.0	3.0	ND	ND	ND	ND	<1.0	ND	<0.02
Q	12:41	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
F	12:44	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1.0	ND	<0.02
A	12:50	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1.0	ND	<0.02
B	12:56	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
C	12:59	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
H	13:25	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1.0	ND	<0.02
I	13:31	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
D	13:37	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
K	13:42	ND	ND	ND	21.0	2	ND	ND	ND	ND	<1.0	ND	<0.02
T	13:50	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	ND	<0.02
U	14:06	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	*	<0.02
V	14:12	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	*	<0.02
S	14:20	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	*	<0.02
P	14:25	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	*	<0.02
E	14:31	ND	ND	ND	21.0	ND	ND	ND	ND	ND	<1.0	*	<0.02

\* BATTERY DEAD

HF - SPK  
HCL - DRAGER CUS  
COCl2 - DRAGER TUBES

Location A: Barkley and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Stuyvesant High School  
Location M: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Flu Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location



1707

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Friday, December 7, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 7, 2001 at 3:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 85 samples taken in and around ground zero from December 2 through December 4. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 3,058, with 29 samples above the standard (27 of these above-standard readings were collected prior to September 30 and one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors in New Jersey:**

**Asbestos** - Four air samples were taken in New Jersey on December 3. All samples showed results less than school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 211, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Nineteen samples were collected on December 4. All of these samples were below the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on December 5 at the Staten Island Landfill. No significant readings reported.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted December 3 through 5 at Pace University, Borough of Manhattan Community College, and the Coast Guard building in Battery Park and on Wall Street. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**PM<sub>10</sub>** - Monitoring for particulate matter (particles less than 10 micrometers in diameter) was conducted on December 3 through 5 at a location on Wall Street. All 24-hour average values

were below the National Ambient Air Quality Standard of 150 ug/m<sup>3</sup>.

**Particulate Monitoring** - EPA used portable monitors to collect samples on December 6 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on December 6 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene exceeded the OSHA standard at one location on the debris pile - the North Tower. Two of three samples taken at EPA's Wash Tent (West St. and Murray) and Austin Tobin Plaza showed no detectable levels of benzene.

**Direct Air Readings** - On December 4 and 6, EPA did air monitoring for a series of isocyanate compounds (hexamethylene diisocyanate, bisphenyl isocyanate and toluene-2,4-diisocyanate) in and around ground zero. EPA did not detect any of these compounds.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Friday, December 7, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Dec 2, 1200 - 2359 hrs)

All 21 samples analyzed were below the TEM AHERA standard.  
1 sample (Location K) was not collected due to a damaged cassette.

NYC / ER (Dec 3, 0001 - 1200 hrs)

All 20 samples analyzed were below the TEM AHERA standard.  
2 samples (Locations B and C) were not analyzed due to overloading of particulates.

NYC / ER (Dec 3, 1200 - 2359 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 4, 0001 - 1200 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NJ / ER (Dec 3)

All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

Fresh Kills (Dec 4, 0804 - 2114) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Fresh Kills (Dec 5) - Particulate Monitoring (Dataram)

Nothing of significance reported at three stations (P-1, P-2, and P-7) based on daily average concentrations.

Ambient Air Sampling Locations

NYC / ER (Dec 3) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **20.32 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **20.50 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **18.86 ug/m<sup>3</sup>**.  
Wall Street - 24-hour average concentrations for this period was **22.58 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 4) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **25.69 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **23.14 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **24.37 ug/m<sup>3</sup>**.  
Wall Street - 24-hour average concentrations for this period was **25.17 ug/m<sup>3</sup>**.  
 All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 5) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **26.22 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **27.94 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **23.65 ug/m<sup>3</sup>**.  
Wall Street - 24-hour average concentrations for this period was **24.77 ug/m<sup>3</sup>**.  
 All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 3) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **39.06 ug/m<sup>3</sup>**.  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Dec 4) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **46.77 ug/m<sup>3</sup>**.  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Dec 5) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **49.14 ug/m<sup>3</sup>**.  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

## NYC / ER (Dec 6) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.  
 Instruments operated approximately 6.5 hours.  
 Station L values ranged from 5.9 to 134.8 ug/m<sup>3</sup> with an average of 39.9 ug/m<sup>3</sup>.  
 Station N values ranged from 10.0 to 205.3 ug/m<sup>3</sup> with an average of 32.6 ug/m<sup>3</sup>.  
 Station R values ranged from 0.1 to 104.7 ug/m<sup>3</sup> with an average of 31.1 ug/m<sup>3</sup>.

## NYC / ER (Dec 6) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) in the debris area in the plume at ground level.  
 2 of the 3 other samples (Wash Tent and Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

Direct Reading Instruments

NYC / ER (Dec 4)

Monitoring for hexamethylene diisocyanate (detection limit = 1 ppb), methylene bisphenyl isocyanate (detection limit = 2 ppb), and toluene-2,4-diisocyanate (detection limit = 2 ppb) did not detect any of those compounds.  
Locations monitored for cyanide compounds included: Locations A, B, C, D, E, P, R, S, 3B from the fixed ambient air sampling stations.  
Measurements for the cyanide compounds consisted of one 3-minute run taken twice that day at each of the locations.  
Data not attached.

NYC / ER (Dec 6)

Nothing of significance reported with routine daily monitoring parameters.  
Monitoring for hexamethylene diisocyanate (detection limit = 1 ppb), methylene bisphenyl isocyanate (detection limit = 2 ppb), and toluene-2,4-diisocyanate (detection limit = 2 ppb) did not detect any of those compounds.  
Locations monitored for the cyanide compounds included: north side of North Tower, Austin Tobin Plaza near the barrier of the inner work zone, southeast corner of South Tower, the western barrier of the inner work zone at West St./Liberty St., and Locations A, B, C, D, E, P, R, S, 3B from the fixed ambient air sampling stations.  
Measurements for cyanide compounds at the first four locations consisted of a 30-35 minute continuous run at each location.  
Measurements for the cyanide compounds at the fixed ambient air sampling stations consisted of one 3-minute run taken twice that day at each of the locations.  
Cyanide data not attached.

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/02/01 1200 to 2359  
 Data Validation Date: 12/06/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)			S-fiber**
					f/mm <sup>2</sup>	f/cc	Structures (#)	5µ	S/mm <sup>2</sup>	
12/02/01	RST-01404	L	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/02/01	RST-01405	MT	430	Air	<7.0	<0.005	0	0	<8.00	<0.0072
12/02/01	RST-01407	N	510	Air	<7.0	<0.005	0	0	<8.00	<0.0060
12/02/01	RST-01408	N-Dup	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/02/01	RST-01409	J	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/02/01	RST-01410	O	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/02/01	RST-01411	F	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/02/01	RST-01412	A	720	Air	7.01	0.004	0	0	<8.89	<0.0048
12/02/01	RST-01413	B	720	Air	16.58	0.009	0	0	<8.89	<0.0048
12/02/01	RST-01414	C	720	Air	28.03	0.015	0	0	<8.89	<0.0048
12/02/01	RST-01415	H	720	Air	8.92	0.005	0	0	<8.89	<0.0048
12/02/01	RST-01416	I	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/02/01	RST-01417	D	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/02/01	RST-01418	K	NS	Air	NS	NS	NS	NS	NS	NS
12/02/01	RST-01419	T	219	Air	<7.0	<0.012	0	0	<8.00	<0.0141
12/02/01	RST-01420	V	636	Air	<7.0	<0.004	1***	0	8	0.0048
12/02/01	RST-01421	S	673	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/02/01	RST-01422	P	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/02/01	RST-01423	E	720	Air	8.92	0.005	0	0	<8.89	<0.0048
12/03/01	TB120301	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
12/03/01	TB120301	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Sampling Locations:**

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: Entry (a.k.a. Church) & Liberty St.
- D: East end of Broadway & Liberty St.
- E: East end of Albany St. at Greenwich St.
- F: Western end of Liberty St. at South End Ave
- G: Northern median strip of Vesey & West St
- H: Church and Duane St.
- I: South side of Chase Manhattan Plaza at Pine St.
- J: SE corner of Wall St. & Broadway
- K: NE corner of Warren & West St.
- L: On highway (east of North Park) area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- MT: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Localen
- S: Rector & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

**Key:**

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- NA<sup>(3)</sup> - Not analyzed due to wet filler
- n/a - Not applicable
- NR - Not requested
- NS - Sample not submitted due to no sample volume

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 12/03/01 0001 to 1200  
Data Validation Date: 12/06/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/m <sup>2</sup>	f/cc	Structures (#)	S-f/cc**
12/03/01	RST-01425	L	713	Air	<7.0	<0.004	0	<8.89
12/03/01	RST-01426	M1	720	Air	<7.0	<0.004	0	<8.89
12/03/01	RST-01427	N	720	Air	<7.0	<0.004	0	<8.89
12/03/01	RST-01428	J	720	Air	<7.0	<0.004	0	<8.89
12/03/01	RST-01429	J Dup	720	Air	<7.0	<0.004	0	<8.89
12/03/01	RST-01430	L	720	Air	<7.0	<0.004	0	<8.89
12/03/01	RST-01431	F	560	Air	7.94	0.005	1**	0.0055
12/03/01	RST-01432	O	720	Air	8.28	0.004	0	<8.89
12/03/01	RST-01433	A	372	Air	<7.0	<0.007	0	<8.00
12/03/01	RST-01434	B	720	Air	12.74	0.007	0	<8.00
12/03/01	RST-01435	C	720	Air	7.01	0.004	0	NA <sup>(1)</sup>
12/03/01	RST-01436	H	710	Air	<7.0	<0.004	0	<8.89
12/03/01	RST-01437	I	720	Air	8.28	0.004	0	<8.89
12/03/01	RST-01438	D	717	Air	11.46	0.006	0	<8.89
12/03/01	RST-01439	K	720	Air	<7.0	<0.004	0	<8.89
12/03/01	RST-01440	T	720	Air	<7.0	<0.004	0	<8.89
12/03/01	RST-01441	U	720	Air	7.94	0.004	0	<8.89
12/03/01	RST-01442	V	720	Air	<7.0	<0.004	0	<8.89
12/03/01	RST-01443	S	720	Air	<7.0	<0.004	0	<8.89
12/03/01	RST-01444	P	720	Air	<7.0	<0.004	0	<8.89
12/03/01	RST-01445	E	658	Air	<7.0	<0.004	0	<8.00
12/03/01	RST-01446	W	707	Air	<7.0	<0.004	0	<8.89
12/03/01	FB120301	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/03/01	TB120301	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>

**Sampling Locations:**  
A: NE corner of West Broadway & Barclay  
B: SE corner of Church & Dey St.  
C: Trinity (a.k.a. Church) & Liberty St.  
D: SW corner of Broadway & Liberty St.  
E: East end of Albany St. at Greenwich St.  
F: Western end of Liberty St. at South End Ave  
G: Northern median strip of Vesey & West St  
H: Church and Duane St.  
I: South side of Chase Manhattan Plaza at Pine St.  
J: SE corner of Wall St. & Broadway  
K: NE corner of Warren & West St.  
L: On walkway toward North Park rec area (north side of Suyvesant-High), access to TAGA bus area

**Key:**  
\* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysolite  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
n/a - Not applicable  
NR - Not requested  
NS - Sample not submitted due to no sample volume

**PCM by NIOSH 7400:**  
M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
M1: West St. - 50 yards south of Harrison St. at bulkhead  
N: South side of Pier 25 (next to volleyball ct)  
P: NE corner of South End Ave. & Albany  
O: Barclay & West St. (center island) in proximity to USCG command post  
R: TAGA Bus Location  
S: Rector & South End  
T: Pier 6 Heliport  
U: Pier 6 Exit 2  
V: Pier 6 Bus Sign  
W: Wash Tent Common Area

**TEM (AHERA):**  
M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
M1: West St. - 50 yards south of Harrison St. at bulkhead  
N: South side of Pier 25 (next to volleyball ct)  
P: NE corner of South End Ave. & Albany  
O: Barclay & West St. (center island) in proximity to USCG command post  
R: TAGA Bus Location  
S: Rector & South End  
T: Pier 6 Heliport  
U: Pier 6 Exit 2  
V: Pier 6 Bus Sign  
W: Wash Tent Common Area

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 12/03/01 12:00 to 2:35p  
Data Validation Date: 12/06/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fiber**
					f/m <sup>3</sup>	f/cc	Structures (#)	Str/m <sup>2</sup>	
12/03/01	RST-01447	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01448	M1	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01449	N	1694.3	Air	<7.0	<0.002	0	<8.89	<0.0048
12/03/01	RST-01450	J	371	Air	<7.0	<0.002	0	<8.89	<0.0048
12/03/01	RST-01451	E	561	Air	<7.0	<0.002	0	<8.89	<0.0048
12/03/01	RST-01452	F	561	Air	<7.0	<0.005	0	<8.89	<0.0048
12/03/01	RST-01453	A	720	Air	8.92	0.005	0	<8.89	<0.0048
12/03/01	RST-01454	B	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01455	C-Dup	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01456	H	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01457	H-Dup	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01458	I	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01460	D	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01461	K	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01462	T	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01463	U	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01464	V	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01465	S	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01466	E	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/03/01	RST-01467	W	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/04/01	FB120401	Field Blank	608	Air	8.28	0.005	0	<8.89	<0.0048
12/04/01	FB120401	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

**Sampling Locations:**  
A: NE corner of West Broadway & Barday  
B: SE corner of Church & Dey St.  
C: Trinity (a.k.a. Church & Liberty)  
D: SW corner of Broadway & Liberty St.  
E: East end of Albany St. at Greenwich St.  
F: Western end of Liberty St. at South End Ave  
G: Northern median strip of Vesey & West St.  
H: Church and Duane St.  
I: South side of Chase Manhattan Plaza at Pine St.  
J: SE corner of Wall St. & Broadway  
K: NE corner of Warren & West St.  
L: West St. & Albany in median strip  
M: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
f/m<sup>3</sup> : fiber per cubic meter  
f/cc : fiber per cubic centimeter

**TEM (AHERA):**  
Structures (#) : Number of structures per sample  
Str/m<sup>2</sup> : Structures per square meter

**Key:**  
\* Sample volume (filters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysotile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
NA<sup>(3)</sup> - Not analyzed due to wet filter  
n/a - Not applicable  
NR - Not requested  
NS - Sample not submitted due to no sample volume

**Other Locations:**  
M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
M1: West St. - 50 yards south of Harrison St. at bulkhead  
N: South side of Pier 25 (next to volleyball ct)  
P: NE corner of South End Ave. & Albany  
O: Barclay & West St. (center island) in proximity to USCG command post  
R: TAGA Bus Location  
S: Reclor & South End  
T: Pier 6 Heliport  
U: Pier 6 Exit 2  
V: Pier 6 Bus Sign  
W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/1994  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)



NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/04/01 00:01 to 12:00  
 Data Validation Date: 12/06/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fiber**
					f/m <sup>3</sup>	f/cc	Structures (#)	5µ	
12/04/01	RST-01469	L	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01470	M1	308	Air	<7.0	<0.009	0	0	<8.00
12/04/01	RST-01471	N	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01472	J	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01473	Q	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01474	F	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01475	A	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01476	C	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01477	E	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01478	H	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01479	I	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01480	H-Dup	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01481	D	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01482	D-Dup	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01483	K	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01484	T	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01485	U	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01486	V	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01487	S	712	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01488	P	720	Air	<7.0	<0.004	0	0	<8.89
12/04/01	RST-01489	E	560.2	Air	<7.0	<0.005	1***	0	8.00
12/04/01	RST-01490	W	720	Air	<7.0	<0.004	1***	0	8.00
12/04/01	FB120501	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
12/04/01	TB120501	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Sampling Locations:**  
 A: SE corner of Church & Duane St.  
 B: SE corner of Church & Duane St.  
 C: Trinity (St. Ann, Church) & Liberty St.  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave.  
 F: Northern median strip of Vesey & West St.  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on fire next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball)  
 P: NE corner of South End Ave. & Albany proximity to USCG command post  
 Q: Barclay & West St. (center island) in proximity to TAGA Bus Location  
 R: TAGA Bus Location  
 S: Reacor & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AHERA):**  
 NA<sup>(3)</sup> - Not analyzed for TEM particulates  
 NA<sup>(3)</sup> - Not analyzed due to wet filter  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume

**Key:**  
 \* Sample volume (fibers) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(3)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(3)</sup> - Not analyzed for TEM  
 NA<sup>(3)</sup> - Not analyzed due to wet filter  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 765 (AHERA)  
 Standard criteria: EPA 40CFR Part 765 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/04/01 0804 to 2114  
 Data Validation Date: 12/06/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					fmm <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S-f/cc**	
12/04/01	LF01357	P-1	720	Air	<7.0	<0.004	0	1***	0	<8.75	<0.0047
12/04/01	LF01358	P-2	660	Air	<7.0	<0.004	0	0	0	8.75	0.0051
12/04/01	LF01359	P-3	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01360	P-4	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01361	P-5	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01362	P-6	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01363	P-7	551	Air	<7.0	<0.005	0	0	0	<8.75	<0.0061
12/04/01	LF01364	P-8	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01365	W-11	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01366	W-12A	720	Air	15.29	0.008	2***	0	0	17.5	0.0094
12/04/01	LF01367	W-12B	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01368	B-13	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01369	B-14	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01370	T-15	720	Air	26.75	0.014	0	0	0	<7.87	<0.0042
12/04/01	LF01371	T-16	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01372	O-17	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01373	O-18	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01374	O-19	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01375	MPHS-20	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/04/01	LF01376	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/04/01	LF01377	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Asbestos Air Sampling Results NYC ER/NJ/DEP  
 Sampling Date and Time: 12/03/2001 1140 to 2317  
 Data Validation Date: 12/06/2001

Date Sampled	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mmm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*	
12/03/01	1LIB120301	Liberty Park	1150**	Air	<7.0	<0.002	0	0	<13.33	<0.0045
12/03/01	2CIT120301	CITGO Terminal	720**	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/03/01	3FMC120301	FMC Terminal	1144**	Air	<7.0	<0.002	0	0	<13.33	<0.0045
12/03/01	4SHL120301	Shell Terminal	1040**	Air	<7.0	<0.003	0	0	<13.33	<0.0049
12/03/01	5FLD120301	Field Blank	0	Air	<7.0	n/a	NA	NA	NA	NA
12/03/01	-	Trip Blank	NS	Air	NS	NS	NS	NS	NS	NS

**Key:** \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\*\* Chrysotile  
 n/a - Not applicable  
 NA - Not analyzed for TEM  
 NS - Sample not submitted

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

**Sampling Location**  
 Liberty Park  
 CITGO Terminal  
 FMC Terminal  
 Shell Terminal

**Sampling Times**  
 12/03/01 1140 - 2115  
 12/03/01 1300 - 1900  
 12/03/01 1345 - 2317  
 12/03/01 1407 - 2247

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 December 5, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	47	11:45:00	10	00:15:00	100	0.0	11.9	44.7	418.0
2	-74.198262	40.566883	2295	1	48	12:00:00	10	00:15:00	100	0.0	6.7	37.5	1169.1
3	-74.198685	40.570054	2011	1	0	00:00:00	10	00:15:00	100	0.0	0.0	0.0	0.0
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	49	12:15:00	10	00:15:00	100	0.0	0.0	23.7	230.6
8	-74.203019	40.561915	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/06/01

File Name	NYC370	NYC371	NYC372	NYC373	NYC376	NYC375
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent	Austin Tobin Plaza	North Tower	South Tower
Sample Number			A07187	A07188	Plume	Plume
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	10 mL	200 mL
Reporting Limit (RL)	20	20	20	20	500	25
Sample Conc. Units	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Propylene	RL	RL	RL	RL	6600	280
Freon 22	RL	RL	RL	RL	RL	68
Dichlorodifluoromethane	RL	RL	RL	RL	RL	70
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	6000	380
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	130
Isopropyl Alcohol	RL	RL	RL	RL	RL	220
Acetone	RL	RL	RL	32	11000	4500
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	91
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	84
MTBE	RL	RL	RL	RL	RL	280
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	510	61
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	3000	440
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	1300	100
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	100
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	9800	520
Heptane	RL	RL	RL	RL	RL	57
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	34	RL	49
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	120
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	5700	200
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromochloroethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	6800	65
m,p-Xylenes	RL	RL	RL	RL	580	94
o-Xylene	RL	RL	RL	RL	RL	36
Styrene	RL	RL	RL	RL	1500	82
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

**United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet**

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: Brennan

U.S. EPA: Norrell

Date: 12/6/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2648	2643	2641			
Flow Rate (Liters / Minute)	2 L/M	2 L/M	2 L/M			
Start Time	7:53	7:54	8:14			
Stop Time	1428	1429	1433			
Run Time (Minutes)	395	395	379			
Minimum Concentration (ug/m3)	0.1	5.9	10			
Maximum Concentration (ug/m3)	104.7	134.8	205.3			
Average Concentration (TWA) (ug/m3)	31.1	39.9	32.6			

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

DATE: 12/6/01 Early

RST: Kathleen Bigelow

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	0754	*	0.2	ND	20.9	1	ND	ND	ND	ND	21.0	ND	60.05
M	0803		ND	ND	20.9	ND	ND	ND	ND	ND	21.0	ND	60.05
N	0813		0.1	ND	20.8	1	ND	ND	ND	ND	21.0	ND	60.05
J	0821		0.1	1	20.9	1	ND	ND	ND	ND	21.0	ND	60.05
Q	0827		0.2	ND	20.9	2	ND	ND	ND	ND	21.0	**	60.05
F	0832		0.1	ND	20.9	ND	ND	ND	ND	ND	21.0		60.05
A	0844		0.1	ND	20.9	1	ND	ND	ND	ND	21.0		60.05
B	0850		0.5	ND	20.9	2	ND	ND	ND	ND	21.0		60.05
C	0859		0.2	ND	20.8	1	ND	ND	ND	ND	21.0		60.05
H	0911		0.2	ND	20.8	1	ND	ND	ND	ND	21.0		60.05
I	0921		0.3	ND	20.9	4	ND	ND	ND	ND	21.0		60.05
D	0936		0.2	ND	20.9	4	ND	ND	ND	ND	21.0		60.05
K	0943		0.1	ND	20.9	2	ND	ND	ND	ND	21.0		60.05
T	0958		0.1	ND	20.9	1	ND	ND	ND	ND	21.0		60.05
U	0959		0.2	ND	20.9	2	ND	ND	ND	ND	21.0		60.05
V	1005		0.2	ND	20.9	1	ND	ND	ND	ND	21.0		60.05
S	1016		0.1	ND	20.9	1	ND	ND	ND	ND	21.0		60.05
P	1027		0.1	ND	20.9	1	ND	ND	ND	ND	21.0		60.05
E	1037		0.2	ND	20.9	1	ND	ND	ND	ND	21.0		60.05

\* Processor Damaged  
\*\* Result 30

KE

- Location A: Barkley and West Broadway
- Location J: West and Warren
- Location S: Rector and South End
- Location B: Church and Dey
- Location K: Albany and West
- Location T: Pier 6 Heliport
- Location C: Liberty and Church
- Location L: Stuyvesant High School
- Location U: Pier 6 Exit 2
- Location D: Albany and Greenwich
- Location M: West and Warren
- Location V: Pier 6 Bus Sign
- Location E: Liberty and South End
- Location N: Pier 25 Volleyball
- Location W: No location
- Location F: West and Vesey
- Location O: No location
- Location X: No location
- Location G: No location
- Location P: Albany and South End
- Location Y: No location
- Location H: Chase Plaza
- Location Q: West and Murray
- Location Z: No location
- Location I: Wall Street and Broadway
- Location R: No asbestos sampling

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

DATE: 12/11/01 LATE

RST: Kathleen Bigelow

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	12:09	*	ND	1	20.9	2	ND	ND	ND	ND	<1.0	**	<0.05
M	12:13		0.1	1	20.9	1	ND	ND	ND	ND	<1.0		<0.05
N	12:19		ND	1	21.0	4	ND	ND	ND	ND	<1.0		<0.05
I	12:23		ND	1	20.9	5	ND	ND	ND	ND	<1.0		<0.05
G	12:31		ND	1	21.1	2	ND	ND	ND	ND	<1.0		<0.05
F	12:34		ND	ND	21.1	1	ND	ND	ND	ND	<1.0		<0.05
A	12:42		ND	ND	21.1	2	ND	ND	ND	ND	<1.0		<0.05
B	12:46		ND	ND	21.1	2	ND	ND	ND	ND	<1.0		<0.05
C	12:51		0.1	ND	21.2	2	ND	ND	ND	ND	<1.0		<0.05
H	13:03		ND	ND	21.2	1	ND	ND	ND	ND	<1.0		<0.05
J	13:08		ND	ND	21.1	1	ND	ND	ND	ND	<1.0		<0.05
D	13:18		0.8	ND	21.2	9	ND	ND	ND	ND	<1.0		<0.05
K	13:23		ND	ND	21.2	4	ND	ND	ND	ND	<1.0		<0.05
T	13:26		ND	ND	21.2	2	ND	ND	ND	ND	<1.0		<0.05
L1	13:33		ND	ND	21.2	1	ND	ND	ND	ND	<1.0		<0.05
V	13:46		ND	1	21.3	2	ND	ND	ND	ND	<1.0		<0.05
S	13:55		ND	1	21.4	2	ND	ND	ND	ND	<1.0		<0.05
P	14:00		ND	1	21.4	2	ND	ND	ND	ND	<1.0		<0.05
E	14:04		ND	1	21.5	3	ND	ND	ND	ND	<1.0		<0.05

\* Processor Damaged  
\*\* Result 30

KJS

- Location A: Barkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Shuysent High School
- Location M1: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location



**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Saturday, December 8, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 8, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 44 samples taken in and around ground zero on December 4 and December 5. In addition, EPA took six samples at three additional lower Manhattan locations on December 2 and December 3. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 3,108, with 29 samples above the standard (27 of these were collected prior to September 30, one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

**Asbestos** - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Ten asbestos samples collected on December 2 and December 3 from these locations showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Nineteen samples were collected on December 5. All were below the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on December 6 at the Staten Island Landfill. No significant readings reported.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Saturday, December 8, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Dec 4, 1200 - 2359 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 5, 0001 - 1200 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

Fresh Kills (Dec 5, 0808 - 2140) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Fresh Kills (Dec 6) - Particulate Monitoring (Dataram)

Nothing of significance reported at three stations (P-1, P-3, and P-7) based on daily average concentrations.

Ambient Air Sampling Locations

NYC / ER (Dec 2 - 3) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Chambers St./West St. (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 16 samples were collected from these monitoring sites. All of the samples were below the TEM AHERA standard.

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/05/01 0809 to 2140  
 Data Validation Date: 12/07/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume <sup>a</sup>	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (f)	Structures (f)	Simm <sup>2</sup>	S-f/cc <sup>**</sup>
12/05/01	LF01378	P-1	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01379	P-2	705	Air	<7.0	<0.004	0	0	<8.75	<0.0049
12/05/01	LF01380	P-3	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01381	P-4	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01382	P-5	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01383	P-6	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01384	P-7	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01385	P-8	720	Air	7.64	0.004	0	0	<8.75	<0.0047
12/05/01	LF01386	W-11	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	0	<8.75	<0.0047
12/05/01	LF01387	W-12A	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01388	W-12B	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01389	B-13	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01390	B-14	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01391	T-15	720	Air	15.28	0.006	2***	0	8.75	0.0084
12/05/01	LF01392	T-16	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01393	O-17	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01394	O-18	689	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01395	O-19	720	Air	<7.0	<0.004	1***	0	8.75	0.0049
12/05/01	LF01396	MPHS-20	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/05/01	LF01397	Tip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	<8.75	<0.0047
12/05/01	LF01398	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	<8.75	<0.0047
12/05/01	LF01399	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	<8.75	<0.0047

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structures (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 Simm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/04/01 1200 to 2359  
 Data Validation Date: 12/07/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	Structures (#)	5µ	5µ	S-f/cc**	
12/04/01	RST-01491	L	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01492	M1	720	Air	<7.0	<-0.004	1***	0	0	8.89	0.0048
12/04/01	RST-01493	N	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01494	J	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01495	Q	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01496	F	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01497	R	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01498	A	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01499	C	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01500	H	892.5	Air	<7.0	<-0.003	0	0	0	<-11.43	<-0.0048
12/04/01	RST-01501	I	720	Air	<7.0	<-0.004	1***	0	0	8.89	0.0048
12/04/01	RST-01502	D	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01503	K	720	Air	<7.0	<-0.004	1***	0	0	8.89	0.0048
12/04/01	RST-01504	T	720	Air	<7.0	<-0.004	0	0	0	8	0.0043
12/04/01	RST-01505	T-Duplicate	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01506	U	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01507	U-Duplicate	720	Air	<7.0	<-0.004	0	0	0	8.89	0.0048
12/04/01	RST-01508	V	720	Air	<7.0	<-0.004	1***	0	0	8.89	0.0048
12/04/01	RST-01509	S	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01510	P	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01511	E	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/04/01	RST-01512	W	720	Air	<7.0	<-0.004	0	0	0	<-8.89	<-0.0048
12/05/01	FB120501	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
12/05/01	TB120501	Tip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Day St.  
 C: Entry (a.k.a. Church) & Liberty St.  
 D: SE corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave.  
 G: Northern median strip of Vesey & West St.  
 H: Church and Crane St.  
 I: South side of Crane St. Manhattan Plaza at Pine St.  
 J: SE corner of Wall St. & Broadway  
 K: NE corner of Warren & West St.  
 L: On walkway toward North Park rec area (north side of Suyessant High), access to TAGA bus area  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. & Pier 25  
 N: South side of Pier 25  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Reeds & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Crystalline  
 NA<sup>(1)</sup>: Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup>: Not analyzed for TEM  
 NA<sup>(3)</sup>: Not applicable  
 NR: Not reported  
 NS: Sample not submitted

**NIOSH 7400: Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/05/01 0001 to 1200  
 Data Validation Date: 12/07/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/ftm <sup>2</sup>	f/cc	Structures (#)	S-ftcc**	
12/05/01	RST-01513	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	RST-01514	M-1	423	Air	<7.0	<0.006	0	<8.89	<0.0073
12/05/01	RST-01515	N	933.3	Air	<7.0	<0.003	0	<11.43	<0.0047
12/05/01	RST-01516	J	335	Air	<7.0	<0.008	0	<8.00	<0.0062
12/05/01	RST-01517	G	720	Air	10.63	0.006	5**	44.44	0.0235
12/05/01	RST-01518	A	720	Air	<7.0	<0.003	0	<8.89	<0.0048
12/05/01	RST-01519	B	706	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	RST-01521	C	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	RST-01522	H	720	Air	<7.0	<0.004	1***	8.93	0.0048
12/05/01	RST-01523	I	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	RST-01524	D	720	Air	<7.0	<0.004	1***	8.89	0.0048
12/05/01	RST-01525	K	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	RST-01526	T	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	RST-01527	U	368	Air	<7.0	<0.007	0	<8.89	<0.0048
12/05/01	RST-01528	V	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	RST-01529	V-Duplicate	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	RST-01530	S	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	RST-01531	S-Duplicate	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	RST-01533	P	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	RST-01534	E	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	RST-01535	W	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/05/01	FB120501	Field Blank	0	Air	<7.0	<0.004	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
12/05/01	TB120501	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Bay St.  
 C: The corner of Church & Liberty St.  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area  
 NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chromatid (C) is roughly equivalent to fiber (f)  
 NA<sup>(1)</sup>: Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup>: Not analyzed for TEM  
 n/a: Not applicable  
 NR: Not requested  
 NS: Sample not submitted

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on pier 6 to bulkhead)  
 N1: West St. at Pier 25 (east to volleyball c)  
 N: South side of Pier 25 (east to volleyball c)  
 P: NE corner of South End Ave. & Albany  
 O: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/02/01 1200 to 2400

Data Validation Date: 12/07/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
12/02/01	7093-18-0066	Park Row	1138***	Air	12.74	0.004	0	0	<13.33	<0.0045
12/02/01	7093-19-0066	BMCC	1230	Air	<7.0	<0.002	0	0	<13.33	<0.0042
12/02/01	7093-20-0066	Coast Guard	1066***	Air	<7.0	<0.003	0	0	<13.33	<0.0048
12/02/01	7093-15-0065	Manhattan PS # 143	1194***	Air	<7.0	<0.002	0	0	<13.33	<0.0043
12/02/01	7094-09-0056	Bronx PS #154	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/02/01	7096-12-0060	Queens PS #199	1350	Air	<7.0	<0.002	0	0	<16.00	<0.0046
12/02/01	7095-98-0062	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/02/01	7097-18-0059 <sup>(a)</sup>	Staten Island PS #44	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysotile
- NR - analysis not requested
- NS - Sample not submitted for analysis
- n/a - Not applicable
- (a) - Same sample number was used for sampling date 12/01/2001

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/03/01 1200 to 2400  
 Data Validation Date: 12/07/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM ( AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
12/03/01	7093-18-0067	Park Row	1440	Air	12.74	0.003	0	0	0	<16.00	<0.0043
12/03/01	7093-19-0067	BMCC	1292	Air	7.64	0.002	0	0	0	<16.00	<0.0048
12/03/01	7093-20-0067	Coast Guard	1126***	Air	<7.0	<0.002	0	0	0	<13.33	<0.0046
12/03/01	7093-15-0066	Manhattan PS # 143	1380	Air	<7.0	<0.002	0	0	0	<16.00	<0.0044
12/03/01	7094-09-0067	Bronx PS #154	1420	Air	<7.0	<0.002	0	0	0	<16.00	<0.0043
12/03/01	7096-12-0061	Queens PS #199	1196***	Air	<7.0	<0.002	0	0	0	<13.33	<0.0043
12/03/01	7095-98-0063	Brooklyn PS #274	1242	Air	<7.0	<0.002	0	0	0	<13.33	<0.0041
12/03/01	7097-18-0060	Staten Island PS #44	1418	Air	<7.0	<0.002	0	0	0	<16.00	<0.0043

Key:  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis  
 \*\*\*\* Chrysotile  
 NR - analysis not requested  
 NS - Sample not submitted for analysis  
 n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 December 6, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	45	11:15:00	10	00:15:00	100	0.0	16.6	92.4	159.2
2	-74.198262	40.566883	2295	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
3	-74.198685	40.570054	2011	1	43	10:45:00	10	00:15:00	100	0.0	7.0	27.8	288.3
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	45	11:15:00	10	00:15:00	100	0.0	6.9	20.4	359.2
8	-74.203019	40.561915	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0



**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Sunday, December 9 & Monday, December 10, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 10, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 43 samples taken in and around ground zero on December 5 and December 6. In addition, EPA took three samples at three additional lower Manhattan locations on December 4. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 3,154, with 29 samples above the standard (27 of these were collected prior to September 30, one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

**Asbestos** - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Five asbestos samples collected on December 4 from these locations showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on December 7 at the Staten Island Landfill. No significant readings reported.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted December 6 through 8 at Pace University, Borough of Manhattan Community College, the Coast Guard building in Battery Park and on Wall Street. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**PM10** - Monitoring for particulate matter (particles less than 10 micrometers in diameter) was conducted from December 6 through 8 at a location on Wall Street. All 24-hour average values

were below the National Ambient Air Quality Standard of 150 ug/m<sup>3</sup>.

**Particulate Monitoring** - EPA used portable monitors to collect samples on December 7 and December 8 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on December 7 and December 8 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. One sample of benzene taken on the debris pile at the North Tower exceeded the OSHA PEL of one part per million (ppm) and another found a detectable level in the same location. Six samples taken at EPA's Wash Tent (West St. and Murray), Austin Tobin Plaza and the South Tower plume showed no detectable levels of benzene.

**Direct Air Readings** - On December 7 and 8, EPA did air monitoring in and around ground zero for a number of compounds. No significant readings were found.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Monday, December 10, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Dec 5, 1200 - 2359 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 6, 0001 - 1200 hrs)

All 21 samples analyzed were below the TEM AHERA standard.

1 sample (Location F - duplicate) was not collected due to equipment malfunction.

Landfill Ambient Air Sampling Locations

Fresh Kills (Dec 7) - Particulate Monitoring (Dataram)

Nothing of significance reported at three stations (P-1, P-2, and P-7) based on daily average concentrations.

Ambient Air Sampling Locations

NYC / ER (Dec 4) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Chambers St./West St. (Site 2)
- Coast Guard Building - Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 8 samples were collected from these monitoring sites. All of the samples were below the TEM AHERA standard.

Note: Reported that samples were not collected on Nov 21 and 22 at Site 5 due to equipment malfunctions.

NYC / ER (Dec 6) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **23.16 ug/m<sup>3</sup>**.

Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **17.35 ug/m<sup>3</sup>**.

Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **17.52 ug/m<sup>3</sup>**.

Wall Street - 24-hour average concentrations for this period was **18.11 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 7) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was *14.61 ug/m<sup>3</sup>*.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was *12.66 ug/m<sup>3</sup>*.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *10.82 ug/m<sup>3</sup>*.  
Wall Street - 24-hour average concentrations for this period was *14.05 ug/m<sup>3</sup>*.  
 All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 8) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was *7.53 ug/m<sup>3</sup>*.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was *9.40 ug/m<sup>3</sup>*.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *7.50 ug/m<sup>3</sup>*.  
Wall Street - 24-hour average concentrations for this period was *8.38 ug/m<sup>3</sup>*.  
 All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 6) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was *35.69 ug/m<sup>3</sup>*.  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Dec 7) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was *23.58 ug/m<sup>3</sup>*.  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Dec 8) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was *18.22 ug/m<sup>3</sup>*.  
 All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

## NYC / ER (Dec 7) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.  
 Instruments operated approximately 6.5 hours.  
 Station L values ranged from 0.1 to 122.9 ug/m<sup>3</sup> with an average of 36.6 ug/m<sup>3</sup>.  
 Station N values ranged from 0.2 to 143.9 ug/m<sup>3</sup> with an average of 32.9 ug/m<sup>3</sup>.  
 Station R values ranged from 0.0 to 160.6 ug/m<sup>3</sup> with an average of 37.6 ug/m<sup>3</sup>.

## NYC / ER (Dec 8) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.  
 Instruments operated approximately 6.5 hours.  
 Station L values ranged from 0.0 to 116.2 ug/m<sup>3</sup> with an average of 18.3 ug/m<sup>3</sup>.  
 Station N values ranged from 0.6 to 806.3 ug/m<sup>3</sup> with an average of 21.5 ug/m<sup>3</sup>.  
 Station R values ranged from 0.0 to 109.2 ug/m<sup>3</sup> with an average of 17.0 ug/m<sup>3</sup>.

NYC / ER (Dec 7) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) in the debris area in the plume at ground level.  
All 3 of the other samples (Wash Tent, Austin Tobin Plaza, South Tower plume at ground level) did not note any benzene above the detection limit (20 ppbv).

NYC / ER (Dec 8) - Volatile Organics (Mobile Laboratory)

Benzene did not exceed OSHA TWA PEL (1 ppm) at any location, including in the debris area.  
Only detection of benzene (980 ppbv) occurred in the North Tower debris area in the plume at ground level.  
All 3 of the other samples (Wash Tent, Austin Tobin Plaza, South Tower plume at ground level) did not note any benzene above the detection limit (20 ppbv).

NYC / ER (Dec 7)

Nothing of significance reported.

NYC / ER (Dec 8)

Nothing of significance reported.

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/05/01 1200 to 2359  
 Data Validation Date: 12/09/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fibcc**
					f/m <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	
12/05/01	RST-01535	L	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01536	L-Duplicate	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01537	M1	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01538	M1-Duplicate	720	Air	<7.0	<0.004	1***	0	8.89
12/05/01	RST-01539	N	720	Air	<7.0	<0.004	1***	0	8.89
12/05/01	RST-01540	O	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01541	Q	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01542	E	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01543	F	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01544	A	720	Air	<7.0	<0.004	1***	0	8.89
12/05/01	RST-01545	C	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01546	H	1224*	Air	<7.0	<0.002	0	0	<13.33
12/05/01	RST-01547	I	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01548	D	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01549	K	720	Air	<7.0	<0.004	1***	0	8.89
12/05/01	RST-01550	T	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01551	U	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01552	V	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01553	S	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01554	P	720	Air	<7.0	<0.004	0	0	<0.0048
12/05/01	RST-01555	E	1224*	Air	<7.0	<0.002	0	0	<13.33
12/05/01	RST-01556	W	720	Air	11.46	0.006	NA <sup>(3)</sup>	16	0.0086
12/05/01	FB120601	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
12/05/01	FB120601	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Sampling Locations:**  
 A: SE corner of West Broadway & Barclay  
 B: SE corner of Church St. & Broadway  
 C: Trinity (aka Church) & Liberty  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St.  
 H: Church and Duane St.  
 I: South side of Chase Manhattan Plaza at Pine St.  
 J: SE corner of Wall St. & Broadway  
 K: NE corner of Warren & West St.  
 L: West St. & Albany in median strip  
 M: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400**  
 f/m<sup>2</sup>: filterable mass per square meter of filter  
 f/cc: filterable mass per cubic centimeter of air

**TEM (AHERA)**  
 Structures (#): number of fibers per millimeter of filter  
 S/mm<sup>2</sup>: surface area of fibers per square millimeter of filter

**Key:**  
 \* Sample volume (filters) is below recommended limit for the TEM method, except for samples RST-01546 and RST-01555 which had the recommended amount of sample volume.  
 \*\* Structures (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup>: Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup>: Not analyzed for TEM  
 n/a: Not applicable  
 NR: Not requested  
 NS: Sample not submitted

**Sampling Locations:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: NE corner of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to walkway c)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Recker & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Stop  
 W: Wash Tem Common Area

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/06/01 0001 to 1200  
 Data Validation Date: 12/09/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fiber**
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	
12/06/01	RST-01557	L	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01558	M-1	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01559	N	1224*	Air	<7.0	<0.002	0	0	<0.0028
12/06/01	RST-01560	J	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01561	J-Duplicate	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01562	Q	1130.5	Air	<7.0	<0.002	0	0	<0.0045
12/06/01	RST-01563	E	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	NS	F-Duplicate	NS	NS	NS	NS	NS	NS	NS
12/06/01	RST-01564	A	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01565	B	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01566	C	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01567	H	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01568	I	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01569	D	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01570	K	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01571	T	655	Air	<7.0	<0.004	0	0	<0.0047
12/06/01	RST-01572	U	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01573	V	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01574	S	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01575	P	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01576	E	720	Air	<7.0	<0.004	0	0	<0.0048
12/06/01	RST-01577	W	720	Air	19.29	0.008	NA <sup>(1)</sup>	NA <sup>(2)</sup>	<0.0048
12/06/01	FB120601	Field Blank	0		<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(4)</sup>	NA <sup>(5)</sup>
12/06/01	TB120601	Tripp Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(4)</sup>	NA <sup>(5)</sup>

**Sampling Locations:**  
 A: NE corner of Church & 4th St  
 B: SE corner of Church & 4th St  
 C: NW corner of Broadway & Liberty St  
 D: East end of Albany St, at Greenwich St  
 E: Western end of Liberty St, at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St  
 H: South side of Chase Manhattan Plaza at Pine St  
 I: SE corner of Wall St & Broadway  
 J: NE corner of Warren & West St  
 K: West St, Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method, except for sample RST-01559 which had the recommended amount collected.  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St, at West St.  
 (on area next to bulkhead)  
 M1: West St - 50 yards south of Harrison St, at bulkhead  
 N: NE corner of South End Ave, & Albany  
 O: Barclay & West St, (center island) in proximity to USCCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AHERA):**  
 M: Western end of Harrison St, at West St.  
 (on area next to bulkhead)  
 M1: West St - 50 yards south of Harrison St, at bulkhead  
 N: NE corner of South End Ave, & Albany  
 O: Barclay & West St, (center island) in proximity to USCCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/04/01 1200 to 2400  
 Data Validation Date: 12/09/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
12/04/01	7093-18-0068	Park Row	1112***	Air	<7.0	<0.002	0	0	<13.33	<0.0043	
12/04/01	7093-19-0068	BMCC	1274	Air	<7.0	<0.002	1****	0	16	0.0048	
12/04/01	7093-20-0068	Coast Guard	1200	Air	<7.0	<0.002	0	0	<13.33	<0.0043	
12/04/01	7093-15-0067	Manhattan PS # 143	1200	Air	<7.0	<0.002	0	0	<13.33	<0.0043	
12/04/01	7094-09-0058	Bronx PS #154	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043	
12/04/01	7096-12-0062	Queens PS #199	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043	
12/04/01	7095-98-0084	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043	
12/04/01	7097-18-0061	Staten Island PS #44	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043	
11/21/01	7094-09-0048	Bronx PS #154	0	Air	NR	NR	NR	NR	NR	NR	
11/22/01	7094-09-0049	Bronx PS #154	0	Air	NR	NR	NR	NR	NR	NR	

**Key:**

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysotile
- NR - analysis not requested
- NS - Sample not submitted for analysis
- n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: J. Brennan

U.S. EPA: Norrell

Date: Dec. 08, 2001

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2647	2648	2643			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	0744	0749	0816			
Stop Time	1415	1419	1421			
Run Time (Minutes)	390	390	364			
Minimum Concentration (ug/m <sup>3</sup> )	0.0	0.0	0.6			
Maximum Concentration (ug/m <sup>3</sup> )	<del>172.5</del> 109.2	116.2	806.3			
Average Concentration (TWA) (ug/m <sup>3</sup> )	17.0	18.3	21.5			

United States Environmental Protection Agency  
 Removal Support Team  
 DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
 EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: Brennan

U.S. EPA: Norrell

Date: 12/7/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2643	2647	2648			
Flow Rate (Liters / Minute)	2.4M	2.4M	2.4M			
Start Time	0800	0803	0823			
Stop Time	1444	1446	1452			
Run Time (Minutes)	404	403	388			
Minimum Concentration (ug/m3)	0.0	0.1	0.2			
Maximum Concentration (ug/m3)	160.6	122.9	143.9			
Average Concentration (TWA) (ug/m3)	37.6	36.6	32.9			

NO QC EVALUATION HAS BEEN PERFORMED.  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/08/01

File Name	NYC389	NYC390	NYC391	NYC392	NYC396	NYC394
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	Austin Tobin Plaza	North Tower Plume	South Tower Plume
Sample Number			A07195	A07196	A07197	A07198
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	100 mL	250 mL
Reporting Limit (RL)	20	20	20	20	50	20
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	RL	530	RL
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	300	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	23
Isopropyl Alcohol	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	21	730	47
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	24
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	190	RL
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	120	RL
Tetrahydrofuran	RL	RL	RL	RL	RL	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	980	RL
Heptane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropane	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	440	RL
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	480	RL
ind-p-Xylenes	RL	RL	RL	RL	RL	RL
o-Xylene	RL	RL	RL	RL	RL	RL
Styrene	RL	RL	RL	RL	80	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: Dec. 08, 2001 (late)

RST: Lien

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1213	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00	*	<0.02
M1	1218	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00		<0.02
V	1224	ND	ND	ND	20.9	2	ND	ND	ND	ND	<1.00		<0.02
J	1220	ND	ND	ND	20.9	ND	ND	ND	ND	ND	<1.00		<0.02
Q	1235	ND	ND	ND	20.8	2	ND	ND	ND	ND	<1.00		<0.02
F	1241	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00		<0.02
A	1254	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00		<0.02
B	1255	ND	ND	ND	20.8	1	ND	ND	ND	ND	<1.00		<0.02
C	1259	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00		<0.02
H	1310	ND	ND	ND	20.8	1	ND	ND	ND	ND	<1.00		<0.02
I	1316	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00		<0.02
D	1325	ND	ND	ND	20.8	1	ND	ND	ND	ND	<1.00		<0.02
K	1331	ND	ND	ND	20.8	1	ND	ND	ND	ND	<1.00		<0.02
T	1340	ND	ND	ND	20.8	1	ND	ND	ND	ND	<1.00		<0.02
U	1344	ND	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00		<0.02
V	1352	**	ND	ND	20.8	ND	ND	ND	ND	ND	<1.00		<0.02
Air Monitor was stopped due to Rain													

\* Battery Dead  
\*\* Out of H<sub>2</sub> gas

- Location A: Barkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway
- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling
- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

DATE: Dec. 08, 2001 (REPLY)

RST: Lien

Location	Time	FID (units)	FID (mins)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0759	ND	ND	ND	20.8	ND	ND	ND	ND	ND	*	<0.02
M1	0810	ND	ND	ND	20.7	2	ND	ND	ND	ND		<0.02
N	0818	ND	0.2	ND	20.7	ND	ND	ND	ND	ND		<0.02
J	0835	ND	ND	ND	20.7	2	ND	ND	ND	ND		<0.02
H	0844	ND	0.1	ND	20.7	ND	ND	ND	ND	ND		<0.02
I	0859	0.3	0.1	ND	20.7	ND	ND	ND	ND	ND		<0.02
D	0913	ND	0.1	ND	20.7	ND	ND	ND	ND	ND		<0.02
K	0921	ND	0.2	ND	20.7	2	ND	ND	ND	ND		<0.02
T	0933	ND	0.1	ND	20.8	1	ND	ND	ND	ND		<0.02
U	0940	ND	0.2	ND	20.7	ND	ND	ND	ND	ND		<0.02
V	0945	ND	0.2	ND	20.7	ND	ND	ND	ND	ND		<0.02
S	0955	ND	0.1	ND	20.7	ND	ND	ND	ND	ND		<0.02
P	1007	ND	0.1	ND	20.7	ND	ND	ND	ND	ND		<0.02
E	1019	ND	ND	ND	20.7	ND	ND	ND	ND	ND		<0.02
Q	1030	ND	ND	ND	20.8	ND	ND	ND	ND	ND		<0.02
F	1035	ND	0.1	ND	20.7	ND	ND	ND	ND	ND		<0.02
A	1048	ND	0.1	ND	20.8	ND	ND	ND	ND	ND		<0.02
R	1056	ND	0.1	ND	20.7	ND	ND	ND	ND	ND	**	<0.02
C	1102	ND	ND	ND	20.5	ND	ND	ND	ND	ND		<0.02

\* BATTERY LEAD  
\*\* EQUIPMENT MAINTENANCE

HCL - DRAGER CMS  
COCl<sub>2</sub> - DRAGER PUMP

- Location A: Berkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M1: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/7/01 LATE

RST: Kathleen Bigelow

Location	Time	FID (units)	FID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	1218	NA	ND	ND	20.6	ND	ND	ND	ND	ND	ND	*	60.5
M1	1222	**	0.1	ND	20.7	ND	ND	ND	ND	ND	ND		60.5
N	1227		0.1	ND	20.7	ND	ND	ND	ND	ND	ND		60.5
O	1235		0.1	ND	20.7	2	ND	ND	ND	ND	ND		60.5
Q	1239		ND	ND	20.8	1	ND	ND	ND	ND	ND		60.5
R	1242		ND	ND	20.7	2	ND	ND	ND	ND	ND		60.5
A	1251		0.2	ND	20.8	1	ND	ND	ND	ND	ND		60.5
B	1256		ND	ND	20.8	3	ND	ND	ND	ND	ND		60.5
C	1301		ND	ND	20.6	1	ND	ND	ND	ND	ND		60.5
H	1311		ND	ND	20.9	1	ND	ND	ND	ND	ND		60.5
I	1324		ND	ND	20.9	3	ND	ND	ND	ND	ND		60.5
D	1330		0.1	ND	20.9	3	ND	ND	ND	ND	ND		60.5
V	1336		ND	ND	20.9	3	ND	ND	ND	ND	ND		60.5
T	1343		ND	ND	20.9	1	ND	ND	ND	ND	ND		60.5
U	1346		ND	ND	20.9	1	ND	ND	ND	ND	ND		60.5
W	1357		ND	ND	20.9	ND	ND	ND	ND	ND	ND		60.5
S	1406		ND	ND	20.9	ND	ND	ND	ND	ND	ND		60.5
P	1408		ND	ND	20.9	3	ND	ND	ND	ND	ND		60.5
E	1409		ND	ND	20.9	ND	ND	ND	ND	ND	ND		60.5

\*Fault 30  
\*\* Flame would not light

KB

- Location A: Berkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Sayres High School
- Location M1: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rectory and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/1/01 Early

RST: Kathleen Bigelow

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	0803	ND	0.8	ND	20.8	ND	ND	ND	ND	ND	21.0	*	60.05
HI	0817	ND	0.6	ND	20.8	ND	ND	ND	ND	ND	21.0		60.05
N	0821	ND	0.4	ND	20.8	ND	ND	ND	ND	ND	21.0		60.05
J	0839	ND	0.9	ND	20.7	1	ND	ND	ND	ND	21.0		60.05
Q	0852	ND	2.6	ND	20.7	1	ND	ND	ND	ND	21.0		60.05
F	0856	ND	1.0	ND	20.6	2	ND	ND	ND	ND	21.0		60.05
A	0906	ND	1.1	ND	20.6	ND	ND	ND	ND	ND	21.0		60.05
B	0916	ND	1.0	0.9	20.6	1	ND	ND	ND	ND	21.0		60.05
C	0923	ND	1.1	ND	20.6	1	ND	ND	ND	ND	21.0		60.05
H	0936	ND	1.9	ND	20.6	1	ND	ND	ND	ND	21.0		60.05
IL	0947	ND	0.7	ND	20.7	2	ND	ND	ND	ND	21.0		60.05
D	0957	ND	1.0	ND	20.6	5	ND	0.3	ND	ND	21.0		60.05
K	1005	ND	0.7	ND	20.7	3	ND	ND	ND	ND	21.0		60.05
T	1018	ND	0.6	ND	20.7	1	ND	ND	ND	ND	21.0		60.05
U	1020	ND	0.7	ND	20.7	3	ND	ND	ND	ND	21.0		60.05
V	1033	ND	2.6	ND	20.7	1	ND	ND	ND	ND	21.0		60.05
S	1045	ND	ND	ND	20.7	1	ND	0.2	ND	ND	21.0		60.05
P	1048	ND	ND	ND	20.7	ND	ND	ND	ND	ND	21.0		60.05
E	1051	ND	ND	ND	20.7	ND	ND	ND	ND	ND	21.0		60.05

\* Fault 30

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- Location A: Berkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Staynesant High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/07/01

File Name	NYC380	NYC381	NYC382	NYC383	NYC385	NYC384
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent	Austin Tobin Plaza	North Tower	South Tower
			Ambient Air		Plume	Plume
Sample Number			A07191	A07193	A07192	A07194
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	100 mL	250 mL
Reporting Limit (RL)	20	20	20	20	50	20
Sample Conc. Units	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Propylene	RL	RL	RL	RL	4200	RL
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	2500	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	190	RL
Trichlorofluoromethane	RL	RL	RL	RL	90	RL
Isopropyl Alcohol	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	RL	260	100
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	320	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	140	RL
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	1300	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	3000	RL
Heptane	RL	RL	RL	RL	220	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	120	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	3100	RL
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	4100	RL
m&p-Xylenes	RL	RL	RL	RL	480	RL
o-Xylene	RL	RL	RL	RL	160	RL
Styrene	RL	RL	RL	RL	520	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	150	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	180	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	99	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL



Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 December 7, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	14	03:30:00	10	00:15:00	100	0.0	22.7	70.5	274.6
2	-74.198262	40.566883	2295	1	46	11:30:00	10	00:15:00	0	0.0	0.0	80.7	392.2
3	-74.198685	40.570054	2011	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	46	11:30:00	10	00:15:00	100	0.0	4.8	26.2	193.8
8	-74.203019	40.561915	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Tuesday, December 11, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 11, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 43 samples taken in and around ground zero on December 6 and December 7. In addition, EPA took three samples at three additional lower Manhattan locations on December 5. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 3,197, with 29 samples above the standard (27 of these were collected prior to September 30, one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

**Asbestos** - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Five asbestos samples collected on December 5 from these locations showed no exceedances of the AHERA re-entry standard.

**Air: Fixed Monitors in New Jersey:**

**Asbestos** - Four air samples were taken in New Jersey on December 6. All samples showed results less than school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 215, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Thirty-eight samples were collected on December 6 and 7. All of these samples were below the school re-entry standard.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on December 9 at Pace University, Borough of Manhattan Community College, the Coast Guard building in Battery Park and on Wall Street. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results

were also less than  $40 \text{ ug/m}^3$ , a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**PM10** - Monitoring for particulate matter (particles less than 10 micrometers in diameter) was conducted on December 9 at a location on Wall Street. All 24-hour average values were below the National Ambient Air Quality Standard of  $150 \text{ ug/m}^3$ .

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on December 9 and December 10 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. One sample of benzene taken on the debris pile at the North Tower on Dec. 9 exceeded the OSHA PEL of one part per million (ppm) and another found a detectable level in the same location. There were no exceedances on Dec. 10. Four of six samples taken at EPA's Wash Tent (West St. and Murray) and Austin Tobin Plaza showed no detectable levels of benzene.

**Direct Air Readings** - On December 9, EPA did air monitoring in and around ground zero for a number of compounds. No significant readings were found during the afternoon hours. No monitoring was conducted in the morning due to rain.

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**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Tuesday, December 11, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Dec 6, 1200 - 2359 hrs)

All 21 samples analyzed were below the TEM AHERA standard.  
1 sample (Location E) was not collected due to equipment malfunction.

NYC / ER (Dec 7, 0001 - 1200 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NJ / ER (Dec 6)

All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

Fresh Kills (Dec 6, 0754 - 2121) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Fresh Kills (Dec 7, 0805 - 2109) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Ambient Air Sampling Locations

NYC / ER (Nov 8, 12, 15) - PAHs

Resubmittal: Previously reported on Wednesday, December 5 Sampling Situation Report without data attached.  
Analytical data is attached (no changes in results).

NYC / ER (Dec 5) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Chambers St./West St. (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 8 samples were collected from these monitoring sites.  
All of the samples were below the TEM AHERA standard.

NYC / ER (Dec 9) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **7.59 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **11.17 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **8.23 ug/m<sup>3</sup>**.  
Wall Street - 24-hour average concentrations for this period was **11.13 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 9) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **15.23 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

## NYC / ER (Dec 9) - Particulate Monitoring (Dataram)

No particulate monitoring conducted due to rain at three locations (Stations L, N, R).

## NYC / ER (Dec 9) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) in the debris area in the plume at ground level.  
2 of the 3 other samples (Wash Tent, Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

## NYC / ER (Dec 10) - Volatile Organics (Mobile Laboratory)

Benzene did not exceed OSHA TWA PEL (1 ppm) at any location, including in the debris area at ground level.  
2 of the 3 other samples (Location R, Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).  
Note: Washing Tent "background" monitoring location replaced by Location R (former location of TAGA).

Direct Reading Instruments

## NYC / ER (Dec 9)

Nothing of significance reported during afternoon hours.  
No monitoring conducted in the morning due to rain.

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/06/01 07:54 to 21:21  
 Data Validation Date: 12/10/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	FCM by NIOSH 7400		TEM ( AHERA)		S-freq**
					f/m <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	
12/06/01	LF01399	P-1	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/06/01	LF01400	P-2	544	Air	<7.0	<0.005	0	<8.75	<0.0062
12/06/01	LF01401	P-3	720	Air	7.64	0.004	0	<8.75	<0.0047
12/06/01	LF01402	P-4	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/06/01	LF01403	P-5	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/06/01	LF01404	P-6	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/06/01	LF01405	P-7	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/06/01	LF01406	P-8	720	Air	7.64	0.004	0	<8.75	<0.0047
12/06/01	LF01407	W-11	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/06/01	LF01408	W-12A	720	Air	15.29	0.006	0	<8.75	<0.0047
12/06/01	LF01409	W-12B	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/06/01	LF01410	B-13	720	Air	7.64	0.004	0	<8.75	<0.0047
12/06/01	LF01411	B-14	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/06/01	LF01412	T-15	720	Air	15.29	0.008	0	<8.75	<0.0047
12/06/01	LF01413	T-16	720	Air	15.29	0.008	0	<8.75	<0.0047
12/06/01	LF01414	O-17	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/06/01	LF01415	O-18	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	<8.75	<0.0047
12/06/01	LF01416	O-19	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/06/01	LF01417	MPHS-20	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/06/01	LF01418	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/06/01	LF01419	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/07/01 0805 to 2109  
 Data Validation Date: 12/10/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm?	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc**
12/07/01	LF01420	P-1	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01421	P-2	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01422	P-3	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01423	P-4	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01424	P-5	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01425	P-6	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01426	P-7	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01427	P-8	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01428	W-11	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01429	W-12A	730	Air	12.74	0.007	0	0	<8.75	<0.0047
12/07/01	LF01430	W-12B	720	Air	<7.0	<0.004	0	1***	<8.75	0.0050
12/07/01	LF01431	W-13	676	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01432	B-14	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01433	T-15	720	Air	28.03	0.015	0	0	<8.75	<0.0047
12/07/01	LF01434	T-16	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01435	O-17	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01436	O-18	621	Air	<7.0	<0.004	1***	0	8.75	0.0054
12/07/01	LF01437	O-19	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01438	MPHS-20	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/07/01	LF01439	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/07/01	LF01440	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key: \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile

NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Data Validation Date: 12/10/01

Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/06/01 1200 to 2359

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)	
					f/cc	f/m <sup>3</sup>	Structures (#)	5µ	S-f/cc**
12/06/01	RST-01578	L	621	Air	<7.0	<0.004	0	0	<8.89
12/06/01	RST-01579	M1	720	Air	<7.0	<0.004	0	0	<8.89
12/06/01	RST-01580	N	759.9	Air	<7.0	<0.004	0	0	<8.89
12/06/01	RST-01581	J	521	Air	7.01	0.005	0	0	<8.89
12/06/01	RST-01582	Q	1224*	Air	14.01	0.004	0	0	<13.33
12/06/01	RST-01583	F	720	Air	8.92	0.005	2***	0	17.78
12/06/01	RST-01584	A	720	Air	10.19	0.005	1***	0	8.89
12/06/01	RST-01585	B	720	Air	16.56	0.009	0	0	<8.89
12/06/01	RST-01586	C	720	Air	22.93	0.012	0	0	<8.89
12/06/01	RST-01587	H	720	Air	7.64	0.004	0	0	<8.89
12/06/01	RST-01588	I	720	Air	8.28	0.004	0	0	<8.89
12/06/01	RST-01589	D	720	Air	9.55	0.005	0	0	<8.89
12/06/01	RST-01590	K	720	Air	11.46	0.006	0	0	<8.89
12/06/01	RST-01591	I	720	Air	<7.0	<0.004	0	0	<8.89
12/06/01	RST-01592	U	720	Air	10.19	0.005	0	0	<8.89
12/06/01	RST-01593	V	720	Air	<7.0	<0.004	0	0	<8.89
12/06/01	RST-01594	S	720	Air	<7.0	<0.004	0	0	<8.89
12/06/01	RST-01595	S-Duplicate	720	Air	<7.0	<0.004	0	0	<8.89
12/06/01	RST-01596	R	309	Air	7.63	0.007	0	0	<8.89
12/06/01	RST-01597	P-Duplicate	475	NS	NS	NS	NS	NS	<8.89
12/06/01	RST-01598	W	720	Air	8.92	0.005	0	0	<8.89
12/07/01	TB120701	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/07/01	TB120701	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Sampling Locations:

- A: SE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: NW corner of Church & Liberty
- D: SW corner of Broadway & Liberty St.
- E: East end of Albany St. at Greenwich St.
- F: West end of Liberty St. at South End Ave
- G: Northern median strip of Vesey & West St.
- H: Church and Duane St.
- I: South side of Chase Manhattan Plaza at Pine St.
- J: SE corner of Wall St. & Broadway
- K: NE corner of Warren & West St.
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area

Key:

- M: Western end of Harrison St. at West St. (on turn right to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pine St. (next to City Hall Ct)
- P: NE corner of South E. 1<sup>st</sup> St. & Albany
- Q: Broadway & West St. (corner station) in proximity to USCG command post
- R: TAGA Bus Location
- S: Reeder & South End
- T: Pier 6 Helipad
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

- \* Sample volume (liters) is below recommended limit for the TEM method, except for sample RST-01582 which had the recommended amount collected;
- \*\* volume is based on pump reading.
- \*\*\* structure (S) is roughly equivalent to fiber (f)
- \*\*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 7200 L, for 25 mm filter (TEM)



NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/07/01 0001 to 1200  
 Data Validation Date: 12/10/01

Sampling Date	Sample No.	Sampling Location	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/1000	f/cc	Structures (#)	S-f/cc**
12/07/01	RST-01589	L	698	Air	<7.0	<0.004	0	<0.004
12/07/01	RST-01600	M-1	720	Air	<7.0	<0.004	0	<0.004
12/07/01	RST-01601	N	720	Air	<7.0	<0.004	0	<0.004
12/07/01	RST-01602	J	437	Air	<7.0	<0.005	0	<0.007
12/07/01	RST-01603	Q	597	Air	<7.0	<0.005	0	<0.005
12/07/01	RST-01604	F	720	Air	<7.0	<0.004	0	<0.004
12/07/01	RST-01605	A	978	Air	<7.0	<0.005	0	<0.005
12/07/01	RST-01606	B	720	Air	<7.0	<0.005	0	<0.005
12/07/01	RST-01608	D	720	Air	<7.0	<0.005	0	<0.005
12/07/01	RST-01609	I	1224*	Air	<7.0	<0.002	0	<0.002
12/07/01	RST-01610	L	720	Air	<7.0	<0.004	0	<0.004
12/07/01	RST-01611	K	720	Air	15.29	0.008	0	<0.008
12/07/01	RST-01612	T	331	Air	7.64	0.004	0	<0.004
12/07/01	RST-01613	U	720	Air	<7.0	<0.008	0	<0.008
12/07/01	RST-01614	V	720	Air	<7.0	<0.004	0	<0.004
12/07/01	RST-01615	S	720	Air	<7.0	<0.004	0	<0.004
12/07/01	RST-01616	S-Duplicate	650	Air	<7.0	<0.004	0	<0.004
12/07/01	RST-01617	P	720	Air	<7.0	<0.004	0	<0.004
12/07/01	RST-01618	E	720	Air	<7.0	<0.004	0	<0.004
12/07/01	RST-01619	E-Duplicate	720	Air	<7.0	<0.004	0	<0.004
12/07/01	RST-01620	W	720	Air	7.84	0.004	0	<0.004
12/07/01	FB120701	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>
12/07/01	TB120701	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method, except for sample RST-01603 which had the maximum amount collected.  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

PCM by NIOSH 7400  
 f/1000  
 f/cc

TEM (AHERA)  
 Structures (#)  
 0.5µ-5µ  
 5µ

Sampling Locations:  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty St.  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. (Grampy St.)  
 E: West end of Liberty St. South End Ave  
 F: North end of Liberty St. South End Ave  
 G: Church and Dey St.  
 H: South side of Church Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Wall St. & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

TEM (AHERA)  
 Structures (#)  
 0.5µ-5µ  
 5µ

Sampling Locations:  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of South End Ave (at alleyway ct)  
 P: NE corner of South End Ave  
 Q: Barclay & West St. (center island) in proximity to USCGS command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/19/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/1000 L, for 25 mm filter; (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/05/01 1200 to 2400  
 Data Validation Date: 12/10/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
12/05/01	7093-18-0069	Park Row	1440	Air	<7.0	<0.002	0	0	0	<16.00	<0.0043
12/05/01	7093-19-0069	BMCC	1298	Air	12.74	0.004	0	0	0	<16.00	<0.0047
12/05/01	7093-20-0069	Coast Guard	1392	Air	7.64	0.002	0	0	0	<16.00	<0.0044
12/05/01	7093-15-0068	Manhattan PS # 143	1440	Air	<7.0	<0.002	0	0	0	<16.00	<0.0043
12/05/01	7094-09-0069	Bronx PS #154	1332	Air	<7.0	<0.002	1****	0	0	16.00	0.0046
12/05/01	7095-12-0063	Queens PS #199	1378	Air	<7.0	<0.002	0	0	0	<16.00	<0.0045
12/05/01	7095-98-0065	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	0	<16.00	<0.0043
12/05/01	7097-18-0062	Staten Island PS #44	1440	Air	<7.0	<0.002	0	0	0	<16.00	<0.0043

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysotile
- NR - analysis not requested
- NS - Sample not submitted for analysis
- n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Asbestos Air Sampling Results NYC ER/NUDEP  
 Sampling Date and Time: 12/06/2001 1131 to 2345  
 Data Validation Date: 12/10/2001

Date Sampled	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mmm <sup>2</sup>	f/cc	0.5µ - 5µ S (#)	5µ S/mm <sup>2</sup>	S-f/cc*	
12/06/01	1LIB120601	Liberty Park	1040**	Air	<7.0	<0.003	0	0	<13.33	<0.0049
12/06/01	2CIT120601	CITGO Terminal	1200	Air	<7.0	<0.002	0	0	<13.33	<0.0043
12/06/01	3FMC120601	FMC Terminal	1100**	Air	<7.0	<0.002	0	0	<13.33	<0.0047
12/06/01	4SHL120601	Shell Terminal	1176**	Air	<7.0	<0.002	0	0	<13.33	<0.0044
12/06/01	5FLB120601	Field Blank	0	Air	<7.0	n/a	NA	NA	NA	NA
12/06/01	-	Trip Blank	NS	NS	NS	NS	NS	NS	NS	NS

**Key:** \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\*\* Chrysotile  
 n/a - Not applicable  
 NA - Not analyzed for TEM  
 NS - Sample not submitted

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location	Sampling Times
Liberty Park	12/06/01 1131 - 2011
CITGO Terminal	12/06/01 1243 - 2243
Aslaris/FMC Terminal	12/06/01 1337 - 2247
Motiva/Shell Terminal	12/06/01 1357 - 2345

NYC Response  
Air Samples - Polycyclic Aromatic Hydrocarbons  
Sampling Date: 11/08/01

Table 1.1 Results of the Analysis for PAH in Air  
WA # 0-0236; NYC ER Site

Sample No. Sampling Location Volume (L)	11911 Lot Blank		11891 TAGA 480		11892 TAGA 480		11893 A Barclay & West Broadway		11894 B Church & Dey	
	Conc. µg	MDL µg	Conc. ppbv	MDL ppbv	Conc. ppbv	MDL ppbv	Conc. ppbv	MDL ppbv	Conc. ppbv	MDL ppbv
Naphthalene	UJ	11	UJ	4.3	UJ	4.3	UJ	4.3	UJ	4.3
2-Methylnaphthalene	UJ	11	UJ	4.1	UJ	4.1	UJ	4.1	UJ	4.1
1-Methylnaphthalene	UJ	11	UJ	4.0	UJ	4.0	UJ	4.0	UJ	4.0
Biphenyl	UJ	11	UJ	3.8	UJ	3.8	UJ	3.8	UJ	3.8
2,6-Dimethylnaphthalene	UJ	12	UJ	3.8	UJ	3.8	UJ	3.8	UJ	3.8
Acenaphthylene	UJ	11	UJ	3.9	UJ	3.9	UJ	3.9	UJ	3.9
Acenaphthene	UJ	11	UJ	3.6	UJ	3.6	UJ	3.6	UJ	3.6
Fluoranthene	UJ	11	UJ	3.4	UJ	3.4	UJ	3.4	UJ	3.4
Fluorene	UJ	11	UJ	3.5	UJ	3.5	UJ	3.5	UJ	3.5
Phenanthrene	UJ	11	UJ	3.1	UJ	3.1	UJ	3.1	UJ	3.1
Anthracene	UJ	11	UJ	3.2	UJ	3.2	UJ	3.2	UJ	3.2
Carbazole	UJ	12	UJ	3.7	UJ	3.7	UJ	3.7	UJ	3.7
Fluoranthene	UJ	12	UJ	2.9	UJ	2.9	UJ	2.9	UJ	2.9
Pyrene	UJ	11	UJ	2.8	UJ	2.8	UJ	2.8	UJ	2.8
Benzo(a)anthracene	UJ	11	UJ	2.5	UJ	2.5	UJ	2.5	UJ	2.5
Chrysene	UJ	10	UJ	2.2	UJ	2.2	UJ	2.2	UJ	2.2
Benzo(b)fluoranthene	UJ	11	UJ	2.3	UJ	2.3	UJ	2.3	UJ	2.3
Benzo(k)fluoranthene	UJ	12	UJ	2.5	UJ	2.5	UJ	2.5	UJ	2.5
Benzo(e)pyrene	UJ	11	UJ	2.3	UJ	2.3	UJ	2.3	UJ	2.3
Benzo(a)pyrene	UJ	13	UJ	2.5	UJ	2.5	UJ	2.5	UJ	2.5
Indeno(1,2,3-cd)pyrene	UJ	14	UJ	2.6	UJ	2.6	UJ	2.6	UJ	2.6
Dibenzo(a,h)anthracene	UJ	14	UJ	2.6	UJ	2.6	UJ	2.6	UJ	2.6
Benzo(g,h,i)perylene	UJ	13	UJ	2.4	UJ	2.4	UJ	2.4	UJ	2.4

COC 04866

11-08-15-01PAH.xls

ERTC 11/30/01

NO GC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/10/01

File Name	NYC408	NYC409	NYC410	NYC411	NYC414	NYC412
Sample Location	Instrument Blank	Tedlar Bag Blank	Location R	Austin Tobin Plaza	North Tower	South Tower
Sample Number			A07203	A07204	A07205	Plume A07208
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	250 mL	250 mL
Reporting Limit (RL)	20	20	20	20	20	20
Sample Conc. Units	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Propylene	RL	RL	RL	RL	430	140
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	29
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	110	44
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	54
Isopropyl Alcohol	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	RL	270	59
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	49
trans-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	33	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	67	RL
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	52	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	26
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	580	36
Heptane	RL	RL	RL	RL	23	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	240	77
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	240	25
m,p-Xylenes	RL	RL	RL	RL	31	120
o-Xylene	RL	RL	RL	RL	33	52
Styrene	RL	RL	RL	RL	33	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEGULAR BAG AIR ANALYSIS TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/09/01

File Name	NYC396	NYC400	NYC401	NYC405	NYC402	NYC404
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	Austin Tobin Plaza	North Tower Plume	South Tower Plume
Sample Number			A07199	A07200	A07200	A07200
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	100 mL	100 mL
Reporting Unit (RL)	20	20	20	20	50	50
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	RL	1100	45
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	540	80
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	31	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	40	2100	RL
Trichloroethylene	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
MIBK	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	97	11
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	240	RL
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	210	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	3000	55
Heptane	RL	RL	RL	RL	61	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	31	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	59	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	5L	RL
Toluene	RL	RL	RL	RL	480	81
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	12
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	28	RL
Ethylbenzene	RL	RL	RL	RL	290	33
m&p-Xylenes	RL	RL	RL	RL	44	140
O-Xylene	RL	RL	RL	RL	20	59
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	18	16
1,3,5-Trimethylbenzene	RL	RL	RL	RL	46	11
1,2,4-Trimethylbenzene	RL	RL	RL	RL	31	11
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

1761

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/19/01 LATE

RST: Patrick Chen

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	12:30	**	ND	ND	21.1	ND	ND	ND	ND	ND	<1.0		<0.02
M	12:35		ND	ND	21.1	ND	ND	ND	ND	ND	<1.0		<0.02
N	12:40		ND	ND	21.0	ND	ND	ND	ND	ND	<1.0		<0.02
J	12:47		ND	ND	21.0	ND	ND	ND	ND	ND	<1.0		<0.02
R	12:55		ND	ND	21.0	ND	ND	ND	ND	ND	<1.0		<0.02
F	1:00		ND	ND	21.0	ND	ND	ND	ND	ND	<1.0		<0.02
A	1:05		ND	ND	21.1	ND	ND	ND	ND	ND	<1.0		<0.02
B	1:10		ND	ND	21.0	ND	ND	ND	ND	ND	<1.0		<0.02
C	1:15		ND	ND	21.0	ND	ND	ND	ND	ND	<1.0		<0.02
H	1:25		ND	ND	21.0	ND	ND	ND	ND	ND	<1.0		<0.02
I	1:30		ND	ND	21.0	ND	ND	ND	ND	ND	<1.0		<0.02
D	1:36		ND	ND	21.1	ND	ND	ND	ND	ND	<1.0		<0.02
K	1:45		ND	ND	21.1	ND	ND	ND	ND	ND	<1.0		<0.02
T	1:50		ND	ND	21.1	ND	ND	ND	ND	ND	<1.0		<0.02
U	1:55		ND	ND	21.0	ND	ND	ND	ND	ND	<1.0		<0.02
V	2:05		ND	ND	21.1	ND	ND	ND	ND	ND	<1.0		<0.02
S	2:13		ND	ND	21.1	ND	ND	ND	ND	ND	<1.0		<0.02
P	2:18		ND	ND	21.1	ND	ND	ND	ND	ND	<1.0		<0.02
E	2:25		ND	ND	21.1	ND	ND	ND	ND	ND	<1.0		<0.02

\* Not Properly Functioning  
\*\* Not Properly Functioning

COCl<sub>2</sub> - Dräger tubes  
HCl - Dräger CMS

- |                                       |                                    |                                  |
|---------------------------------------|------------------------------------|----------------------------------|
| Location A: Barkley and West Broadway | Location J: West and Warren        | Location S: Rector and South End |
| Location B: Church and Dey            | Location K: Albany and West        | Location T: Pier 6 Heliport      |
| Location C: Liberty and Church        | Location L: Stuyvesant High School | Location U: Pier 6 Exit 2        |
| Location D: Albany and Greenwich      | Location M: West and Warren        | Location V: Pier 6 Bus Sign      |
| Location E: Liberty and South End     | Location N: Pier 25 Volleyball     | Location W: No location          |
| Location F: West and Vesey            | Location O: No location            | Location X: No location          |
| Location G: No location               | Location P: Albany and South End   | Location Y: No location          |
| Location H: Chase Plaza               | Location Q: West and Murray        | Location Z: No location          |
| Location I: Wall Street and Broadway  | Location R: No asbestos sampling   |                                  |

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Wednesday, December 12, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 12, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 87 samples taken in and around ground zero from December 7 through December 9. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 3,284, with 29 samples above the standard (27 of these were collected prior to September 30, one was collected on October 9 and the other on November 27).

**Staten Island Landfill:**

**Air (Asbestos)** - Eighteen air samples collected on December 8 were analyzed for asbestos. All of these samples were below the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on December 10 at the Staten Island Landfill. No significant readings reported. No readings were taken on December 9 and December 11 due to weather conditions.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on December 10 at Pace University, Borough of Manhattan Community College, the Coast Guard building in Battery Park and on Wall Street. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**PM<sub>10</sub>** - Monitoring for particulate matter (particles less than 10 micrometers in diameter) was conducted on December 10 at a location on Wall Street. All 24-hour average values were below the National Ambient Air Quality Standard of 150 ug/m<sup>3</sup>.

**Particulate Monitoring** - EPA used portable monitors to collect samples on December 11 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and



R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on December 11 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Two of three samples taken at EPA's Wash Tent (West St. and Murray) and Austin Tobin Plaza showed no detectable levels of benzene.

**Direct Air Readings** - EPA did air monitoring in and around ground zero for a number of compounds on December 10 and December 11. No significant readings were found. Low levels of carbon monoxide were detected. Samples of cyanide compounds – hexamethylene diisocyanate (HDI), methylene bis(4-phenyl isocyanate) (MDI) and toluene-2,4-diisocyanate (TDI) – were taken at the northwest corner of the North Tower, Austin Tobin Plaza near the barrier of the inner work zone, the southeast corner of the South Tower (30 feet below street level) and the southwestern corner of the inner work zone at West and Liberty. Monitoring found low levels of HDI and TDI. All levels were below OSHA PELs and National Institute of Occupational Safety and Health (NIOSH) recommended exposure limits (REL).

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Wednesday, December 12, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Dec 7, 1200 - 2359 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 8, 0001 - 1200 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 8, 1200 - 2359 hrs)

All 22 samples analyzed were below the TEM AHERA standard.  
Note: Low sample volumes recorded.

NYC / ER (Dec 9, 0001 - 1200 hrs)

All 21 samples analyzed were below the TEM AHERA standard.  
1 sample (Location 1) was not collected due to equipment malfunction.  
Note: Low sample volumes recorded.

Landfill Ambient Air Sampling Locations

Fresh Kills (Dec 8, 0806 - 2310) - Asbestos

All 18 samples analyzed were below the TEM AHERA standard.  
1 sample ("Barge"-Location #13) was not collected due to equipment malfunction.

Fresh Kills (Dec 10) - Particulate Monitoring (Dataram)

Nothing of significance reported at four stations (P-1, P-2, P-7, and P-8) based on daily average concentrations.  
No readings taken on Dec 9 and 11 due to weather conditions.

Ambient Air Sampling Locations

NYC / ER (Dec 10) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was *12.22 ug/m<sup>3</sup>*.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was *13.99 ug/m<sup>3</sup>*.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was *12.59 ug/m<sup>3</sup>*.  
Wall Street - 24-hour average concentrations for this period was *21.02 ug/m<sup>3</sup>*.  
All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

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### NYC / ER (Dec 10) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was *35.05 ug/m<sup>3</sup>*.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

### NYC / ER (Dec 11) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.

Instruments operated approximately 6.5 hours.

Station L values ranged from 4.5 to 147.4 ug/m<sup>3</sup> with an average of 28.7 ug/m<sup>3</sup>.

Station N values ranged from 0.0 to 75.4 ug/m<sup>3</sup> with an average of 27.2 ug/m<sup>3</sup>.

Station R values ranged from 0.0 to 118.9 ug/m<sup>3</sup> with an average of 31.6 ug/m<sup>3</sup>.

### NYC / ER (Dec 11) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) in the debris area in the plume at ground level.

2 of the 3 other samples (Wash Tent, Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

Wash Tent and Location R may be used interchangeably as the "background" location depending on daily activities.

### Direct Reading Instruments

#### NYC / ER (Dec 10)

Nothing of significance reported.

Low levels of carbon monoxide evident during the monitoring periods.

#### NYC / ER (Dec 11)

Nothing of significance reported with routine daily monitoring parameters.

Low levels of carbon monoxide evident during the monitoring periods.

Monitoring conducted for hexamethylene diisocyanate (HDI), methylene bis(4-phenyl isocyanate) (MDI), and toluene-2,4-diisocyanate (TDI).

Locations monitored for the cyanide compounds included: northwest corner of North Tower, Austin Tobin Plaza near the barrier of the inner work zone, southeast corner of South Tower (30 feet below street level), the southwestern barrier of the inner work zone at West St./Liberty St., and Locations A, B, C, D, E, P, R, S, 3B from the fixed ambient air sampling stations.

Measurements for cyanide compounds at the four work-zone locations consisted of a 30-35 minute continuous run at each location.

Monitoring at the four work-zone locations revealed the presence of low levels of HDI and TDI.

As a point of comparison, all levels detected were below the respective OSHA PELs and NIOSH RELs for these compounds. The NIOSH REL for HDI is 0.005 ppm. The OSHA PEL for TDI is 0.02 ppm.

**Note:** The cassettes used to monitor for these cyanide compounds also respond positively to elevated levels of chlorine, nitrogen dioxide, nitric oxide, and ozone.

Field observations during this sampling event noted the presence of heavy machinery/metal cutting as possible sources of analytical interference.

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**Note:** Air samples (15-minute grabs) were collected for fixed laboratory analysis at two of the work-zone locations (northwest corner of North Tower, and southwestern barrier of the inner work zone at West St./Liberty St.) and at each of the fixed ambient air sampling stations. Results are pending.  
Measurements for the cyanide compounds at the fixed ambient air sampling stations consisted of one 3-minute run taken once that day at each of the locations.  
The results from the monitoring at the fixed ambient air sampling stations have not been received from the field.

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/08/01 0806 to 2310  
 Data Validation Date: 12/11/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)				
					f/cc	f/mm <sup>2</sup>	Structures (#)	5µ	5µ	S-f/cc**	
12/08/01	LF01441	P-1	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/08/01	LF01442	P-2	621	Air	<7.0	<0.004	0	0	0	<7.87	<0.0048
12/08/01	LF01443	P-3	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01444	P-4	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01445	P-5	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01446	P-6	715	Air	<7.0	<0.004	1***	0	0	8.75	0.0047
12/08/01	LF01447	P-7	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01448	P-8	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01449	P-9	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01450	W-11	720	Air	15.29	0.008	1***	0	0	8.75	0.0047
12/08/01	LF01451	W-12A	720	Air	29.94	0.016	3***	0	0	26.25	0.0140
12/08/01	LF01451	W-12B	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01452	B-13	NS	NS	NS	NS	NS	NS	NS	NS	NS
12/08/01	LF01453	B-14	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01454	T-15	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01455	T-16	720	Air	10.19	0.005	0	0	0	<8.75	<0.0047
12/08/01	LF01456	O-17	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01457	O-18	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01458	O-19	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01459	MPTIS-20	720	Air	<7.0	<0.004	0	0	0	<8.75	<0.0047
12/08/01	LF01460	Lot Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>
12/08/01	LF01461	Tip Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>

Key: \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected  
 NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 12/07/01 1200 to 2359  
Data Validation Date: 12/11/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/imm <sup>2</sup>	f/cc	Structures (#)	S-f/cc**
12/07/01	RST-01621	L	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01622	M1	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01623	N	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01624	J	178.4	Air	<7.0	<0.002	0	<13.33
12/07/01	RST-01625	H	720	Air	<7.0	<0.004	1***	0.0048
12/07/01	RST-01626	D	769	Air	<7.0	<0.004	1***	0.0048
12/07/01	RST-01627	D-Dup	716	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01628	K	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01630	T	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01631	U	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01632	V	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01633	S	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01634	P	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01635	E	792.2	Air	<7.0	<0.003	0	<8.89
12/07/01	RST-01636	Q	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01637	F	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01638	A	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01639	B	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01640	C	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01641	C-Dup	720	Air	<7.0	<0.004	0	<8.89
12/07/01	RST-01642	W	720	Air	12.74	0.007	0	8.89
12/08/01	FB120801	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/08/01	TB120801	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Sampling Locations:**  
A: NE corner of West Broadway & Barclay  
B: SE corner of Church & Jay St.  
C: NW corner of Church & Jay St.  
C1: SW Broadway & Liberty St.  
D: East end of Liberty St. at Greenwich St.  
E: Western end of Liberty St. at South End Ave  
F: Northern median strip of Vesey & West St  
G: Church and Duane St.  
H: South side of Chase Manhattan Plaza at Pine St.  
I: NE corner of Wall St. & Broadway  
J: NE corner of Wall St. & West St  
K: West St & Albany in median strip  
L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**Key:**  
\* Sample volume (filters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysotile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
NA<sup>(3)</sup> - Not analyzed due to wet filter  
n/a - Not applicable  
NR - Not requested  
NS - Sample not submitted due to no sample volume

**PCM by NIOSH 7400:**  
M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
M1: West St. -50 yards south of Harrison St. at bulkhead  
N: South side of Pier 25 (next to volleyball ct)  
P: NE corner of South End Ave. & Albany  
Q: Barclay & West St. (center island) in proximity to USCG command post  
R: TAGA Bus Location  
S: Rector & South End  
T: Pier 6 Hellport  
U: Pier 6 Exit 2  
V: Pier 6 Bus Sign  
W: Wash Tent Common Area

**TEM (AHERA):**  
S-f/cc\*\*

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/imm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 12/08/01 0001 to 1200  
Data Validation Date: 12/11/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S-fiber**	
12/08/01	RST-01643	L	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01644	M1	625	Air	<7.0	<0.004	0	0	0	<8.00	<0.0049
12/08/01	RST-01645	N	625.9	Air	<7.0	<0.003	0	0	0	<11.43	<0.0047
12/08/01	RST-01646	J	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01647	Q	625.2	Air	<7.0	<0.003	0	0	0	<11.43	<0.0047
12/08/01	RST-01648	F	282	Air	<7.0	<0.009	0	0	0	<8.00	<0.0105
12/08/01	RST-01649	A	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01650	A-Dup	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01651	B	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01652	B-Dup	720	Air	<7.0	<0.004	1**	0	0	8.89	0.0048
12/08/01	RST-01653	C	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01654	H	705	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01655	I	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01656	D	582	Air	<7.0	<0.005	0	0	0	<8.00	<0.0053
12/08/01	RST-01657	K	550	Air	<7.0	<0.005	0	0	0	<8.00	<0.0056
12/08/01	RST-01658	T	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01659	U	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01660	V	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01661	S	710	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01662	P	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01663	E	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/08/01	RST-01664	W	720	Air	<7.0	<0.004	1***	0	0	8.89	0.0048
12/08/01	FB120801	Field Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
12/08/01	TB120801	Tip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Crystalline  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 NA<sup>(3)</sup> - Not analyzed due to wet filter  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty St.  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St.  
 H: Church and Duane St.  
 I: South side of Chase Manhattan Plaza at Pine St.  
 J: SE corner of Wall St. & Broadway  
 K: NE corner of Warren & West St.  
 L: On walkway toward North Park (PCA area (north side of Stuyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island)/n proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AHERA):**  
 Structures (#)  
 0.5µ - 5µ  
 5µ  
 S-fiber\*\*

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/imm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/08/01 1200 to 2359  
 Date Validation Date: 12/11/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/cc	S/ft <sup>3</sup>	Structures (#)	S/ftcc**
12/08/01	RST-01665	L	720	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01666	L-Duplicate	720	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01667	M	720	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01668	M-Duplicate	720	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01669	N	1924	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01670	O	1924	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01671	P	1924	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01672	F	248	Air	<7.0	<8.89	0	<0.0124
12/08/01	RST-01673	A	720	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01674	B	97	Air	<7.0	<8.89	0	<0.0318
12/08/01	RST-01675	C	720	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01676	H	231	Air	<7.0	<8.89	0	<0.0133
12/08/01	RST-01677	I	720	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01678	D	639	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01679	K	720	Air	7.64	<8.89	0	<0.0048
12/08/01	RST-01680	T	699	Air	<7.0	<8.89	0	<0.0044
12/08/01	RST-01681	U	720	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01682	V	720	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01683	S	720	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01684	P	720	Air	<7.0	<8.89	0	<0.0048
12/08/01	RST-01685	E	653	NS	<7.0	<8.89	0	<0.0048
12/08/01	RST-01686	W	720	Air	<7.0	<8.89	0	<0.0048
12/09/01	FB120901	Field Blank	0	Air	<7.0	<8.89	0	<0.0048
12/09/01	TB120901	Trip Blank	0	Air	<7.0	<8.89	0	<0.0048

**Key:**  
 \*Sample volumes (filters) is below recommended limit for the TEM method, volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: NW corner of Church & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St.  
 M1: West St. - 50 yards west of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 C: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AHERA):**  
 Structures (#)  
 S/ftcc\*\*

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/19/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/ftm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)**



NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/09/01 0001 to 1200

Data Validation Date: 12/11/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/cc	f/cc	f/cc	Structures (#)	Structures (#)	S-f/cc**
12/09/01	RST-01657	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/09/01	RST-01658	M-1	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/09/01	RST-01659	N	553	Air	<7.0	<0.005	0	<8.00	<0.0054	<0.0054
12/09/01	RST-01660	N-Duplicate	596	Air	<7.0	<0.005	0	<8.00	<0.0054	<0.0054
12/09/01	RST-01661	J	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/09/01	RST-01662	J-Duplicate	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/09/01	RST-01663	Q	599	Air	<7.0	<0.0045	0	<8.00	<0.0051	<0.0051
12/09/01	RST-01664	F	607	Air	<7.0	<0.006	0	<8.00	<0.0051	<0.0051
12/09/01	RST-01665	A	372	Air	<7.0	<0.015	0	<8.00	<0.0053	<0.0053
12/09/01	RST-01666	C	720	Air	<7.0	<0.015	0	<8.00	<0.0053	<0.0053
12/09/01	RST-01667	C	720	Air	<7.0	<0.015	0	<8.00	<0.0053	<0.0053
12/09/01	RST-01668	H	1224*	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/09/01	RST-01669	I	NS	Air	NS	NS	NS	<13.33	<0.0042	<0.0042
12/09/01	RST-01670	D	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/09/01	RST-01700	K	720	Air	10.83	0.006	0	<8.89	<0.0048	<0.0048
12/09/01	RST-01701	T	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/09/01	RST-01702	U	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/09/01	RST-01703	V	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/09/01	RST-01704	S	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/09/01	RST-01705	P	593	Air	<7.0	<0.005	0	<8.89	<0.0048	<0.0048
12/09/01	RST-01706	E	1224*	Air	<7.0	<0.002	0	<8.00	<0.0052	<0.0052
12/09/01	RST-01707	W	157	Air	<7.0	<0.017	0	<13.33	<0.0042	<0.0042
12/09/01	FB120801	Field Blank	0	Air	n/a	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
12/09/01	TB120801	Tip Blank	0	Air	<7.0	<7.0	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: Trinity (a.k.a. Church) & Liberty St.
- C-1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. & Greenwich St.
- E: Western end of Liberty St. & South End Ave
- F: Hudson St. & South End Ave
- G: Church & Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Wall St. & West St.
- K: West St. & Albany St. (east slip)
- L: One walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

Key:

- \* Sample volume (liters) is below recommended limit for TEM analysis, except for RST-01706 which had the RST-01668 sample amount collected; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Sample not submitted

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M-1: West St. - 30 yards south of Harrison St. at bulkhead
- N: South side of Pine St. & Albany St. (at bulkhead)
- P: NE corner of South End Ave. & Albany St.
- C: Barclay & West St. (corner island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Reactor & South End
- T: Pier 6 Helipad
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 December 10, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	38	09:30:00	10	00:15:00	100	0.0	3.5	19.3	108.1
2	-74.198262	40.566883	2295	1	41	10:15:00	10	00:15:00	100	0.0	1.4	11.8	585.6
3	-74.198685	40.570054	2011	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	39	09:45:00	10	00:15:00	100	0.0	0	15.4	180.0
8	-74.203019	40.561915	2083	1	27	06:45:00	10	00:15:00	100	0.0	6.1	15.6	91.1

**United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet**

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: Patrick Chan

U.S. EPA: Norrell

Date: 12/11/01

RST Site Project Manager Brennan

Location	R	L	<del>N</del> N <sub>pc</sub>	C		
DataRAM ID No.	2643	2646	2647			
Flow Rate (Liters / Minute)	2.0	2.0	2.0			
Start Time	07:55	07:57	08:17			
Stop Time	14:38	14:42	14:46			
Run Time (Minutes)	403	404	389			
Minimum Concentration (ug/m3)	0.0	4.5	0.0			
Maximum Concentration (ug/m3)	118.9	147.4	75.4			
Average Concentration (TWA) (ug/m3)	31.6	28.7	27.2			

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



(EARLY)

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/10/01 (PC)

RST: Patrick Chen

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	8:00	**	0.1	ND	21.1	ND	ND	ND	ND	ND	41.0	*	40.02
M1	8:15		ND	ND	21.0	ND	ND	ND	ND	ND	41.0		40.02
N	8:21		ND	ND	21.0	ND	ND	ND	ND	ND	***		40.02
J	8:40		ND	ND	21.0	ND	ND	ND	ND	ND			40.02
Q	8:45		ND	ND	21.0	4	ND	ND	ND	ND			40.02
F	8:50		ND	ND	21.0	7	ND	ND	ND	ND			40.02
A	8:55		ND	ND	21.0	5	ND	ND	ND	ND			40.02
B	9:05		ND	ND	21.0	4	ND	ND	ND	ND			40.02
C	9:12		ND	ND	21.1	5	ND	ND	ND	ND			40.02
H	9:25		ND	ND	21.1	4	ND	ND	ND	ND	41.0		40.02
I	9:35		ND	ND	21.0	4	ND	ND	ND	ND	41.0		40.02
D	9:50		ND	ND	21.0	6	ND	ND	ND	ND	41.0		40.02
K	9:55		ND	ND	21.1	4	ND	ND	ND	ND	41.0		40.02
T	10:10		ND	ND	21.0	4	ND	ND	ND	ND	41.0		40.02
U	10:15		ND	ND	21.0	3	ND	ND	ND	ND	41.0		40.02
Y	10:25		ND	ND	21.1	4	ND	ND	ND	ND	41.0		40.02
S	10:35		ND	ND	21.0	5	ND	ND	ND	ND	41.0		40.02
P	10:40		ND	ND	21.1	3	ND	ND	ND	ND	41.0		40.02
E	10:45		ND	ND	21.1	3	ND	ND	ND	ND	41.0		40.02

\* Equipment in for repair. HCl - Dragan CMS  
\*\* Gas valve broken, will replace. COCl<sub>2</sub> - Dragan tubes  
\*\*\* CMS malfunctioning.

Location A: Barklay and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Stuyvesant High School  
Location M: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

DATE: 12/10/01 (LATE)

RST: Patrick CL

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	12:05	*	ND	ND	21.0	1	ND	ND	ND	ND	1.0	**	20.02
M1	12:10		ND	ND	21.0	1	ND	ND	ND	ND	1.0		20.02
N	12:15		ND	ND	21.1	3	ND	ND	ND	ND	1.0		20.02
J	12:20		ND	ND	21.1	1	ND	ND	ND	ND	1.0		20.02
Q	12:25		ND	ND	21.0	4	ND	ND	ND	ND	1.0		20.02
F	12:30		ND	ND	21.1	5	ND	ND	ND	ND	1.0		20.02
A	12:35		ND	ND	21.0	4	ND	ND	ND	ND	1.0		20.02
B	12:40		ND	ND	21.1	2	ND	ND	ND	ND	1.0		20.02
C	12:45		ND	ND	21.0	2	ND	ND	ND	ND	1.0		20.02
H	1:00		ND	ND	21.0	6	ND	ND	ND	ND	1.0		20.02
I	1:15		ND	ND	21.1	3	ND	ND	ND	ND	1.0		20.02
D	1:20		ND	ND	21.1	2	ND	ND	ND	ND	1.0		20.02
K	1:28		ND	ND	21.1	ND	ND	ND	ND	ND	1.0		20.02
T	1:35		ND	ND	21.1	ND	ND	ND	ND	ND	1.0		20.02
U	1:38		ND	ND	21.0	ND	ND	ND	ND	ND	1.0		20.02
Y	1:43		ND	ND	21.1	2	ND	ND	ND	ND	1.0		20.02
S	1:54		ND	ND	21.1	2	ND	ND	ND	ND	1.0		20.02
P	1:57		ND	ND	21.1	3	ND	ND	ND	ND	1.0		20.02
E	2:00		ND	ND	21.1	4	ND	ND	ND	ND	1.0		20.02

\* Gas Valve broken, will replace.  
\*\* Equipment in for repair.

HCl - Draeger CMS  
COCl<sub>2</sub> - Draeger tubes

Location A: Berklay and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Stuyvesant High School  
Location M1: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/11/01 (LATE)

RST: Patrick Chan

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
	12:25	ND	ND	ND	21.0	1	ND	ND	ND	ND	<1.0	*	<0.02
M1	12:30	ND	ND	ND	21.0	3	ND	ND	ND	ND	4.0		0.02
N	12:33	ND	ND	ND	21.0	4	ND	ND	ND	ND	4.0		0.02
J	12:40	ND	ND	ND	21.0	7	ND	ND	ND	ND	4.0		0.02
Q	12:45	ND	ND	ND	21.1	5	ND	ND	ND	ND	4.0		0.02
E	12:55	ND	ND	ND	21.1	3	ND	ND	ND	ND	4.0		0.02
A	1:03	ND	ND	ND	21.1	6	ND	ND	ND	ND	4.0		0.02
B	1:10	ND	ND	ND	21.1	4	ND	ND	ND	ND	4.0		0.02
C	1:13	ND	ND	ND	21.1	6	ND	ND	ND	ND	4.0		0.02
H	1:25	ND	ND	ND	21.1	3	ND	ND	ND	ND	4.0		0.02
I	1:32	ND	ND	ND	21.1	7	ND	ND	ND	ND	4.0		0.02
D	1:40	ND	ND	ND	21.0	13	ND	ND	ND	ND	4.0		0.02
K	1:44	ND	ND	ND	21.0	8	ND	ND	ND	ND	4.0		0.02
T	1:50	ND	ND	ND	21.0	3	ND	ND	ND	ND	4.0		0.02
U	1:53	ND	ND	ND	21.0	1	ND	ND	ND	ND	4.0		0.02
V	1:55	ND	ND	ND	21.1	6	ND	ND	ND	ND	4.0		0.02
S	2:05	ND	ND	ND	21.0	8	ND	ND	ND	ND	4.0		0.02
P	2:10	ND	ND	ND	21.1	7	ND	ND	ND	ND	4.0		0.02
Z	2:13	ND	ND	ND	21.0	8	ND	ND	ND	ND	4.0		0.02

\* EQUIPMENT IN FOR REPAIR

HCL - DRAGER CAS  
COCl<sub>2</sub> - DRAGER T805

Location A: Berkley and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Shoyvesant High School  
Location M: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/11/01 (EARLY)

RST: Patrick Chan

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>3</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	8:03	ND	ND	ND	21.0	ND	ND	ND	ND	ND	21.0	*	20.02
M1	8:10	ND	ND	ND	21.0	1	ND	ND	ND	ND	41.0		20.02
N	8:17	ND	ND	ND	21.0	3	ND	ND	ND	ND	21.0		20.02
J	8:30	ND	ND	ND	21.0	3	ND	ND	ND	ND	21.0		20.02
<del>Empty grid rows</del>													

Rain at 8:35 AM + Air monitoring discontinued.

- Location A: Barklay and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M1: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

\* Equipment in for repair.



ENVIRONMENTAL RESPONSE TEAM  
AIR MONITORING WORK SHEET

Page \_\_\_ of \_\_\_

Lockheed Martin Corp.  
REAC Project, Edison, NJ  
EPA Contract No. 68-C99-223



Site: LJTC  
Prepared By: FERRIOLA/PATEL  
Date: 12/11/01

WA #: \_\_\_\_\_  
EPA/ERT WAM: \_\_\_\_\_  
REAC Task Leader: \_\_\_\_\_

LOCATION	HDI	MDI	TDI	Time
SE corner of	ND	ND	1 ppb	3:10 PM
South tower -	"	"	2 ppb	3:13
* 1st zone on box	"	"	ND	3:16
below	"	"	2 ppb	3:19
	4 ppb	"	2 ppb	3:22
	2 ppb	"	2 ppb	3:25
	ND	ND	2 ppb	3:28
	3 ppb	"	2 ppb	3:31
	2 ppb	"	1 ppb	3:34
	ND	ND	1 ppb	3:37
	"	"	2 ppb	3:40
	"	"	2 ppb	3:43
	ND	ND	2 ppb	3:46

General Comments:





ENVIRONMENTAL RESPONSE TEAM  
AIR MONITORING WORK SHEET

Page \_\_\_ of \_\_\_

Lockheed Martin Corp.  
REAC Project, Edison, NJ  
EPA Contract No. 68-C99-223



Site: WJL - Austin Tobin Plaza

WA #: \_\_\_\_\_

Prepared By: FERRIOLA / PATEL

EPA/ERT WAM: \_\_\_\_\_

Date: 12/11/01

REAC Task Leader: \_\_\_\_\_

LOCATION	HDT	MDI	TDI	Time
Austin Tobin Plaza	ND	ND	ND	2:31 PM
(along inside	"	"	"	2:34
door)	"	"	"	2:37
"	"	"	"	2:40
"	"	"	"	2:43
"	"	"	"	2:46
"	"	"	1 ppb	2:49
"	"	"	1 ppb	2:52
"	"	"	1 ppb	2:54
"	"	"	ND	2:57
"	"	"	1 ppb	3:00
ND	ND	ND	ND	3:05
ND	ND	ND	1 ppb	3:06

General Comments:



ENVIRONMENTAL RESPONSE TEAM  
AIR MONITORING WORK SHEET

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Lockheed Martin Corp.  
REAC Project, Edison, NJ  
EPA Contract No. 68-C99-223



Site: LTC - West Side & Liberty

WA #: \_\_\_\_\_

Prepared By: FERRIS/KTGL

EPA/ERT WAM: \_\_\_\_\_

Date: 12/11/01

REAC Task Leader: \_\_\_\_\_

LOCATION	HDI	MDI	TDI	Time
LTC	ND	ND	ND	1:45 PM
WEST & LIBERTY	"	"	"	1:48
(SW barrier along West St)	2 ppb	"	1 ppb	1:51
↓ downwind of metal bearing operation	4 ppb	"	ND	1:54
	2 ppb	"	"	1:57
	ND	"	"	2:00
	"	"	"	2:03
	"	"	"	2:06
	"	"	1 ppb	2:09
	"	"	ND	2:12
	"	"	1 ppb	2:15
	"	"	1 ppb	2:18
	"	"	1 ppb	2:21

General Comments:



ENVIRONMENTAL RESPONSE TEAM  
AIR MONITORING WORK SHEET

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Lockheed Martin Corp.  
REAC Project, Edison, NJ  
EPA Contract No. 68-C99-223



Site: WTC - NORTH TOWER

WA #: \_\_\_\_\_

Prepared By: FERRIOLA / PATOL

EPA/ERT WAM: \_\_\_\_\_

Date: 12/11/01

REAC Task Leader: \_\_\_\_\_

LOCATION	LDL = 1 ppb HDI	LDL = 2 ppb MDI	LDL = 2 ppb TDI	Time
NORTH TOWER	ND	ND	2 ppb	11:00 AM
(NW CORNER)	ND	ND	3 ppb	11:03
(near heavy equipment operation)	"	"	2 ppb	11:06
	"	"	2 ppb	11:09
	3 ppb	ND	2 ppb	11:12
	3 ppb	"	2 ppb	11:15
	2 ppb	"	2 ppb	11:19
	ND	ND	3 ppb	11:21
	"	"	3 ppb	11:24
	"	"	2 ppb	11:27
	2 ppb	"	3 ppb	11:30
	2 ppb	"	3 ppb	11:33
	ND	ND	2 ppb	11:36

General Comments:

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/11/01

File Name	NYC417	NYC418	NYC419	NYC420	NYC422	NYC421
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	Austin Tobin Plaza	North Tower Plume	South Tower Plume
Sample Number			AC7208	A07210	A07207	A07209
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	250 mL	250 mL
Reporting Limit (RL)	20	20	20	20	20	20
Sample Conc. Units	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Propylene	RL	RL	RL	RL	1700	36
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	69	28
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	2000	48
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	51	RL
Chloroethane	RL	RL	RL	RL	110	RL
Trichlorofluoromethane	RL	RL	RL	RL	110	58
Isopropyl Alcohol	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	23	340	48
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	23	RL
1,3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	69	RL
MTBE	RL	RL	RL	RL	RL	54
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	110	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	90	RL
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	110	RL
Tetrahydrofuran	RL	RL	RL	RL	320	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	32	28
Cyclohexane	RL	RL	RL	RL	26	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	2100	29
Heptane	RL	RL	RL	RL	100	RL
Trichloroethene	RL	RL	RL	RL	100	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	73	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	100	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	810	70
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	110	RL
Ethylbenzene	RL	RL	RL	RL	1500	22
m&p-Xylenes	RL	RL	RL	RL	170	110
o-Xylene	RL	RL	RL	RL	84	51
Styrene	RL	RL	RL	RL	300	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	78	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	83	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	66	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	32	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	32	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Thursday, December 13, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 13, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 43 samples taken in and around ground zero from December 9 through December 10. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on December 7 and 8 for a total of 49 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 3,333, with 29 samples above the standard (27 of these were collected prior to September 30, one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

**Asbestos** - Additional asbestos monitors have been placed at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens). Asbestos samples collected on December 7 and 8 from these locations showed no exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Thirty-seven air samples collected on December 9 and 10 were analyzed for asbestos. All of these samples were below the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on December 12 at the Staten Island Landfill. No significant readings reported.

**Particulate Monitoring** - EPA used portable monitors to collect samples on December 12 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on December 12 in the

direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene exceeded the OSHA standard at one location on the debris pile at the North Tower. Two of three samples taken at EPA's Wash Tent (West St. and Murray) and Austin Tobin Plaza showed no detectable levels of benzene.

**Direct Air Readings -** EPA did air monitoring in and around ground zero for a number of compounds on December 12. No significant readings were found. Low levels of carbon monoxide were detected. *Correction:* EPA's Dec. 7 Daily Summary reported that results of samples EPA took on December 4 and 6 for a series of isocyanate compounds (hexamethylene diisocyanate, bisphenyl isocyanate and toluene-2,4-diisocyanate) in and around ground zero were non-detect. Further analysis shows that EPA did detect low levels of toluene-2,4-diisocyanate were identified at or just below the detection limit. All levels were below the OSHA permissible exposure limits.

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U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Thursday, December 13, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Dec 9, 1200 - 2359 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 10, 0001 - 1200 hrs)

All 21 samples analyzed were below the TEM AHERA standard.

1 sample (Location S - duplicate) was not collected due to equipment malfunction.

Landfill Ambient Air Sampling Locations

Fresh Kills (Dec 9, 0809 - 2230) - Asbestos

All 17 samples analyzed were below the TEM AHERA standard.

1 sample ("Wash" Location #12A) was not collected due to equipment malfunction.

1 sample ("Offsite" Location #18) was not submitted for lab analysis since access to the pump could not be obtained. Results and totals included below with data for Dec. 10.

Fresh Kills (Dec 10, 0853 - Dec 11, 0110) - Asbestos

All 20 samples analyzed were below the TEM AHERA standard.

Fresh Kills (Dec 12) - Particulate Monitoring (Dataram)

Nothing of significance reported at five stations based on daily average concentrations.

Ambient Air Sampling Locations

NYC / ER (Nov 25) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Chambers St./West St. (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St. Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 6 samples were collected from these monitoring sites.

All of the samples were below the TEM AHERA standard.

Samples were not collected from Sites 6 and 9 during this period.

## NYC / ER (Dec 7-8) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Chambers St./West St. (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St. Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 13 samples were collected from these monitoring sites.

All of the samples were below the TEM AHERA standard.

Samples were not collected from Sites 5 and 6 on Dec. 8.

Only one sample is presented for Site 8 during this two day period.

## NYC / ER (Dec 12) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.

Instruments operated approximately 6 hours.

Station L values ranged from 0.4 to 138.0 ug/m<sup>3</sup> with an average of 53.4 ug/m<sup>3</sup>.

Station N values ranged from 34.3 to 401.3 ug/m<sup>3</sup> with an average of 49.1 ug/m<sup>3</sup>.

Station R values ranged from 18.5 to 80.1 ug/m<sup>3</sup> with an average of 51.0 ug/m<sup>3</sup>.

## NYC / ER (Dec 12) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) in the debris area in the plume at ground level.

2 of the 3 other samples (Wash Tent, Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

Direct Reading Instruments

## NYC / ER (Dec 6)

**Errata:** Previously reported on the December 7 Sampling Situation Report that HDI, MDI, and TDI were not detected. Should actually read that the presence of low levels of TDI (toluene-2,4-diisocyanate) were identified at or just below the detection limit (2 ppb) at Locations A, B, C, D, R, and 3B from the fixed ambient air sampling stations. As a point of comparison, all levels detected were below the OSHA PEL for TDI (0.02 ppm or 20 ppb).

**Note:** These measurements are 3-minute grab samples.

## NYC / ER (Dec 11)

**Errata:** Previously reported on the December 12 Sampling Situation Report that the results from the monitoring at the fixed ambient air sampling stations have not been received from the field. Should actually read that **measurements were not collected** from these locations.



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NYC / ER (Dec 12)

Nothing of significance reported.  
Low levels of carbon monoxide evident during the monitoring periods.

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/09/01 0809 to 2230  
 Data Validation Date: 12/12/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (#)	S-f/cc**	
12/09/01	LF01462	P-1	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01463	P-2	550	Air	<7.0	<0.005	0	<8.75	<0.0061
12/09/01	LF01464	P-3	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01465	P-4	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01466	P-5	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01467	P-6	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01468	P-7	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01469	P-8	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01470	W-11	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01471	W-12A	NC	Air	NC	NC	NC	NC	NC
12/09/01	LF01472	W-12B	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01473	B-13	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01474	B-14	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01475	T-15	336	Air	34.39	0.039	0	7.97	0.0690
12/09/01	LF01476	T-16	720	Air	15.29	0.009	1**	8.75	0.0047
12/09/01	LF01477	O-17	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01478	O-18	NS	Air	NS	NS	NS	NS	NS
12/09/01	LF01479	O-19	720	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01480	MPHS-20	690	Air	<7.0	<0.004	0	<8.75	<0.0047
12/09/01	LF01481	Lot Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>
12/09/01	LF01482	Trip Blank	0	Air	<7.0	n/a	NA <sup>(3)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected  
 NS - Sample not submitted to the laboratory for analysis at this time due to closed-off access to sampling station

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/10/01 0853 to 12/11/01 0110<sup>(a)</sup>  
 Data Validation Date: 12/12/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume <sup>e</sup>	Matrix	f/mm <sup>2</sup>	f/cc	TEM (AHERA)		S-f/cc**	
							Structures (#)	5µ - 5µ		
12/09/01	LF01478	O-18 <sup>(a)</sup>	682	Air	<7.0	<0.004	0	0	<7.87	<0.0046
12/10/01	LF01483	P-1	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/10/01	LF01484	P-2	578	Air	<7.0	<0.005	0	0	<8.75	<0.0058
12/10/01	LF01485	P-3	720	Air	<7.0	<0.004	1***	0	6.75	0.0047
12/10/01	LF01486	P-4	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/10/01	LF01487	P-5	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/10/01	LF01488	P-6	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/10/01	LF01489	P-7	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/10/01	LF01490	P-8	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/10/01	LF01491	W-11	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/10/01	LF01492	W-12A	720	Air	<7.0	<0.004	1***	35	35	0.0187
12/10/01	LF01493	W-12B	720	Air	22.93	0.012	0	0	<8.75	<0.0047
12/10/01	LF01494	B-13	620	Air	11.46	0.007	0	0	<7.87	<0.0049
12/10/01	LF01495	B-14	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/10/01	LF01496	T-15	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/10/01	LF01497	T-16	720	Air	11.46	0.006	0	1***	8.75	0.0047
12/10/01	LF01498	O-17	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/10/01	LF01499	O-18	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/10/01	LF01500	MPHS-20	720	Air	7.64	0.004	0	0	<8.75	<0.0047
12/10/01	LF01501	Lot Blank	0	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/10/01	LF01502	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/10/01	LF01503	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile

NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected  
 NS - Sample not submitted  
 (a) - Sample LF01478, O-18, was collected on 12/09/01 0848 to 1951

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 12/09/01 1200 to 2359  
Data Validation Date: 12/12/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc**	
12/09/01	RST-01708	M1	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01709	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01710	N	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01711	J	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01712	F	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01714	A	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01715	B	568	Air	<7.0	<0.005	0	<8.89	<0.0054	
12/09/01	RST-01716	C	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01717	H	1003	Air	<7.0	<0.003	0	<11.43	<0.0044	
12/09/01	RST-01718	I	476	Air	<7.0	<0.006	0	<8.00	<0.0065	
12/09/01	RST-01719	D	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01720	K	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01721	T	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01722	T-Dup	540	Air	<7.0	<0.005	0	<8.00	<0.0057	
12/09/01	RST-01723	U	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01724	U-Dup	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01725	V	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01726	S	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01727	P	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	RST-01728	W	1224	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/09/01	FB121001	Field Blank	720	Air	<7.0	<0.004	0	<8.89	<0.0048	
12/12/01	TB121001	Trip Blank	0	Air	n/a	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	

**Sampling Locations:**  
 A: SE corner of West Broadway & Barclay  
 B: SE corner of Church & Duane St  
 C: Trinity (s.k.a. Church) & Liberty  
 C1: SW corner of Broadway & Liberty St  
 D: East end of Albany St. at Greenwich St.  
 E: Western median strip of Vesey & West St  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method except for sample RST-01728; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 NA<sup>(3)</sup> - Not analyzed due to wet filter  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted due to no sample volume

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 C: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AHERA):**  
 M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 C: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Heliport  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
**Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM); 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)**

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/10/01 0001 to 1200  
 Data Validation Date: 12/12/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	0.5µ-5µ	5µ	S-f/cc**	
12/10/01	RST-01730	L	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01731	M1	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01732	N	906.1	Air	<7.0	<0.003	0	0	<11.43	<0.0048
12/10/01	RST-01733	J	711	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01734	Q	979.2	Air	<7.0	<0.003	0	0	<11.43	<0.0048
12/10/01	RST-01735	F	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01736	A	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01737	B	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01738	C	638	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01739	H	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01740	I	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01741	D	718	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01742	K	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01743	T	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01744	U	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01745	V	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01746	V-Dup	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01747	S	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	-	S-Dup	NS	Air	NS	NS	NS	NS	NS	NS
12/10/01	RST-01748	P	562	Air	<7.0	<0.005	0	0	<8.00	<0.0056
12/10/01	RST-01749	E	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	RST-01750	W	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/10/01	FB121001	Field Blank	0	Air	<7.0	ns	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/10/01	TB121001	Tribe Blank	0	Air	<7.0	ns	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- D: SW corner of Broadway & Liberty St.
- E: East end of Albany St. at Greenwich St.
- F: Western end of Liberty St. at South End Ave
- G: Northern median strip of Vesey & West St.
- H: Church and Duane St.
- I: South side of Chase Manhattan Plaza at Pine St.
- J: SE corner of Wall St. & Broadway
- K: NE corner of Warren & West St.
- L: West St. & Albany in median strip
- M: On walkway toward North Park area (north side of Suyvesant High), access to TAGA bus area

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysothile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- NA<sup>(3)</sup> - Not analyzed due to wet filter
- n/a - Not applicable
- NR - Not requested
- NS - Sample not submitted due to no sample volume

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/07/01 1200 to 2400  
 Data Validation Date: 12/12/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
12/07/01	7083-18-0071	Park Row	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/07/01	7083-19-0071	BMCC	1368	Air	<7.0	<0.002	0	16	16	0.0045
12/07/01	7083-20-0071	Coast Guard	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/07/01	7083-15-0070	Manhattan PS # 143	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/07/01	7084-08-0061	Bronx PS #154	1390	Air	<7.0	<0.002	0	0	<16.00	<0.0044
12/07/01	7095-12-0065	Queens PS #199	1238	Air	<7.0	<0.002	0	0	<16.00	<0.0050
12/07/01	7095-98-0067	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/07/01	NS	Staten Island PS #44	NS	Air	NS	NS	NS	NS	NS	NS

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysotile
- NR - analysis not requested
- NS - Sample not submitted for analysis at this time
- n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 11/25/01 1200 to 2400  
 Data Validation Date: 12/05/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
11/25/01	7097-18-0052	Staten Is. PS #44	778***	Air	<7.0	<0.003	0	0	<8.89	<0.0044
11/25/01	7095-96-0085	Brooklyn PS #274	1092***	Air	<7.0	<0.002	0	0	<13.33	<0.0047
11/25/01	7094-09-0050	Bronx PS #154	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
11/25/01	7093-15-0058	Manhattan PS #143	-	Air	<7.0	n/a	0	0	<8.00	n/a
11/25/01	7096-12-0053	Queens PS #199	-	Air	<7.0	n/a	0	0	<8.00	n/a
11/25/01	7093-18-0059	Park Row <sup>(1)</sup>	1248	Air	<7.0	<0.002	0	0	<13.33	<0.0041
11/25/01	7093-19-0089	BMCC	1180***	Air	<7.0	<0.002	0	0	<13.33	<0.0044
11/25/01	7093-20-0059	Coast Guard	1152***	Air	<7.0	<0.002	0	0	<13.33	<0.0045

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- <sup>(1)</sup> Previously identified as Pace University
- n/a - Not applicable due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/08/01 1200 to 2400<sup>(a)</sup> Data Validation Date: 12/11/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L) <sup>(b)</sup>	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc <sup>c</sup>	
12/08/01	7093-18-0072	Park Row	1342	Air	<7.0	<0.002	0	0	<16.00	<0.0046
12/08/01	7093-19-0072	BlMCC	1206	Air	<7.0	<0.002	0	0	<13.33	<0.0043
12/08/01	7093-20-0072	Coast Guard	816***	Air	<7.0	<0.003	0	0	<10.00	<0.0047
12/08/01	-	Manhattan PS # 143	NS	Air	NS	NS	NS	NS	NS	NS
12/08/01	-	Bronx PS #154	NS	Air	NS	NS	NS	NS	NS	NS
12/08/01	7096-12-0066	Queens PS #199	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/08/01	7095-98-0088	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/07/01	7097-18-0064	Staten Island PS #44	1440	Air	7.64	0.002	0	0	<16.00	<0.0043

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysotile
- (a) - Sample 7097-18-0064, Staten Island PS #44, was collected on 12/07/01 1200 to 2400
- NR - analysis not requested
- NS - Sample not submitted for analysis
- n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 December 12, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	44	11:00:00	10	00:15:00	100	0.0	31.4	54.0	151.0
2	-74.198262	40.566883	2295	1	44	11:00:00	10	00:15:00	100	0.0	23.3	35.4	95.6
3	-74.198685	40.570054	2011	1	43	10:45:00	10	00:15:00	0	0.0	20.3	43.9	129.1
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0.0	0.0	0.0
7	-74.205414	40.560434	2294	1	30	07:30:00	10	00:15:00	100	0.0	37.1	59.0	182.2
8	-74.203019	40.561915	2083	1	29	07:15:00	10	00:15:00	100	0.0	39.5	57.7	141.2



Lockheed Martin Corp.  
 REAC Project, Edison, NJ  
 EPA Contract No. 69-C99-223

Site: NYC ERL  
 Prepared By: Dubois  
 Date: 12/6/01

WA #: R1A00236  
 EPA/ERT WAM: Singhvi  
 REAC Task Leader: Bradstreet

Instrument	EPA #	Location/Description	Reading	Time
SPM-HBI		TARA	ND	0939
SPM-MDE		TARA	ND	0939
SPM-TSE		TARA	ND 2 ppb	0939
SPM-HDI	A	Barclay + W. Broadway	ND	0946
SPM-MDI	A	"	ND	0946
SPM-TDI	A	"	2 ppb	0946
SPM-HDE	2B	Church + Vesey	ND	0950
SPM-MDE	2B	"	ND	0950
SPM-TDE	2B	"	2 ppb	0950
SPM-HDI	B	Church + Bay	ND	0956
SPM-MDI	B	"	ND	0956
SPM-TDI	B	"	2 ppb	0956
SPM-HDI	C	Liberty + Church	ND	0959
SPM-MDI	C	"	ND	0959
SPM-TDI	C	"	1 ppb	0959
SPM-HDI	D	Freenich + Albany	ND	1006
SPM-MDI	D	"	ND	1006
SPM-TDI	D	"	2 ppb	1006

General Comments:



Lockheed Martin Corp.  
 REAC Project, Edison, NJ  
 EPA Contract No. 69-C99-223

Site: NYC ER  
 Prepared By: D. Bos  
 Date: 12/6/01

WA #: RLA00236  
 EPA/ERT WAM: Singhvi  
 REAC Task Leader: Bradstreet

Instrument	EPA #	Location/Description	Reading	Time
SPM-HDI		S - Rector + South End	ND	1022
PM-NDI		S - Rector + South End	ND	1022
SPM-TDI		S - Rector + South End	ND	1022
SPM-HDI		P ALBANY + South End	ND	1025
SPM-NDI		P "	ND	1025
SPM-TDI		P "	ND	1025
SPM-HDI		E Liberty St + South End	ND	1029
SPM-NDI		E "	ND	1029
SPM-TDI		E "	ND	1029

General Comments:



Lockheed Martin Corp.  
 REAC Project, Edison, NJ  
 EPA Contract No. 69-C99-123

Site: NYC ER  
 Prepared By: Dubois  
 Date: 12/6/01

WA#: RIA00236  
 EPA/ERT WAM: Singhvi  
 REAC Task Leader: Bradstreet

Instrument	EPA #	Location/Description	Reading	Time
MDE-SPM		A - Barclay St + W.	ND	1557
PMI-SPM		A	ND	1557
HDI-SPM		A	ND	1557
MDE-SPM		3B	ND	1602
TDE-SPM		3B	ND	1602
HDI-SPM		3B	ND	1602
MDE-SPM		B	ND	1606
TDE-SPM		B	ND	1606
HDI-SPM		B	ND	1606
MDE-SPM		C	ND	1611
TDE-SPM		C	ND	1611
HDI-SPM		C	ND	1611
MDE-SPM		D	ND	1616
TDE-SPM		D	ND	1616
HDI-SPM		D	ND	1616
MDE-SPM		P	ND	1624
TDE-SPM		P	ND	1624
HDI-SPM		P	ND	1624
MDE-SPM		S	ND	1629
TDE-SPM		S	ND	1629
HDI-SPM		S	ND	1629
MDE-SPM		E	ND	1633
TDE-SPM		E	ND	1633
HDI-SPM		E	ND	1633
MDE-SPM		TAB	ND	1843
TDE-SPM		TAB	ND	1843
HDI-SPM		TAB	ND	1843

1799

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

DATE: 12/12/01 EARLY

RST: Miranda

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	C <sub>1</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0818	ND	ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
M-1	0830	ND	ND	ND	20.8	10	ND	ND	ND	ND	ND	ND	ND
N	0840	ND	ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
J	0900	ND	ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
Q	0907	ND	ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
F	0911	ND	ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
A	0918	ND	ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
B	0922	ND	ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
C	0930	ND	ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
H	0939	ND	ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
I	0947	ND	ND	ND	20.8	2	ND	ND	ND	ND	ND	ND	ND
D	0955	ND	ND	ND	20.8	2	ND	ND	ND	ND	ND	ND	ND
K	1000	ND	ND	ND	20.8	1	ND	ND	ND	ND	ND	ND	ND
T	1014	ND	ND	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
U	1016	ND	ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
V	1021	ND	ND	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
S	1030	ND	ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
P	1034	ND	ND	ND	20.8	1	ND	ND	ND	ND	ND	ND	ND
E	1047	ND	ND	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND

HCL, HF, COCl<sub>2</sub>-SPM

- Location A: Barkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Stuyvesant High School
- Location M1: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Recur and South End
- Location T: Pier 6 Heliport
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location



DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/12/01

File Name	NYC426	NYC427	NYC428	NYC429	NYC433	NYC430
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	Austin Tobin Plaza	North Tower Plume	South Tower Plume
Sample Number			A07211	A07212	A07213	A07214
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	250 mL	250 mL
Reporting Limit (RL)	20	20	20	20	20	20
Sample Conc. Units	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Propylene	RL	RL	RL	RL	6800	130
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	4900	160
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	48	RL
Chloroethane	RL	RL	RL	RL	160	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	4400	510	1900	1200
Acetone	RL	RL	RL	RL	7100	3100
Trichlorofluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylenes Chloride	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	340	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	1800	420
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	1100	94
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	8400	300
Heptane	RL	RL	RL	RL	210	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	250	65
Methyl Isobutyl Ketone	RL	RL	RL	RL	140	64
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	4600	51
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	140	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	140	RL
Ethylbenzene	RL	RL	RL	RL	6000	30
m,p-Xylenes	RL	RL	RL	RL	350	RL
o-Xylene	RL	RL	RL	RL	180	RL
Styrene	RL	RL	RL	RL	1200	26
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	130	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	110	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	79	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Friday, December 14, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 14, 2001 at 4:30 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 44 samples taken in and around ground zero from December 10 through December 11. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 3,377, with 29 samples above the standard (27 of these were collected prior to September 30, one was collected on October 9 and the other on November 27).

**Staten Island Landfill:**

**Air (Asbestos)** - Nineteen air samples collected on December 11 were analyzed for asbestos. One of these samples, taken at "Barge" Location #14, was above the school re-entry standard. All other eighteen samples were below the standard.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on December 13 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene exceeded the OSHA standard at two locations on the debris pile -- the North Tower and South Tower. Two other samples taken at EPA's Wash Tent (West St. and Murray) and Austin Tobin Plaza showed no detectable levels of benzene. One sample results also showed an exceedance above the OSHA standard for 1,3-Butadiene at the South Tower. There was no detection for 1,3-Butadiene in three other samples taken.



U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Friday, December 14, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Dec 10, 1200 - 2359 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 11, 0001 - 1200 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

Fresh Kills (Dec 11, 0810 - 2129) - Asbestos

1 of 19 samples analyzed was above the TEM AHERA standard.  
Exceedance of the TEM AHERA standard occurred at "Barge" Location #14  
(104.99 S/mm<sup>2</sup>).

Ambient Air Sampling Locations

NYC / ER (Dec 13) - Particulate Monitoring (Dataram)

No measurements were taken at the three particulate monitoring locations (Stations L, N, R) due to weather conditions.

NYC / ER (Dec 13) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at two locations (North Tower and South Tower) in the debris area in the plume at ground level.  
Benzene level measured at the South Tower was 30 ppm.  
Both of the other samples (Wash Tent, Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).  
1,3-Butadiene exceeded OSHA PEL (1 ppm) at one location (South Tower) on the debris pile in the plume at ground level.  
1,3-Butadiene was not detected above the detection limit (20 ppbv) in the other 3 samples.

Direct Reading Instruments

NYC / ER (Dec 13)

No measurements were taken due to weather conditions.

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/11/01 0810 to 2129  
 Data Validation Date: 12/13/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					fmm <sup>2</sup>	f/cc	Structures (#)	S/µm <sup>2</sup>	S-f/cc**	
12/11/01	LF01504	P-1	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01505	P-2	573	Air	<7.0	<0.005	0	0	<7.87	<0.0053
12/11/01	LF01506	P-3	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01507	P-4	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01508	P-5	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01509	P-6	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01510	P-7	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01511	P-8	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01512	W-11	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01513	W-12A	720	Air	11.48	0.006	0	0	<8.75	<0.0047
12/11/01	LF01514	W-12B	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01515	B-13	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01516	B-14	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01517	T-15	720	Air	22.83	0.012	1***	1***	04.99	0.0561
12/11/01	LF01518	T-16	720	Air	15.29	0.008	0	0	<8.75	<0.0047
12/11/01	LF01519	O-17	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01520	O-18	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01521	O-19	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01522	MPHS-20	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/11/01	LF01523	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/11/01	LF01524	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected  
 NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/µm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Data Validation Date: 12/13/01  
Sampling Date and Time: 12/10/01 1200 to 2359

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)	
					f/mm <sup>2</sup>	f/cc	Structures (#)	S-f/cc**
12/10/01	RST-07151	L	720	Air	<7.0	<0.004	0	<8.85
12/10/01	RST-07152	M1	720	Air	<7.0	<0.004	0	<8.85
12/10/01	RST-07153	N	720	Air	<7.0	<0.004	0	<8.85
12/10/01	RST-07154	J	720	Air	7.64	0.004	0	<8.85
12/10/01	RST-07155	Q	720	Air	<7.0	<0.004	1***	8.89
12/10/01	RST-07156	F	720	Air	<7.0	<0.004	0	<8.89
12/10/01	RST-07157	A	720	Air	<7.0	<0.004	0	<8.89
12/10/01	RST-07158	A-Dup	720	Air	<7.0	<0.004	0	<8.89
12/10/01	RST-07159	B	720	Air	8.82	0.005	0	<8.89
12/10/01	RST-07160	B-Dup	720	Air	<7.0	<0.004	0	<8.89
12/10/01	RST-07161	C	720	Air	<7.0	<0.004	0	<8.89
12/10/01	RST-07162	H	1224*	Air	<7.0	<0.002	0	<13.33
12/10/01	RST-07163	I	720	Air	<7.0	<0.004	0	<8.89
12/10/01	RST-07164	D	720	Air	<7.0	<0.004	0	<8.89
12/10/01	RST-07165	K	720	Air	<7.0	<0.004	0	<8.89
12/10/01	RST-07166	T	720	Air	<7.0	<0.004	0	<8.89
12/10/01	RST-07167	U	655	Air	<7.0	<0.004	0	<8.89
12/10/01	RST-07168	V	720	Air	0.01	0.004	0	<8.89
12/10/01	RST-07170	S	721	Air	<7.0	<0.004	0	<8.89
12/10/01	RST-07171	E	1033	Air	<7.0	<0.004	0	<8.89
12/10/01	RST-07172	W	720	Air	<7.0	<0.003	0	<13.33
12/11/01	FB121101	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/11/01	TB121101	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>

**Sampling Locations:**  
A: NE corner of West Broadway & Barclay  
B: SE corner of Church & 7th St.  
C: 1st Ave. at Church & Liberty St.  
D: SW corner of Church & Liberty St.  
E: East end of Albany St. at Greenwich St.  
F: West end of Liberty St. at South End Ave.  
G: Northern median strip of Vesey & West St.  
H: Church and Duane St.  
I: South side of Chase Manhattan Plaza at Pine St.  
J: SE corner of Wall St. & Broadway  
K: NE corner of Warren & West St.  
L: On walkway toward North Park rec area (north side of Suyvesant Plg), access to TAGA bus area

**Key:**  
\* Sample volume (liters) is below recommended limit for the TEM method, except for sample RST-07162; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysotile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
NA<sup>(3)</sup> - Not analyzed due to wet filter  
n/a - Not applicable  
NR - Not analyzed  
NS - Sample not submitted due to no sample volume

**PCM by NIOSH 7400:**  
M: Western end of Harrison St. at West St.  
M1: West St. - 50 yards south of Harrison St. at bulkhead (on trees next to bulkhead)  
N: South side of Pier 25 (next to volleyball ct)  
P: NE corner of South End Ave. & Albany  
Q: Barclay & West St. (center island) in proximity to JUSCS command post  
R: TAGA Bus Location  
S: Rector & South End  
T: Pier 6 Heliport  
U: Pier 6 Exit 2  
V: Pier 6 Bus Sign  
W: Wash Tank Common Area

**TEM (AHERA):**  
M: Western end of Harrison St. at West St.  
M1: West St. - 50 yards south of Harrison St. at bulkhead  
N: South side of Pier 25 (next to volleyball ct)  
P: NE corner of South End Ave. & Albany  
Q: Barclay & West St. (center island) in proximity to JUSCS command post  
R: TAGA Bus Location  
S: Rector & South End  
T: Pier 6 Heliport  
U: Pier 6 Exit 2  
V: Pier 6 Bus Sign  
W: Wash Tank Common Area

**NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94**  
**Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)**  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 12/11/01 00:01 to 1:20  
Data Validation Date: 12/13/01

Sampling Location	Sample No.	Sample Volume	Matrix	PCM by NIOSH 7400		TEM (AHERA)			S-fiber**
				f/m <sup>2</sup>	f/cc	Structures (#)	5µ	5µm <sup>2</sup>	
12/11/01 RST-01774	M1	546	Air	<7.0	<0.004	0	0	<3.89	<0.0048
12/11/01 RST-01775	N	896.2	Air	<7.0	<0.003	0	0	<3.89	<0.0059
12/11/01 RST-01776	J	720	Air	<7.0	<0.004	0	0	<3.89	<0.0048
12/11/01 RST-01777	Q	4224*	Air	<7.0	<0.002	0	0	<3.89	<0.0048
12/11/01 RST-01778	F	708	Air	<7.0	<0.004	0	0	<3.89	<0.0048
12/11/01 RST-01779	A	720	Air	<7.0	<0.004	0	0	<3.89	<0.0048
12/11/01 RST-01780	B	720	Air	7.64	0.004	0	0	<3.89	<0.0048
12/11/01 RST-01781	C	720	Air	7.01	0.004	0	0	<3.89	<0.0048
12/11/01 RST-01782	C-Dup	720	Air	<7.0	<0.004	0	0	<3.89	<0.0048
12/11/01 RST-01783	H	720	Air	<7.0	<0.004	7***	0	<3.89	<0.0048
12/11/01 RST-01784	I	720	Air	<7.0	<0.004	0	0	<3.89	<0.0048
12/11/01 RST-01785	D	720	Air	11.46	0.006	5***	1***	53.33	0.0285
12/11/01 RST-01786	D-Dup	720	Air	8.92	0.005	0	0	<3.89	<0.0048
12/11/01 RST-01787	K	720	Air	<7.0	<0.004	0	0	<3.89	<0.0048
12/11/01 RST-01788	T	720	Air	<7.0	<0.004	0	0	<3.89	<0.0048
12/11/01 RST-01789	U	720	Air	<7.0	<0.004	0	0	<3.89	<0.0048
12/11/01 RST-01790	V	720	Air	<7.0	<0.004	0	0	<3.89	<0.0048
12/11/01 RST-01791	S	720	Air	<7.0	<0.004	0	0	<3.89	<0.0048
12/11/01 RST-01792	L	420	Air	<7.0	<0.004	0	0	<3.89	<0.0048
12/11/01 RST-01793	E	445	Air	<7.0	<0.006	0	0	<3.89	<0.0059
12/11/01 RST-01794	W	720	Air	7.64	0.004	0	0	<3.89	<0.0048
12/11/01 FB121101	Field Blank	0	Air	<7.0	na	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/11/01 TB121101	Tap Blank	0	Air	<7.0	na	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

- Sampling Locations:**  
A: NE corner of West Broadway & Barclay  
B: SE corner of Church & Day St.  
C: Trinity (a.k.a. Church) & Liberty  
C1: SW corner of Broadway & Liberty St.  
D: East end of Albany St. at Greenwich St.  
E: Western end of Liberty St. at South End Ave  
F: Northern median strip of Vesey & West St.  
G: Church and Duane St.  
H: South side of Chase Manhattan Plaza at Pine St.  
I: SE corner of Wall St. & Broadway  
J: NE corner of Warren & West St.  
K: West St. & Albany in median strip  
L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area  
M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
M1: West St. - 50 yards south of Harrison St. at bulkhead  
N: South side of Pier 25 (next to volleyball ct)  
O: Barclay & West St. (center island) in proximity to USCG command post  
R: TAGA Bus Location  
S: Rector & South End  
T: Pier 6 Helipad  
U: Pier 6 Exit 2  
V: Pier 6 Bus Stop  
W: Wash Tent Common Area

**Key:**  
\* Sample volume (liters) is below recommended limit for the TEM method, except for sample RST-01777; volume is based on 1000 L.  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chromatite  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
NA<sup>(3)</sup> - Not analyzed due to wet filter  
NR - Not applicable  
NS - Not submitted  
NS - Sample not submitted due to no sample volume

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NO QC EVALUATION HAS BEEN PERFORMED.  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TD-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/13/01

File Name	NYC437	NYC438	NYC439	NYC440	NYC445	NYC441
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	Austin Tobac Plaza	North Tower Plume	South Tower Plume
Sample Number			A07216	A07216	A07217	A07218
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	250 mL	20 mL
Reporting Limit (RL)	20	20	20	20	20	250
Sample Conc. Units	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Propylene	RL	RL	RL	RL	710	18000
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	32	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	630	20000
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	1500
Bromomethane	RL	RL	RL	RL	46	1500
Chloroethane	RL	RL	RL	RL	31	1900
Trichlorofluoromethane	RL	RL	RL	RL	56	RL
Isopropyl Alcohol	RL	RL	RL	RL	35	410
Acetone	RL	RL	RL	79	2000	29000
Trichlorofluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloroanisole	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	22	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	34	870
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	160	4200
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	99	RL
Chloroform	RL	RL	RL	RL	120	3800
Tetrahydrofuran	RL	RL	RL	RL	RL	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	300
1,2-Dichloroethane	RL	RL	RL	RL	2100	30000
Benzene	RL	RL	RL	RL	39	700
Heptane	RL	RL	RL	RL	22	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	26	810
1,4-Dioxane	RL	RL	RL	RL	21	1500
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichlorobutene	RL	RL	RL	RL	460	14000
Toluene	RL	RL	RL	RL	RL	RL
trans-1,3-Dichlorobutene	RL	RL	RL	RL	RL	RL
1,1,3-Trichlorobutene	RL	RL	RL	RL	RL	RL
2-Methoxyethane	RL	RL	RL	RL	RL	RL
Tetrachloroethane	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	120	840
Chlorobenzene	RL	RL	RL	RL	620	22000
Ethylbenzene	RL	RL	RL	RL	RL	1900
m,p-Xylenes	RL	RL	RL	RL	RL	480
o-Xylene	RL	RL	RL	RL	170	12000
Styrene	RL	RL	RL	RL	RL	RL
Bromoform	RL	RL	RL	RL	RL	280
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	1600
1,2,5-Trimethylbenzene	RL	RL	RL	RL	RL	250
1,2,4-Trimethylbenzene	RL	RL	RL	RL	33	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	33	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

**U.S. Environmental Protection Agency (EPA)  
Daily Summary  
Saturday, December 15, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 15, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA sampled for asbestos at three lower Manhattan locations on December 10. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 3,380, with 29 samples above the standard (27 of these were collected prior to September 30, one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

**Asbestos** - Samples were collected from additional asbestos monitors at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens) on December 10. None showed exceedances of the AHERA re-entry standard.

**Air: Fixed Monitors in New Jersey:**

**Asbestos** - Four air samples were taken in New Jersey on December 10. All samples showed results less than school re-entry standard. This brings the total number of samples collected and analyzed in New Jersey to 219, with zero above the standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Nineteen air samples collected on December 12 were analyzed for asbestos. All were below the school re-entry standard.

**Ambient Air Samples:**

**Dioxin** - Twenty-nine samples were collected at various lower Manhattan locations on November 6, 8th and 12th and analyzed for dioxin/furans. Three samples showed results above the level at which EPA would take some type of action to reduce people's exposure based on a 30-year exposure. None of the samples were above the EPA action guideline adjusted to a one-year exposure. These levels do not pose a short-term health affect but should be monitored if

they persist for a long period of time.

**Silicates** - Thirty-five air samples were collected in lower Manhattan on November 19, 21<sup>st</sup>, 27<sup>th</sup> and December 4 and analyzed for silicates. None of the samples detected the presence of silicates.

**Metals** - A total of nineteen air samples were collected in lower Manhattan on November 27 and December 4. Analysis found all metals at either non-detectable levels or below applicable standards, guidelines or permissible limits established by EPA and OSHA. Final analysis of these samples showed that chromium was not present.

**PCBs** - Nine air samples were collected in lower Manhattan on November 12 and analyzed for PCBs. PCBs were not detected in any of the samples.

**PAHs** - A total of 40 samples were collected on November 2, 6<sup>th</sup>, 19<sup>th</sup> and 21<sup>st</sup> and analyzed for PAHs. PAHs were not detected in any of these samples.

**Dioxin** - EPA's Office of Research and Development (ORD) has been conducting some specialized monitoring at and around the World Trade Center site since late September. Some of the results of the monitoring, which have been subjected to an extensive quality assurance/quality control process, have been finalized and are now available. Seven air samples were collected over 72-hour periods between November 19 and December 3 and analyzed for dioxin. None of the samples, which were taken on rooftop locations on Park Row and the Borough of Manhattan Community College, had results above EPA's action level based on a 30-year exposure.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Saturday, December 15, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NJ / ER (Dec 10)

All 4 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

Fresh Kills (Dec 12, 0824 - 2125) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Ambient Air Sampling Locations

NYC / ER (Nov 6) - Dioxin

1 of the 10 samples (Location D) collected were above the EPA Removal Action guidelines (based on a 30-year exposure).  
No samples were identified above the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.  
Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for long-term (chronic exposure).

NYC / ER (Nov 8) - Dioxin

2 of the 10 samples (Locations B and 3A) collected were above the EPA Removal Action guidelines (based on a 30-year exposure).  
No samples were identified above the EPA Removal Action level guidelines adjusted to a 1-year exposure duration.  
Levels do not pose a short-term health concern. However, elevated sufficiently to be of concern for long-term (chronic exposure).

NYC / ER (Nov 12) - Dioxin

All 9 of the samples collected were below the EPA Removal Action guidelines (based on a 30-year exposure).  
Access to Location 3A was not available.

NYC / ER (Nov 19 - Dec 3) - Dioxin (EPA-ORD)

Seven (7) 72-hour samples were collected during this period at Park Row (4 samples) and Manhattan Boro Community College (3 samples) at roof top locations.  
None of the samples collected were above the EPA Removal Action guidelines (based on a 30-year exposure).  
Data is not attached.

1595



NYC / ER (Nov 27) - Metals

Ten samples collected.

All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.

**Note:** QA/QC review of chromium in air analytical data has revealed that chromium is not present in these samples.

NYC / ER (Dec 4) - Metals

Nine samples collected.

All metals were either not detected or were below applicable EPA Removal Action level guidelines, OSHA PELs, and the NAAQS for lead.

1 sample (Location S) not analyzed due to damaged filter.

**Note:** QA/QC review of chromium in air analytical data has revealed that chromium is not present in these samples.

NYC / ER (Nov 2) - PAHs

All 10 samples did not detect any PAHs in the samples analyzed.

NYC / ER (Nov 6) - PAHs

All 10 samples did not detect any PAHs in the samples analyzed.

NYC / ER (Nov 19) - PAHs

All 10 samples did not detect any PAHs in the samples analyzed.

NYC / ER (Nov 21) - PAHs

All 10 samples did not detect any PAHs in the samples analyzed.

NYC / ER (Nov 12) - PCBs

All 9 samples did not detect any PCBs.

Access to Location 3A was not available.

NYC / ER (Nov 19) - Silicates

All 10 samples did not detect any silicates.

NYC / ER (Nov 21) - Silicates

All 10 samples did not detect any silicates.

NYC / ER (Nov 27) - Silicates

All 10 samples did not detect any silicates.

NYC / ER (Dec 4) - Silicates

All 5 samples did not detect any silicates.  
5 sample results (Locations A, C, R (plus duplicate), and 3B) were rejected since an incorrect filter was used for sample collection.

NYC / ER (Dec 10) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Chambers St./West St. (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St. Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 8 samples were collected from these monitoring sites.  
All of the samples were below the TEM AHERA standard.

Bulk/Dust Samples

NYC / ER (Sep 11) - PCB congeners

Congener analysis of 4 dust samples originally collected from streets near WTC on Sep. 11<sup>th</sup>.

All samples were below the EPA residential cleanup guidance of 1 ppm for PCBs.

Note: A pesticide/PCB scan previously conducted for these four samples and presented in the Nov 1 Sampling Situation Report incorrectly identified all levels as being below 1 ppm. Two of the samples were actually estimated to be above 1 ppm for total PCBs. The highest total PCBs result of these two samples was estimated at 1.54 ppm.

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 12/12/01 0824 to 2125  
Data Validation Date: 12/14/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCW by NIOSH 7400			TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (#)	S/1mm <sup>2</sup>	S/fcc**	
12/12/01	LF01525	P-1	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01526	P-2	603	Air	<7.0	<0.0045	0	<8.75	<0.0047	
12/12/01	LF01527	P-3	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01528	P-4	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01529	P-5	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01530	P-6	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01531	P-7	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01532	P-8	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01533	W-11	720	Air	7.64	0.004	1***	8.75	0.0047	
12/12/01	LF01534	W-12A	720	Air	22.93	0.012	2***	26.25	0.0140	
12/12/01	LF01535	B-14	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01536	T-15	720	Air	19.11	0.010	0	<8.75	<0.0047	
12/12/01	LF01537	T-16	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01538	O-17	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01539	O-18	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01540	O-19	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01541	MPHS-20	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01542	W-12B	720	Air	<7.0	<0.004	0	<8.75	<0.0047	
12/12/01	LF01543	B-13	720	Air	7.64	0.004	0	<8.75	<0.0047	
12/12/01	LF01544	Tip Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	
12/12/01	LF01545	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(3)</sup>	

Key:  
\* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysotile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
n/a - Not applicable  
NC - Not collected  
NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCW), 70 S/m<sup>2</sup>, volume 7200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/10/01 1200 to 2400

Data Validation Date: 12/14/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	5µ	S-f/cc*
12/10/01	7083-18-0074	Park Row	1426	Air	<7.0	<0.002	0	0	<0.0043
12/10/01	7083-19-0074	(a) Chambers Street	1440	Air	<7.0	<0.002	0	0	<0.0043
12/10/01	7083-20-0074	Coast Guard	1440	Air	<7.0	<0.002	0	0	<0.0043
12/10/01	7083-15-0073	Manhattan PS # 143	1440	Air	<7.0	<0.002	0	0	<0.0043
12/10/01	7084-09-0063	Bronx PS #154	1324	Air	<7.0	<0.002	0	1****	0.0047
12/10/01	7086-12-0068	Queens PS #199	1440	Air	<7.0	<0.002	0	0	<0.0043
12/10/01	7085-98-0070	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<0.0043
12/10/01	7087-18-0066	Staten Island PS #44	1440	Air	<7.0	<0.002	0	0	<0.0043

Key:

- \*Structure (S) roughly equivalent to fiber (f)
  - \*\* Sample volume is based on pump reading
  - \*\*\* Sample volume is below recommended limit for TEM analysis
  - \*\*\*\* Chrysotile
  - NR - analysis not requested
  - NS - Sample not submitted for analysis
  - n/a - Not applicable
  - (a) Sampling location name change
- NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Emergency Response  
 Asbestos Air Sampling Results NYC ER/NUDEP  
 Sampling Date and Time: 12/10/2001 1150 to 2345  
 Data Validation Date: 12/14/2001

Date Sampled	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	0.5µ - 5µ	5µ	S/mm <sup>2</sup>	S-f/cc*
12/10/01	1LIB121001	Liberty Park	1058**	Air	8.92	0.003	0	0	<13.33	<0.0049
12/10/01	2CIT121001	CITGO Terminal	1140**	Air	<7.0	<0.002	0	0	<13.33	<0.0045
12/10/01	3FMC121001	FMC Terminal	1200	Air	<7.0	<0.002	0	0	<13.33	<0.0043
12/10/01	4SHL121001	Shell Terminal	1040**	Air	<7.0	<0.003	0	0	<13.33	<0.0049
12/10/01	5FLD121001	Field Blank	0	Air	<7.0	n/a	NA	NA	NA	NA

**Key:**  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume (liter) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\*\* Chrysotile  
 n/a - Not applicable  
 NA - Not analyzed for TEM  
 NS - Sample not submitted

PCM: Phase Contrast Microscopy by NIOSH 7400  
 TEM: Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA). Sample volume is below recommended limit of the method.  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, Volume 1200 L, for 25 mm filter (TEM)

Sampling Location	Sampling Times
Liberty Park	12/10/01 1150 - 2039
CITGO Terminal	12/10/01 1300 - 2230
Aslaris/FMC Terminal	12/10/01 1345 - 2345
Motiva/Shell Terminal	12/10/01 1400 - 2240

NYC Emergency Response  
 Silica - Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/04/01 07:30 to 1500

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
12/4/01	05703	A	1000	Air	*	*	*
12/4/01	05705	B	1000	Air	<0.01	<0.02	<0.02
12/4/01	05706	C	1000	Air	*	*	*
12/4/01	05707	D	1000	Air	<0.01	<0.02	<0.02
12/4/01	05710	E	1000	Air	<0.01	<0.02	<0.02
12/4/01	05708	P	761	Air	<0.01	<0.03	<0.03
12/4/01	05709	S	1020	Air	<0.01	<0.02	<0.02
12/4/01	05701	TAGA	1000	Air	*	*	*
12/4/01	05702	TAGA	1000	Air	*	*	*
12/4/01	05704	Location 3B Church & Vesey	1000	Air	*	*	*

ccar 04687

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median strip of Vesey & West St  
 H: Church and Duane St.  
 I: South side of Chase Manhattan Plaza at Pine St.  
 J: SE corner of Wall St. & Broadway  
 K: NE corner of Warren & West St.  
 L: West St. & Albany in median strip  
 M: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area  
 N: Western end of Harrison St. at West St. (on tree next to volleyball court)  
 P: NE corner of South End Ave. & Albany  
 R: TAGA Bus Location  
 S: Rector & South End  
 Location 3B Church & Vesey

\* = Rejected data, the wrong sample filter was used for sample collection.  
 NS: Not sampled

ERT 12/13/01 9:50 AM

**NIOSH 7500: Silica crystalline by XRD**

J denotes that value is in between the level of detection and the level of quantitation

Table 1.1. Results of the Analysis for Metals in Air  
 WA #0-2308 New York (WTC) ER site

Client ID Location Air Volume (L) Date Collected	Media Blank #1		Media Blank #2		Media Blank #3		Field Blank		Lab Blank		Lab Blank	
	Lab	Conc. µg/filter	MDL µg/filter	Conc. µg/filter	MDL µg/filter	Conc. µg/filter	MDL µg/filter	Conc. µg/filter	MDL µg/filter	Conc. µg/filter	MDL µg/filter	Conc. µg/m <sup>3</sup>
Parameter	Analysis Method	Conc. µg/filter	MDL µg/filter	Conc. µg/filter	MDL µg/filter	Conc. µg/filter	MDL µg/filter	Conc. µg/filter	MDL µg/filter	Conc. µg/filter	MDL µg/filter	Conc. µg/m <sup>3</sup>
Aluminum	ICAP	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	0.55
Antimony	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Arsenic	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Barium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	0.063
Beryllium	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Cadmium	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Caesium	ICAP	0.81	0.13	0.82	0.13	0.82	0.13	0.82	0.13	0.82	0.13	3.8
Cobalt	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Copper	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Iron	ICAP	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	0.088
Lead	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	0.052
Magnesium	ICAP	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
Manganese	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Nickel	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Potassium	ICAP	U	50	U	50	U	50	U	50	U	50	10
Selenium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Silver	ICAP	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Sodium	ICAP	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Vanadium	AA-Fur	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Zinc	ICAP	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	0.26

MDL denotes Method Detection Limit.  
 U denotes less than the MDL (for detection).  
 Average Media Blank concentration subtracted from all sample results.

Table 1.1 (cont.) Results of the Analysis for Metals in Air  
 WA # D-236 New York (WTC) ER site

Client ID	05683	05683	05684	05685	05686	05687	
Location	TACA	A-BARCLAY ST. & WEST BROADWAY	LOC 3B CHURCH & VESSEY ST	B-CHURCH & DEY ST.	C-LIBERTY ST. & CHURCH	D-GREENWICH & ALBANY ST.	
Air Volume (L)	4630	3800	4800	4820	4830	4840	
Date Collected	12/04/01	12/04/01	12/04/01	12/04/01	12/04/01	12/04/01	
Parameter	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	Conc µg/m³	MDL µg/m³	
Aluminum	ICAP	0.84	0.28	2.0	0.32	0.81	0.26
Antimony	AA-Fur	U	0.011	0.046	0.013	0.013	0.01
As	ICAP	0.11	0.028	0.16	0.052	0.12	0.028
Barium	ICAP	U	0.011	0.19	0.032	0.078	0.026
Beryllium	ICAP	U	0.028	U	0.013	U	0.01
Cadmium	ICAP	U	0.028	U	0.052	U	0.026
Calcium	ICAP	8.6	0.55	23	0.64	8.5	0.52
Chromium	ICAP	0.81	0.028	U	0.052	U	0.026
Copper	ICAP	0.11	0.028	U	0.052	U	0.026
Iron	ICAP	3.5	0.14	7.5	0.16	0.16	0.052
Lead	AA-Fur	0.662	0.011	0.11	0.013	0.14	0.013
Magnesium	ICAP	U	2.8	U	3.2	0.14	0.01
Manganese	ICAP	0.692	0.028	0.14	0.052	0.12	0.026
Nickel	ICAP	U	0.028	U	0.052	U	0.026
Phosphorus	ICAP	U	0.011	U	0.013	U	0.01
Selenium	AA-Fur	U	0.011	U	0.013	U	0.01
Silver	ICAP	U	0.028	U	0.032	U	0.026
Sodium	ICAP	4.0	2.8	U	3.2	U	2.6
Thallium	AA-Fur	U	0.011	U	0.013	U	0.01
Vanadium	ICAP	U	0.055	U	0.064	U	0.052
Zinc	ICAP	0.41	0.028	1.3	0.064	0.86	0.052

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration subtracted from all sample results



Table 1.1 (cont.) Results of the Analysis for Metals in Air  
 WA # D-236 New York (MTC) ER site

Client ID	05690	05690			
Location	P-ALBANY ST & SOUTH END	E-LIBERTY ST & SOUTH END			
Air Volume (L)	4850	4910			
Date Collected	12/04/01	12/04/01			
Parameter	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	
Analysis Method	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Conc µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	
Aluminum	ICAP	0.70	0.26	U	0.25
Antimony	AA-Fur	U	0.01	U	0.01
Arsenic	ICAP	U	0.04	U	0.01
Bismuth	ICAP	0.08	0.01	U	0.01
Boron	ICAP	U	0.01	U	0.01
Cadmium	ICAP	U	0.028	U	0.025
Calcium	ICAP	5.0	0.52	1.1	0.51
Chromium	ICAP	U	0.026	U	0.025
Cobalt	ICAP	U	0.052	U	0.051
Copper	ICAP	0.69	0.25	0.13	0.13
Iron	ICAP	2.8	0.13	0.19	0.13
Lead	AA-Fur	0.041	0.01	U	0.01
Magnesium	ICAP	U	2.6	U	2.5
Manganese	ICAP	0.045	0.028	U	0.025
Nickel	ICAP	U	0.052	U	0.051
Platinum	AA-Fur	U	0.01	U	0.01
Plutonium	AA-Fur	U	0.01	U	0.01
Silver	ICAP	U	0.026	U	0.025
Sodium	ICAP	3.4	2.6	U	2.5
Thallium	AA-Fur	U	0.01	U	0.01
Vanadium	ICAP	U	0.052	U	0.051
Zinc	ICAP	0.28	0.052	0.11	0.051

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration subtracted from all sample results

NYC Emergency Response  
Air Samples - dioxin and furan results  
Sampling Date: 11/12/01

Sample No.	11181 R-TAGA			11182 R-TAGA			11183 A-Barclay & West Broadway			11184 B-Church & Dey St.			11185 C-Liberty St. & Church		
	Result ng	EMPC ng/m <sup>3</sup>	MDL ng	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	MDL ng/m <sup>3</sup>
2378-TCDD	U	0.0028	0.10	U	0.0027	0.0028	U	0.0028	U	0.0027	0.0027	U	0.0027	U	0.0028
12378-PeCDF	U	0.0028	0.10	U	0.013	0.014	U	0.014	U	0.014	0.0014	U	0.0014	U	0.014
12378-PeCDD	U	0.0028	0.10	U	0.013	0.014	U	0.014	U	0.014	0.0014	U	0.0014	U	0.014
12378-HxCDF	U	0.0022	0.10	U	0.013	0.014	U	0.014	U	0.0006	0.014	U	0.0006	U	0.014
12378-HxCDD	U	0.0022	0.10	U	0.013	0.014	U	0.014	U	0.0006	0.014	U	0.0006	U	0.014
23487-HxCDF	U	0.0024	0.10	U	0.013	0.014	U	0.014	U	0.0007	0.014	U	0.0007	U	0.014
23487-HxCDD	U	0.0024	0.10	U	0.013	0.014	U	0.014	U	0.0007	0.014	U	0.0007	U	0.014
1234789-HxCDF	U	0.0043	0.10	U	0.013	0.014	U	0.014	U	0.0014	0.014	U	0.0014	U	0.014
1234789-HxCDD	U	0.0043	0.10	U	0.013	0.014	U	0.014	U	0.0014	0.014	U	0.0014	U	0.014
OCDF	U	0.0006	0.20	U	0.027	0.028	U	0.028	U	0.027	0.027	U	0.027	U	0.028
TCDF	U	0.0030	0.10	U	0.013	0.014	U	0.014	U	0.0006	0.0044	U	0.0006	U	0.0030
PeCDF	U	0.0030	0.10	U	0.013	0.014	U	0.014	U	0.0006	0.0044	U	0.0006	U	0.0030
HxCDF	U	0.0022	0.10	U	0.013	0.014	U	0.014	U	0.0006	0.0044	U	0.0006	U	0.0022
HxCDD	U	0.0022	0.10	U	0.013	0.014	U	0.014	U	0.0006	0.0044	U	0.0006	U	0.0022
OCDF	U	0.0043	0.10	U	0.013	0.014	U	0.014	U	0.0014	0.014	U	0.0014	U	0.0043
OCDD	U	0.0043	0.10	U	0.013	0.014	U	0.014	U	0.0014	0.014	U	0.0014	U	0.0043
Total TCDFs	U			U			U		U			U		U	
Total PeCDFs	U			U			U		U			U		U	
Total HxCDFs	U			U			U		U			U		U	
Total HxCDDs	U			U			U		U			U		U	
Total OCDFs	U			U			U		U			U		U	
Total OCDDs	U			U			U		U			U		U	
Total TCDFs	U			U			U		U			U		U	
Total PeCDFs	U			U			U		U			U		U	
Total HxCDFs	U			U			U		U			U		U	
Total HxCDDs	U			U			U		U			U		U	
Total OCDFs	U			U			U		U			U		U	
Total OCDDs	U			U			U		U			U		U	
Total Adjusted Conc	U			U			U		U			U		U	
TEQ (NB=9)	0.0028			0.0009			0.0009					0.0009			
TEQ (NB=12)	0.0027			0.0006			0.0006					0.0006			

CODF data  
B= Not detected due to blank contamination  
EMPC: Estimated Maximum Possible Concentration  
TCDF: Toxicity Equivalent  
The TEQ (NB=12) is calculated using 1/2 of the estimated detection limit for U (non detect) values.

ERTC 12/13/01



Table 1.1 Results of the Analysis for PAH in Air  
WA # 0-0236: NYC ER Site

Sampling Date: 11/19/01										
Sample No.	11309		11521		11522		11523		11524	
Sampling Location	Lot Blank		TAGA		TAGA		A Barclay & West Broadway		B Church & Dey	
Volume (L)	0		480		480		480		480	
Compound Name	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL	Conc.	MDL
	µg	µg	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
Naphthalene	U	11	U	4.3	U	4.3	U	4.3	U	4.3
2-Methylnaphthalene	U	11	U	4.1	U	4.1	U	4.1	U	4.1
1-Methylnaphthalene	U	11	U	4.0	U	4.0	U	4.0	U	4.0
Biphenyl	U	11	U	3.8	U	3.8	U	3.8	U	3.8
2,6-Dimethylnaphthalene	U	12	U	3.8	U	3.8	U	3.8	U	3.8
Acenaphthylene	U	12	U	3.9	U	3.9	U	3.9	U	3.9
Acenaphthene	U	11	U	3.6	U	3.6	U	3.6	U	3.6
Dibenzofuran	U	11	U	3.4	U	3.4	U	3.4	U	3.4
Fluorene	U	11	U	3.5	U	3.5	U	3.5	U	3.5
Phenanthrene	U	11	U	3.1	U	3.1	U	3.1	U	3.1
Anthracene	U	11	U	3.2	U	3.2	U	3.2	U	3.2
Carbazole	U	12	U	3.7	U	3.7	U	3.7	U	3.7
Fluoranthene	U	12	U	2.9	U	2.9	U	2.9	U	2.9
Pyrene	U	11	U	2.8	U	2.8	U	2.8	U	2.8
Benzo(a)anthracene	U	11	U	2.5	U	2.5	U	2.5	U	2.5
Chrysene	U	10	U	2.2	U	2.2	U	2.2	U	2.2
Benzo(b)fluoranthene	U	11	U	2.3	U	2.3	U	2.3	U	2.3
Benzo(k)fluoranthene	U	12	U	2.5	U	2.5	U	2.5	U	2.5
Benzo(e)pyrene	U	11	U	2.3	U	2.3	U	2.3	U	2.3
Benzo(a)pyrene	U	13	U	2.5	U	2.5	U	2.5	U	2.5
Indeno(1,2,3-cd)pyrene	U	14	U	2.6	U	2.6	U	2.6	U	2.6
Dibenzo(a,h)anthracene	U	14	U	2.6	U	2.6	U	2.6	U	2.6
Benzo(g,h,i)perylene	U	13	U	2.4	U	2.4	U	2.4	U	2.4

COC 04872

U: Denotes not detected

J: Denotes value is estimated

UJ: Denotes MDL is estimated

Table 1.1 Results of the Analysis for PAH in Air  
WA # 0-0236: NYC ER Site

Sampling Date: 11/2/01										
Sample No.	11646		11635		11636		11637		11638	
Sampling Location	Lot Blank		TAGA		TAGA		A Barclay & West Broadway		B Church & Dey	
Volume (L)	0		480		480		480		480	
Compound Name	Conc. µg	MDL µg	Conc. ppbv	MDL ppbv	Conc. ppbv	MDL ppbv	Conc. ppbv	MDL ppbv	Conc. ppbv	MDL ppbv
Naphthalene	U	11	U	4.3	U	4.3	U	4.3	U	4.3
2-Methylnaphthalene	U	11	U	4.1	U	4.1	U	4.1	U	4.1
1-Methylnaphthalene	U	11	U	4.0	U	4.0	U	4.0	U	4.0
Biphenyl	U	11	U	3.8	U	3.8	U	3.8	U	3.8
2,6-Dimethylnaphthalene	U	12	U	3.8	U	3.8	U	3.8	U	3.8
Acenaphthylene	U	12	U	3.9	U	3.9	U	3.9	U	3.9
Acenaphthene	U	11	U	3.6	U	3.6	U	3.6	U	3.6
Dibenzofuran	U	11	U	3.4	U	3.4	U	3.4	U	3.4
Fluorene	U	11	U	3.5	U	3.5	U	3.5	U	3.5
Phenanthrene	U	11	U	3.1	U	3.1	U	3.1	U	3.1
Anthracene	U	11	U	3.2	U	3.2	U	3.2	U	3.2
Carbazole	U	12	U	3.7	U	3.7	U	3.7	U	3.7
Fluoranthene	U	12	U	2.9	U	2.9	U	2.9	U	2.9
Pyrene	U	11	U	2.8	U	2.8	U	2.8	U	2.8
Benzo(a)anthracene	U	11	U	2.5	U	2.5	U	2.5	U	2.5
Chrysene	U	10	U	2.2	U	2.2	U	2.2	U	2.2
Benzo(b)fluoranthene	U	11	U	2.3	U	2.3	U	2.3	U	2.3
Benzo(k)fluoranthene	U	12	U	2.5	U	2.5	U	2.5	U	2.5
Benzo(e)pyrene	U	11	U	2.3	U	2.3	U	2.3	U	2.3
Benzo(a)pyrene	U	13	U	2.5	U	2.5	U	2.5	U	2.5
Indeno(1,2,3-cd)pyrene	U	14	U	2.6	U	2.6	U	2.6	U	2.6
Dibenzo(a,h)anthracene	U	14	U	2.6	U	2.6	U	2.6	U	2.6
Benzo(g,h,i)perylene	U	13	U	2.4	U	2.4	U	2.4	U	2.4

COC 04059

U: Denotes not detected

J: Denotes value is estimated

UJ: Denotes MDL is estimated



Table 1.1 Results of the Analysis for Metals in Air  
WA # 0-236 New York (WTC) ER site

Client ID	Media Blank #1	Media Blank#2	Media Blank#3	Media Blank	05683	05684	05631
At Volume (L)	Lab	Lab	Lab	Lab	Field Blank	Lab Blank	Lab
Date Collected					11/27/01	11/27/01	11/27/01
Parameter	Analysis Method	Conc µg/liter	MDL µg/liter	Conc µg/liter	MDL µg/liter	Conc µg/liter	MDL µg/m <sup>3</sup>
Aluminum	ICAP	U	1.3	U	1.3	U	0.38
Arsenic	AA-Fur	U	0.05	U	0.05	U	0.01
Barium	ICAP	U	0.13	U	0.13	U	0.048
Beryllium	ICAP	U	0.05	U	0.05	U	0.026
Cadmium	ICAP	U	0.13	U	0.13	U	0.01
Calcium	ICAP	4.2	4.1	5.7	5.7	U	0.028
Chromium	ICAP	0.52	0.13	0.77	0.13	U	1.8
Cobalt	ICAP	U	0.25	0.92	0.13	U	0.052
Copper	ICAP	U	0.25	U	0.25	U	0.052
Iron	ICAP	U	0.63	U	0.63	U	1.2
Lead	AA-Fur	0.08	0.05	U	0.05	0.15	0.01
Magnesium	ICAP	U	1.3	U	1.3	U	2.8
Manganese	ICAP	U	0.25	U	0.25	U	0.026
Nickel	ICAP	U	0.25	U	0.25	U	0.026
Potassium	ICAP	U	50	U	50	U	10
Selenium	AA-Fur	U	0.05	U	0.05	U	0.01
Silver	ICAP	U	0.13	U	0.13	U	0.026
Sodium	ICAP	U	13	U	13	U	3.1
Thallium	ICAP	U	0.05	U	0.05	U	0.01
Vanadium	AA-Fur	U	0.25	U	0.25	U	0.052
Zinc	ICAP	U	0.25	U	0.25	U	0.11

MDL denotes Method Detection Limit  
U denotes less than the MDL (not detected)  
Average Media Blank concentration subtracted from all sample results

Table 1.1 (cont.) Results of the Analysis for Metals in Air  
 WA # 0-236 New York (NY) ERTC Site

Client ID	05632	05633	05634	05635	05636	05637	
Location	TAGA	A-BARCLAY ST. & WEST BROADWAY	LOC 3B CHURCH & VESEY ST	B-CHURCH & DEY ST.	C-LIBERTY ST. & CHURCH ST.	D-GREENWICH & ALBANY ST.	
Air Volume (L)	4800	4800	4800	4800	4800	4750	
Date Collected	11/27/01	11/27/01	11/27/01	11/27/01	11/27/01	11/27/01	
Parameter	Analysis Method	Conc. $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$	Conc. $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$	Conc. $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$
Aluminum	ICAP	0.42	0.26	3.2	0.26	2.6	0.26
Antimony	AA-Fur	U	0.01	0.02	0.01	0.03	0.01
Arsenic	AA-Fur	U	0.01	0.02	0.01	0.01	0.01
Bismuth	ICAP	0.05	0.26	0.1	0.02	0.1	0.02
Beryllium	ICAP	U	0.01	U	0.01	U	0.01
Cadmium	ICAP	U	0.026	U	0.026	U	0.026
Calcium	ICAP	2.2	0.52	33	0.52	39	0.52
Chromium	ICAP	U	0.026	U	0.026	U	0.026
Chromium	ICAP	U	0.026	U	0.026	U	0.026
Cobalt	ICAP	U	0.026	U	0.026	U	0.026
Copper	ICAP	1.1	0.52	0.28	0.52	0.34	0.52
Iron	ICAP	0.1	0.26	0.1	0.26	0.1	0.26
Lead	AA-Fur	0.025	0.01	0.42	0.01	0.14	0.01
Magnesium	ICAP	U	2.6	2.8	2.6	2.9	2.6
Manganese	ICAP	U	0.026	0.14	0.026	0.18	0.026
Nickel	ICAP	U	0.026	U	0.026	U	0.026
Potassium	ICAP	U	10	U	10	U	10
Selenium	AA-Fur	U	0.01	U	0.01	U	0.01
Silver	ICAP	U	0.026	U	0.026	U	0.026
Sodium	ICAP	3.0	2.6	U	2.6	29	2.6
Thallium	AA-Fur	U	0.01	U	0.01	U	0.01
Vanadium	ICAP	U	0.026	U	0.026	U	0.026
Zinc	ICAP	0.11	0.52	1.6	0.52	1.4	0.52

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration subtracted from all sample results

COC 04480

11-27-01 tamela@ERTC.xls

ERTC 12/001



Table 1.1 (cont.) Results of the Analysis for Metals in Air  
 WA # 0-238 New York (NYTC) ERS site

Client ID	05638	05639	05640
Location	P-ALBANY ST. & SOUTH END	S-RECTOR PLACE & SOUTH END	E-LIBERTY ST. & SOUTH END
Alt-Values (L)	11/27/01	11/27/01	11/27/01
Date Collected	11/27/01	11/27/01	11/27/01
Parameter	Conc. $\mu\text{g}/\text{m}^3$	MDL $\mu\text{g}/\text{m}^3$	Conc. MDL $\mu\text{g}/\text{m}^3$
	Analysis Method		
Aluminum	ICAP	0.77	0.26
Antimony	AA-Fur	U	0.01
Arsenic	AA-Fur	U	0.01
Barium	ICAP	0.072	0.026
Beryllium	ICAP	U	0.01
Cadmium	ICAP	U	0.026
Calcium	ICAP	3.4	0.52
Chromium	ICAP	0.097	0.052
Copper	ICAP	U	0.052
Iron	ICAP	2.1	0.13
Lead	AA-Fur	0.032	0.01
Magnesium	ICAP	U	2.6
Manganese	ICAP	0.095	0.026
Nickel	ICAP	U	0.026
Platinum	ICAP	U	10
Selenium	AA-Fur	U	0.01
Silver	ICAP	U	0.026
Sodium	ICAP	U	2.6
Thallium	AA-Fur	U	0.01
Vanadium	ICAP	U	0.052
Zinc	ICAP	0.25	0.052

MDL denotes Method Detection Limit  
 U denotes less than the MDL (not detected)  
 Average Media Blank concentration subtracted from all sample results

NYC Emergency Response  
Air Samples - Modified Method 680 PCB results  
Sampling Date 11/12/01

Sample No.	WG-5294-1P Method Blank	11191		11192		11193		11194		11195		11196		
		R	R	R	R	A	B	C	D	C	D	C	D	
Sampling Location	0	7440	7050	7200	7230	7230	7230	7230	7230	7230	7230	7230	7230	
Analyte	ng	ng	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	
	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	MDL	
	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
209-DeCB	U	10.0	U	1.34	U	1.42	U	1.39	U	1.37	U	1.38	U	1.38
Sum of MoCBs	U	10.0	U	1.34	U	1.42	U	1.39	U	1.37	U	1.38	U	1.38
Sum of DiCBs	U	10.0	U	1.34	U	1.42	U	1.39	U	1.37	U	1.38	U	1.38
Sum of TriCBs	U	10.0	U	1.34	U	1.42	U	1.39	U	1.37	U	1.38	U	1.38
Sum of TeCBs	U	10.0	U	1.34	U	1.42	U	1.39	U	1.37	U	1.38	U	1.38
Sum of PeCBs	U	10.0	U	1.34	U	1.42	U	1.39	U	1.37	U	1.38	U	1.38
Sum of HpCBs	U	10.0	U	1.34	U	1.42	U	1.39	U	1.37	U	1.38	U	1.38
Sum of HxCBs	U	10.0	U	1.34	U	1.42	U	1.39	U	1.37	U	1.38	U	1.38
Sum of OxCBs	U	10.0	U	1.34	U	1.42	U	1.39	U	1.37	U	1.38	U	1.38
Sum of NoCBs	U	10.0	U	1.34	U	1.42	U	1.39	U	1.37	U	1.38	U	1.38
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	
COG# 04870														

Sampling Locations:

- A: NE corner of West Broadway & Barclay
  - B: SE corner of Church & Dey St
  - C1: Trinity (a.k.a. Church) & Liberty
  - D1: SW corner of Broadway & Liberty St
  - E: East end of Albany St. at Greenwich St
  - F: Western end of Liberty St. at South End Ave
  - G: Church and Duane St.
  - H: South side of Chase Manhattan Plaza at Pine St.
  - I: SE corner of Wall St. & Broadway
  - J: NE corner of Warren & West St.
  - K: West St. & Albany in median strip
  - L: On walkway toward North Park rec. area (north side of Stuyvesant High), access to TAGA bus area
  - M: Western end of Harrison St. at West St. (on tree next to bulkhead)
  - N: South side of Pier 25 (next to volleyball court)
  - P: NE corner of South End Ave. & Albany
  - Q: Barclay & West St. (center island) in proximity to USCG command post
  - R: TAGA Bus Location
  - S: Rector & South End
- Loc 3: SW side of WTC5  
Loc 3A: Between WTC4 and WTC5
- U: denotes not detected  
MDL: denotes method detection limit
- ERT: 12/10/01

NYC Emergency Response  
 Air Samples - Modified Method 680 PCB results  
 Sampling Date 11/12/01

Sample No.	11197		11198		11199		11200		11201	
	Sampling Location	P	S	E	Field Blank	Lot Blank	Result	MDL	Result	MDL
Sample Volume (L)	7050	6750	7245	0	0	0	ng	ng	ng	ng
Analyte	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng	ng	ng	ng	ng	ng
209.DccCB	U	1.42	U	1.48	U	1.38	U	10.0	U	10.0
Sum of MoCBs	U	1.42	U	1.48	U	1.38	U	10.0	U	10.0
Sum of DiCBs	U	1.42	U	1.48	U	1.38	U	10.0	U	10.0
Sum of TriCBs	U	1.42	U	1.48	U	1.38	U	10.0	U	10.0
Sum of TeCBs	U	1.42	U	1.48	U	1.38	U	10.0	U	10.0
Sum of PeCBs	U	1.42	U	1.48	U	1.38	U	10.0	U	10.0
Sum of HxCBs	U	1.42	U	1.48	U	1.38	U	10.0	U	10.0
Sum of OxCBs	U	1.42	U	1.48	U	1.38	U	10.0	U	10.0
Sum of NoCBs	U	1.42	U	1.48	U	1.38	U	10.0	U	10.0
Total	0	0	0	0	0	0	0	0	0	0
COC-04870										

NYC Emergency Response  
 Silica - Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/21/01 0800 to 1520

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
11/21/01	11350	A	800	Air	<0.01	<0.02	<0.02
11/21/01	11362	B	1000	Air	<0.01	<0.02	<0.02
11/21/01	11363	C	1000	Air	<0.01	<0.02	<0.02
11/21/01	11364	D	1000	Air	<0.01	<0.02	<0.02
11/21/01	11367	E	960	Air	<0.01	<0.02	<0.02
11/21/01	11365	F	1000	Air	<0.01	<0.02	<0.02
11/21/01	11366	S	1000	Air	<0.01	<0.02	<0.02
11/21/01	11348	TAGA	980	Air	<0.01	<0.02	<0.02
11/21/01	11349	TAGA	1000	Air	<0.01	<0.02	<0.02
11/21/01	11361	Location 3B Church & Vesey	1000	Air	<0.01	<0.02	<0.02

conf 04878

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- Location 3B Church & Vesey

NS: Not sampled

ERT 12/06/01 9:50 AM

NIOSH 7500: Silica crystalline by XRD

J denotes that value is in between the level of detection and the level of quantitation

NYC Emergency Response  
 Silica - Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/19/01 0824 to 1546

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
11/19/01	11293	A	1000	Air	<0.01	<0.02	<0.02
11/19/01	11294	B	1000	Air	<0.01	<0.02	<0.02
11/19/01	11296	C	1000	Air	<0.01	<0.02	<0.02
11/19/01	11297	D	1000	Air	<0.01	<0.02	<0.02
11/19/01	11300	E	1000	Air	<0.01	<0.02	<0.02
11/19/01	11298	P	1000	Air	<0.01	<0.02	<0.02
11/19/01	11299	S	1000	Air	<0.01	<0.02	<0.02
11/19/01	11291	TAGA	895	Air	<0.01	<0.02	<0.02
11/19/01	11292	TAGA	1000	Air	<0.01	<0.02	<0.02
11/19/01	11295	Location 3B Church & Vessey	1000	Air	<0.01	<0.02	<0.02

ccaf 08/74

Sampling Locations:

- A: NE corner of West Broadway & Barclay
  - B: SE corner of Church & Dey St.
  - C: Trinity (a.k.a. Church) & Liberty
  - D: East end of Broadway & Liberty St.
  - E: Western end of Liberty St. at Greenwich St.
  - F: Northern median strip of Vessey & West St
  - G: Church and Duane St.
  - H: South side of Chase Manhattan Plaza at Pine St.
  - I: SE corner of Wall St. & Broadway
  - J: NE corner of Warren & West St.
  - K: West St. & Albany in median strip
  - L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
  - M: Western end of Harrison St. at West St. (on tree next to volleyball court)
  - N: South side of Pier 25 (next to volleyball court)
  - P: NE corner of South End Ave. & Albany
  - Q: Barclay & West St. (center island) in proximity to USCG command post
  - R: TAGA Bus Location
  - S: Redor & South End
- Location 3B Church & Vessey

NS: Not sampled

ERT 12/06/01 9:50 AM

NIOSH 7500: Silica crystalline by XRD

J denotes that value is in between the level of detection and the level of quantitation

NYC Emergency Response  
 Silica - Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 11/27/01 0800 to 1500

Sampling Date	Sample No.	Sampling Location	Sample Volume Liters	Matrix	Quartz mg/m <sup>3</sup>	Cristobalite mg/m <sup>3</sup>	Tridymite mg/m <sup>3</sup>
11/27/01	05653	A	245	Air	<0.04	<0.08	<0.08
11/27/01	05655	B	1000	Air	<0.01	<0.02	<0.02
11/27/01	05656	C	1000	Air	<0.01	<0.02	<0.02
11/27/01	05657	D	1000	Air	<0.01	<0.02	<0.02
11/27/01	05660	E	1000	Air	<0.01	<0.02	<0.02
11/27/01	05658	P	1000	Air	<0.01	<0.02	<0.02
11/27/01	05659	S	1000	Air	<0.01	<0.02	<0.02
11/27/01	05651	TAGA	1000	Air	<0.01	<0.02	<0.02
11/27/01	05652	TAGA	1000	Air	<0.01	<0.02	<0.02
11/27/01	05654	Location 3B Church & Vesey	860	Air	<0.01	<0.02	<0.02

ccof 04882

NS: Not sampled

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area
- M: Western end of Harrison St. at West St. (on tree next to volleyball court)
- N: South side of Pier 25 (next to volleyball court)
- P: NE corner of South End Ave. & Albany
- O: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- Location 3B Church & Vesey

ERT 12/07/01 9:50 AM

NIOSH 7500: Silica crystalline by XRD

J denotes that value is in between the level of detection and the level of quantitation









NYC Emergency Response  
 Air Samples - dioxin and furan results  
 Sampling Date 11/6/01

Sample No.	11505 C. Liberty St. & Church	11507 D-Greenwich & Albany St.	11509 P-Albany St. & South End	11509 S-Rector Plaza & South End Ave.	11510 E-Liberty St. & South End Ave.	11514 Field Blank	11513 Lot Blank
Sampling Location	7305	7665	6930	7350	7380	0	0
Volume (Liters)	EMPC ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	EMPC ng/m <sup>3</sup>	EMPC ng	EMPC ng
Analyte	MCL ng/m <sup>3</sup>	MCL ng/m <sup>3</sup>	MCL ng/m <sup>3</sup>	MCL ng/m <sup>3</sup>	MCL ng/m <sup>3</sup>	MCL ng	MCL ng
	Result ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	Result ng/m <sup>3</sup>	Result ng	Result ng
2378-TCDF	U	U	U	U	U	U	U
12578-PCDD	U	U	U	U	U	U	U
12578-PCDF	U	U	U	U	U	U	U
12578-HCDD	U	U	U	U	U	U	U
12578-HCDF	U	U	U	U	U	U	U
124678-HCDD	U	U	U	U	U	U	U
124678-HCDF	U	U	U	U	U	U	U
OCDF	U	U	U	U	U	U	U
2378-TCDF	0.0003 J	0.0027	0.0029	0.0027	0.0027	0.0020	0.0020
12578-PCDD	U	U	U	U	U	U	U
12578-PCDF	U	U	U	U	U	U	U
12578-HCDD	U	U	U	U	U	U	U
12578-HCDF	U	U	U	U	U	U	U
124678-HCDD	U	U	U	U	U	U	U
124678-HCDF	U	U	U	U	U	U	U
OCDF	U	U	U	U	U	U	U
Total TCDFs	0.0003	0.0027	0.0029	0.0027	0.0027	0.0020	0.0020
Total PCDDs	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total PCDFs	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total HCDDs	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total HCFs	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total PCDFs	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TEQ (ND=0)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TEQ (ND=12)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Monday, December 17, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 17, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 88 samples taken in and around ground zero from December 11 through December 13. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on December 11 for a total of 91 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 3,471, with 29 samples above the standard (27 of these were collected prior to September 30, one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

**Asbestos** - Samples were collected from additional asbestos monitors at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens) on December 11. None showed exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Thirty-five air samples collected on December 13 and 14 were analyzed for asbestos. All were below the school re-entry standard.

**Air (Particulates)** - EPA used portable monitors to collect samples of particulates on December 15 and 16 at the Staten Island Landfill. No significant readings reported.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on December 11, 12 and 13 at Pace University, Borough of Manhattan Community College, the Coast Guard building in Battery Park and on Wall Street. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**PM10** - Monitoring for particulate matter (particles less than 10 micrometers in diameter) was conducted on December 11, 12 and 13 at a location on Wall Street. All 24-hour average values were below the National Ambient Air Quality Standard of 150 ug/m3.

**Particulate Monitoring** - EPA used portable monitors to collect samples on December 14, 15 and 16 in the following locations: L (north east side of Stuyvesant High School); N (south side of Pier 25); and R (north west side of Stuyvesant High School). All readings were below the OSHA time-weighted permissible exposure limit for particulates.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on December 14, 15 and 16 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene exceeded the OSHA standard at one location on the debris pile, the North Tower, on Dec. 14. There were no exceedances for benzene on Dec. 15 and 16. Four of six other samples taken at EPA's Wash Tent (West St. and Murray) and Austin Tobin Plaza on these sample days showed no detectable levels of benzene.

**Direct Air Readings** - EPA did air monitoring in and around ground zero for a number of compounds on December 15. Hydrogen flouride was detected below the OSHA permissible exposure limit. No other significant readings found.

**U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))**  
**Sampling Situation Report**  
**Monday, December 17, 2001**

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Dec 11, 1200 - 2359 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 12, 0001 - 1200 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 12, 1200 - 2359 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 13, 0001 - 1200 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

Note: Low sample volume recorded.

Landfill Ambient Air Sampling Locations

Fresh Kills (Dec 13, 0815 - 2115) - Asbestos

All 19 samples analyzed were below the TEM AHERA standard.

Fresh Kills (Dec 14, 0749 - 2145) - Asbestos

All 16 samples analyzed were below the TEM AHERA standard.

2 samples ("Perimeter" - Location #6 and Mess "Tent" - Location #15) were not collect due to equipment malfunctions.

1 sample ("Offsite" Location #19) was not submitted to the laboratory due to closed access to sampling location.

Note: Low sample volume recorded.

Fresh Kills (Dec 14) - Particulate Monitoring (Dataram)

No readings taken due to weather conditions.

Fresh Kills (Dec 15) - Particulate Monitoring (Dataram)

Nothing of significance reported at one station (P-1) based on daily average concentrations.

Lack of readings due to equipment problems.

Fresh Kills (Dec 16) - Particulate Monitoring (Dataram)

Nothing of significance reported at three stations (P-1, P-2, P-3) based on daily average concentrations.

Ambient Air Sampling Locations

## NYC / ER (Dec 11) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Chambers St./West St. (Site 2)
- Coast Guard Building - Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 8 samples were collected from these monitoring sites. All of the samples were below the TEM AHERA standard.

NYC / ER (Dec 11) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **15.22 ug/m<sup>3</sup>**.

Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **18.49 ug/m<sup>3</sup>**.

Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **16.01 ug/m<sup>3</sup>**.

Wall Street - 24-hour average concentrations for this period was **19.63 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 11) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **32.56 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Dec 12) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **15.13 ug/m<sup>3</sup>**.

Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **16.57 ug/m<sup>3</sup>**.

Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **16.16 ug/m<sup>3</sup>**.

Wall Street - 24-hour average concentrations for this period was **17.60 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 12) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **34.27 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Dec 13) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **24.86 ug/m<sup>3</sup>**.

Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **24.31 ug/m<sup>3</sup>**.

Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **21.91 ug/m<sup>3</sup>**.

Wall Street - 24-hour average concentrations for this period was **24.07 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 13) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **36.16 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

## NYC / ER (Dec 14) - Particulate Monitoring (Dataram)

No measurements were taken at the three particulate monitoring locations (Stations L, N, R) due to weather conditions.

## NYC / ER (Dec 15) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.

Instruments operated approximately 6 to 6 ½ hours.

Station L values ranged from 0.0 to 280.8 ug/m<sup>3</sup> with an average of 4.1 ug/m<sup>3</sup>.

Station N values ranged from 0.0 to 191.6 ug/m<sup>3</sup> with an average of 4.8 ug/m<sup>3</sup>.

Station R values ranged from 0.0 to 41.0 ug/m<sup>3</sup> with an average of 4.4 ug/m<sup>3</sup>.

## NYC / ER (Dec 16) - Particulate Monitoring (Dataram)

Particulate levels noted at three locations (Stations L, N, R) were below the OSHA TWA.

Instruments operated approximately 6 to 6 ½ hours.

Station L values ranged from 4.1 to 94.3 ug/m<sup>3</sup> with an average of 12.5 ug/m<sup>3</sup>.

Station N values ranged from 0.0 to 289.9 ug/m<sup>3</sup> with an average of 12.1 ug/m<sup>3</sup>.

Station R values ranged from 3.6 to 48.2 ug/m<sup>3</sup> with an average of 11.6 ug/m<sup>3</sup>.

## NYC / ER (Dec 14) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at one location (South Tower) in the debris area in the plume at ground level.

2 of the 3 other samples (Wash Tent, Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).

## NYC / ER (Dec 15) - Volatile Organics (Mobile Laboratory)

Benzene was not detected at any location, including in the debris area at ground level.

North Tower location was collected near the main chiller plant, not in the plume.

Note: It was reported to be very windy during this period.

NYC / ER (Dec 16) - Volatile Organics (Mobile Laboratory)

Benzene did not exceed OSHA TWA PEL (1 ppm) at any location, including in the debris area at ground level.  
2 of the 3 other samples (Washing Tent, Austin Tobin Plaza) did not note any benzene above the detection limit (20 ppbv).  
North Tower location was collected near the main chiller plant.

Direct Reading Instruments

NYC / ER (Dec 14)

No measurements were taken due to weather conditions.

NYC / ER (Dec 15)

Hydrogen fluoride was detected below the OSHA PEL of 3 ppm in several measurements taken in the afternoon.  
Otherwise nothing of significance reported.

NYC / ER (Dec 16)

Nothing of significance reported.



NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/13/01 0815 to 2115  
 Data Validation Date: 12/16/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	0.5µ - 5µ	5µ	S-f/cc**
12/13/01	LF01546	P-1	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/13/01	LF01547	P-2	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/13/01	LF01548	P-3	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/13/01	LF01549	P-4	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/13/01	LF01550	P-5	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/13/01	LF01551	P-6	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/13/01	LF01552	P-7	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/13/01	LF01553	P-8	720	Air	<7.0	<0.004	0	<8.75	<0.0047	<0.0047
12/13/01	LF01554	W-11	720	Air	<7.0	<0.004	1***	0	8.75	0.0047
12/13/01	LF01555	W-12A	720	Air	15.29	0.009	0	0	<8.75	<0.0047
12/13/01	LF01556	W-12B	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/13/01	LF01557	B-13	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/13/01	LF01558	B-14	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/13/01	LF01559	T-15	720	Air	38.22	0.020	0	0	<8.75	<0.0047
12/13/01	LF01560	T-16	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/13/01	LF01561	O-17	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/13/01	LF01562	O-18	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/13/01	LF01563	MPHS-20	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/13/01	LF01564	LH Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>
12/13/01	LF01565	Top Blank	0	Air	<7.0	n/a	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>	NA <sup>(b)</sup>

Key: \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected  
 NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA-MOP, Part 763 (AHERA)  
 Standard criteria: EPA-40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Responses  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/14/01 07:49 to 21:45  
 Data Validated on Date: 12/16/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AIHERA)			
					f/cc	f/mm <sup>2</sup>	f/cc	Structures (#)	5µ	S-f/cc**	
12/14/01	LF01567	P-1	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01568	P-2	581	Air	<7.0	<7.0	0	0	0	<8.75	<0.0051
12/14/01	LF01569	P-3	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0051
12/14/01	LF01570	P-4	570	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01571	P-5	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01572	P-6	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01573	P-7	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01574	P-8	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01575	W-11	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01576	W-12A	720	Air	10.19	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01577	W-12B	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01578	B-13	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01579	B-14	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01580	T-15	NS <sup>(1)</sup>	Air	NS <sup>(1)</sup>	NS <sup>(1)</sup>	0	0	0	NS <sup>(1)</sup>	NS <sup>(1)</sup>
12/14/01	LF01581	T-16	720	Air	8.92	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01582	O-17	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01583	O-18	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01584	O-19	NS <sup>(2)</sup>	Air	NS <sup>(2)</sup>	NS <sup>(2)</sup>	0	0	0	NS <sup>(2)</sup>	NS <sup>(2)</sup>
12/14/01	LF01585	MP715-20	720	Air	<7.0	<7.0	0	0	0	<8.75	<0.0047
12/14/01	LF01586	Lot Blank	0	Air	<7.0	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/14/01	LF01587	Trip Blank	0	Air	<7.0	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

- Key:
- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
  - \*\* Structure (S) is roughly equivalent to fiber (f)
  - \*\*\* Chrysotile
  - \*\*\*\* Extremely low sample volume collected
  - NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
  - NA<sup>(2)</sup> - Not analyzed for TEM
  - n/a - Not collected
  - NC - Not collected
  - NS<sup>(1)</sup> - Sample not submitted due to no sample volume
  - NS<sup>(2)</sup> - Sample not submitted to the laboratory for analysis at this time due to closed-off access to sampling station

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/1/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AIHERA)  
 Standard criteria: EPA 40CFR Part 763 (AIHERA); 0.01 fiber/cc (pCh), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/11/01 1200 to 1235  
 Data Validation Date: 12/14/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	Structures (f)	Structures (f)	S/mm <sup>2</sup>	S-f/cc**
12/11/01	RST-01795	L	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01796	L-Duplicate	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01797	M1	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01798	M1-Duplicate	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01799	N	950.3	Air	<7.0	<0.003	0	0	<11.43	<0.0048
12/11/01	RST-01800	J	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01801	Q	991.1	Air	<7.0	<0.003	0	0	<11.43	<0.0048
12/11/01	RST-01802	F	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01803	A	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01804	B	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01805	C	697	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01806	H	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01807	I	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01808	D	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01809	K	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01810	T	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01811	U	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01812	V	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01813	S	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01814	P	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01815	E	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/11/01	RST-01816	W	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/12/01	FB121201	Field Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(2)</sup>
12/12/01	TB121201	Tip Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(2)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park area (north side of Stuyvesant High), access to TAGA bus area

PCM by NIOSH 7400

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- C: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Heliport
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysothrix
- \*\*\*\* Actinobolus
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NS - Not requested
- NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter. (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/12/201 0001 to 1200  
 Data Validation Date: 12/14/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AIHERA)			
					f/m <sup>2</sup>	f/cc	0.5µ - 5µ	5µ	S <sup>(1)</sup> /f <sup>(2)</sup>	S <sup>(3)</sup> /f <sup>(4)</sup>
12/12/01	RST-01817	L	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01818	M-1	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01819	N	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01820	N-Duplicate	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01821	J-Duplicate	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01822	O	716	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01823	F	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01824	A	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01825	B	717	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01826	C	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01827	H	919.7	Air	<7.0	<0.003	0	0	<8.89	<0.0037
12/12/01	RST-01828	I	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01829	D	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01830	K	659	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01831	G	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01832	U	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01833	V	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01834	S	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01835	P	720	Air	<7.0	<0.004	0	0	<8.89	<0.0043
12/12/01	RST-01836	E	1016.6	Air	<7.0	<0.003	0	0	<8.89	<0.0030
12/12/01	RST-01837	W	323	Air	<7.0	<0.008	0	0	<8.89	<0.0095
12/12/01	FB12/201	Field Blank	0	Air	n/a	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(4)</sup>
12/12/01	TB12/201	Trip Blank	0	Air	<7.0	<7.0	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>	NA <sup>(4)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump readings  
 \*\* S<sup>(1)</sup>/f<sup>(2)</sup> is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church) & Liberty St.  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median side of Vesey & West St  
 H: Chase Manhattan Plaza  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

**PCM by NIOSH 7400:**  
 M: Western end of Harrison St. at West St (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: With side of Harrison St. (between C) & Albany  
 P: NE West St. at South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to LUSCO command post  
 R: TAGA Bus Location  
 S: Rebar & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

**TEM (AIHERA):**  
 M: Western end of Harrison St. at West St (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: With side of Harrison St. (between C) & Albany  
 P: NE West St. at South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to LUSCO command post  
 R: TAGA Bus Location  
 S: Rebar & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40 CFR Part 763 (AIHERA)  
 Standard criteria: EPA 40 CFR Part 763 (AIHERA): 0.01 fiber/cc (p0f), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/12/01 1200 to 2359  
 Data Validation Date: 12/16/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (ft)	0.5µ - 5µ	5µ	S-f/cc**
12/12/01	RST-01839	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01840	M-1	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01841	N	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01842	J	720	Air	<7.0	<0.004	1***	8.00	0.0043	<0.0043
12/12/01	RST-01843	Q	332	Air	<7.0	<0.008	0	<8.00	<0.0093	<0.0093
12/12/01	RST-01844	F	530	Air	<7.0	<0.005	0	<8.00	<0.0058	<0.0058
12/12/01	RST-01845	A	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01846	B	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01847	G	1452	Air	<7.0	<0.003	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01849	I	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01850	D	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01851	K	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01852	T	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01853	U	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01854	V	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01855	S	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01856	S-Dmp	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01857	P	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01858	P-Dmp	720	Air	<7.0	<0.004	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01859	W	720	Air	<7.0	<0.003	0	<8.89	<0.0048	<0.0048
12/12/01	RST-01860	W	720	Air	7.64	0.004	0	<8.89	<0.0048	<0.0048
12/13/01	FB121301	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/13/01	FB121301	Tip, BBRK	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Dey St.  
 C: Trinity (a.k.a. Church & Liberty St.  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: Western end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: Onwalkway (west) North Park area (north side of Soyresant High), access to TAGA bus area

M: Western end of Harrison St. at West St. (on tree next to bulkhead)  
 M1: West St. - 50 yards south of Harrison St. at bulkhead  
 N: South side of Pier 25 (next to volleyball ct)  
 P: NE corner of South End Ave. & Albany  
 Q: Barclay & West St. (center island) in proximity to USCC command post  
 R: TAGA Bus Location  
 S: Reactor & South End  
 T: Pier 6 Hillport  
 U: Pier 6 East Sign  
 V: Pier 8 East Sign  
 W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples Via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/13/01 0601 to 1200  
 Data Validation Date: 12/16/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	FCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>3</sup>	f/cc	Structures (#)	5µ	10µ	S-f/cc**
12/13/01	RST-01851	L	30***	Air	<7.0	<0.050	0	0	0	<0.1027
12/13/01	RST-01852	M-1	720	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	RST-01853	N	1005.4	Air	<7.0	<0.003	0	0	0	<11.43
12/13/01	RST-01854	J	389	Air	<7.0	<0.006	0	0	0	<0.0079
12/13/01	RST-01855	Q	416.5	Air	<7.0	<0.006	0	0	0	<0.0074
12/13/01	RST-01856	A	720	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	RST-01857	B	717	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	RST-01858	C	720	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	RST-01870	H	720	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	RST-01871	I	720	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	RST-01872	D	720	Air	<7.0	<0.004	2***	1***	0	26.87
12/13/01	RST-01873	K	690	Air	<7.0	<0.004	0	0	0	16
12/13/01	RST-01874	T	720	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	RST-01875	U	689	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	RST-01876	V	689	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	RST-01877	S	720	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	RST-01878	S-Dup	720	Air	<7.0	<0.004	0	0	0	<0.0043
12/13/01	RST-01879	P	720	Air	<7.0	<0.004	0	1***	0	5.89
12/13/01	RST-01880	P-Dup	720	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	RST-01881	E	720	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	RST-01882	W	720	Air	<7.0	<0.004	0	0	0	<0.0048
12/13/01	FB121301	Field Blank	0	Air	<7.0	n/a	NA <sup>1b</sup>	NA <sup>1b</sup>	NA <sup>1b</sup>	NA <sup>1b</sup>
12/13/01	TB121301	Trip Blank	0	Air	<7.0	n/a	NA <sup>1b</sup>	NA <sup>1b</sup>	NA <sup>1b</sup>	NA <sup>1b</sup>

**Sampling Locations:**  
 A: NE corner of West Broadway & Barclay St.  
 B: SE corner of Church & Liberty St.  
 C: Trinity (a.k.a. Church) & Liberty St.  
 C1: SW corner of Broadway & Liberty St.  
 D: East end of Albany St. at Greenwich St.  
 E: West end of Liberty St. at South End Ave  
 F: Northern median strip of Vesey & West St  
 G: Church and Duane St.  
 H: South side of Chase Manhattan Plaza at Pine St.  
 I: SE corner of Wall St. & Broadway  
 J: NE corner of Warren & West St.  
 K: West St. & Albany in median strip  
 L: On walkway toward North Park rec area (north side of Stuyvesant High), access to TAGA bus area

**Key:**  
 \* Sample volume (filters) is below recommended value for TEM method, volume is based on pump reading.  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 \*\*\*\* Extremely low sample volume collected  
 NA<sup>1b</sup> - Not analyzed due to overloading of particulates  
 NA<sup>2b</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

**FCM by NIOSH 7400**  
 M: Western end of Harrison St. at West St.  
 N: West St. - 50 yards south of Harrison St. at bulkhead  
 P: NE corner of South End Ave. & Albany St.  
 Q: Barclay & West St. (center island) in proximity to USCG command post  
 R: TAGA Bus Location  
 S: Rector & South End  
 T: Pier 6 Helipad  
 U: Pier 6 Exit 2  
 V: Pier 6 Bus Sign  
 W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (FCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/11/01 1200 to 2400  
 Data Validation Date: 12/16/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/imm <sup>2</sup>	f/cc	Structures (#)	0.5µ-5µ	5µ	S/imm <sup>2</sup>	S-f/cc*
12/11/01	7093-18-0075	Park Row	1464	Air	<7.0	<0.002	0	0	0	<16.00	<0.0042
12/11/01	7093-19-0075	Chamber St. <sup>(a)</sup>	1440	Air	<7.0	<0.002	0	0	0	<16.00	<0.0043
12/11/01	7093-20-0075	Coast Guard	1152***	Air	<7.0	<0.002	0	0	0	<13.33	<0.0045
12/11/01	7093-15-0074	Manhattan PS # 143	1440	Air	<7.0	<0.002	0	0	0	<16.00	<0.0043
12/11/01	7094-09-0064	Bronx PS #154	1440	Air	<7.0	<0.002	0	0	0	<16.00	<0.0043
12/11/01	7096-12-0069	Queens PS #199	1266	Air	<7.0	<0.002	0	0	0	<16.00	<0.0049
12/11/01	7095-08-0071	Brooklyn PS #274	1266	Air	<7.0	<0.002	0	0	0	<16.00	<0.0049
12/11/01	7097-18-0067	Staten Island PS #44	1440	Air	<7.0	<0.002	0	0	0	<16.00	<0.0043

Key:  
 \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis  
 \*\*\*\* Chrysler  
 NR - analysis not requested  
 NS - Sample not submitted for analysis  
 n/a - Not applicable  
 (a) - Sample location previously identified as BMCC

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/imm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

Daily DataRam Particulate Monitoring Summary Sheet  
 Staten Island Landfill  
 December 15, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	47	11:45:00	10	00:15:00	100	0.0	4.9	45.0	320.0
2	-74.198262	40.566883	2295	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0
3	-74.198685	40.570054	2011	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0
7	-74.205414	40.560434	2294	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0
8	-74.203019	40.561915	2083	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0



Daily DataRam Particulate Monitoring Summary Sheet  
Staten Island Landfill  
December 16, 2001

Location	Longitude	Latitude	DataRam ID	Tag #	Logged Points	Elapsed Time	Avg. Time (sec)	Logging Periods	Calibration Factor	STEL ug/m3	Min. Conc. ug/m3	Avg. Conc. ug/m3	Max. Conc. ug/m3
1	-74.199795	40.565139	2226	1	51	12:45:00	10	00:15:00	100	0.0	4.0	20.2	208.7
2	-74.198262	40.566883	2295	1	50	12:30:00	10	00:15:00	100	0.0	0.0	14.1	560.8
3	-74.198685	40.570054	2011	1	50	12:30:00	10	00:15:00	100	0.0	0.0	10.9	284.8
4	-74.201380	40.569790	0	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0
5	-74.205873	40.568892	0	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0
6	-74.207406	40.563818	0	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0
7	-74.205414	40.560434	2294	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0
8	-74.203019	40.561915	2083	1	0	00:00:00	10	00:15:00	0	0.0	0	0	0

NO QC EVALUATION HAS BEEN PERFORMED.  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 11/16/01

Amended 11/20

File Name	NYC164	NYC165	NYC166	NYC168	NYC169	NYC167
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	North Tower Plume	South Tower Plume	Austin Tobin Plaza
Sample Number			A07107	A07108	A07109	A07110
Sample Height			Breathing Level	Ground Level	Ground Level	Breathing Level
Sample Volume		250 mL	250 mL	20 mL	5 mL	250 mL
Resolving Time (RL)	20	20	20	250	1000	20
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	1200 ppt	66000 ppb	RL
Freon 22	RL	RL	RL	RL	RL	RL
Dichlorofluoromethane	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	5500 ppb	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	17000 ppt	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichloromethane	RL	RL	RL	RL	RL	RL
Isobutylene	RL	RL	RL	RL	RL	RL
Acetone	RL	RL	RL	1500 ppb	120000 ppb	30 ppb
Trichlorofluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Methylenecyclohexane	RL	RL	RL	RL	RL	RL
Methylcyclohexane	RL	RL	RL	RL	RL	RL
MVBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
1-Butanol	RL	RL	RL	260 ppb	31000 ppb	RL
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	2400 ppb	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	5000 ppb	73000 ppb	RL
Isobutene	RL	RL	RL	RL	RL	RL
Trichloroethane	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	1400 ppb	23000 ppb	RL
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	1000 ppb	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromomethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	1500 ppb	5000 ppb	RL
m,p-Xylenes	RL	RL	RL	RL	2800 ppb	RL
O-Xylene	RL	RL	RL	RL	2000 ppb	RL
Styrene	RL	RL	RL	340 ppb	4600 ppb	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	1100 ppb	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Early

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/16/01

RST: Miranda, D.

Location	Time	FID (ppm)	FID (ppm)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	0810	.3	.1	ND	20.6	ND	ND	ND	ND	ND	ND	ND	ND
M1	0819	.2	.1	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
N	0827	ND	.1	ND	20.5	ND	ND	ND	ND	ND	ND	ND	ND
J	0834	ND	.1	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
Q	0843	ND	.1	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
F	0851	ND	.1	ND	20.4	2	ND	ND	ND	ND	ND	ND	ND
A	0901	ND	.1	ND	20.4	3	ND	ND	ND	ND	ND	ND	ND
B	0909	ND	.2	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
C	0913	ND	.1	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
H	0928	ND	.1	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
I	0936	ND	.1	ND	20.4	ND	ND	ND	ND	ND	ND	ND	ND
D	0944	ND	.2	ND	20.5	3	ND	ND	ND	ND	ND	ND	ND
K	0951	ND	.2	ND	20.4	3	ND	ND	ND	ND	ND	ND	ND
T	1001	ND	.1	ND	20.4	1	ND	ND	ND	ND	ND	ND	ND
U	1006	.1	.1	ND	20.5	1	ND	ND	ND	ND	ND	ND	ND
V	1012	1.1	.2	ND	20.5	2	ND	ND	ND	ND	ND	ND	ND
S	1022	ND	.2	ND	20.6	3	ND	ND	ND	ND	ND	ND	ND
P	1027	.5	.1	ND	20.7	1	ND	ND	ND	ND	ND	ND	ND
E	1033	.6	ND	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND

HCL, HF, COCl<sub>2</sub>-SPM

Location A: Berklay and West Broadway  
 Location B: Church and Dey  
 Location C: Liberty and Church  
 Location D: Albany and Greenwich  
 Location E: Liberty and South End  
 Location F: West and Vesey  
 Location G: No location  
 Location H: Chase Plaza  
 Location I: Wall Street and Broadway

Location J: West and Warren  
 Location K: Albany and West  
 Location L: Stuyvesant High School  
 Location M: West and Warren  
 Location N: Pier 25 Volleyball  
 Location O: No location  
 Location P: Albany and South End  
 Location Q: West and Murray  
 Location R: No asbestos sampling

Location S: Rector and South End  
 Location T: Pier 6 Heliport  
 Location U: Pier 6 Exit 2  
 Location V: Pier 6 Bus Sign  
 Location W: No location  
 Location X: No location  
 Location Y: No location  
 Location Z: No location

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United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Late

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/16/01

RST: Miranda

Location	Time	FID (min)	FID (min)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1223	*	ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
M	1226		ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
N	1230		ND	ND	20.8	ND	ND	ND	ND	ND	ND	ND	ND
J	1237		ND	ND	20.8	1	ND	ND	ND	ND	ND	ND	ND
Q	1240		ND	ND	20.9	1	ND	ND	ND	ND	ND	ND	ND
F	1244		ND	ND	20.9	1	ND	ND	ND	ND	ND	ND	ND
A	1250		ND	ND	20.9	3	ND	ND	ND	ND	ND	ND	ND
B	1256		ND	ND	20.9	2	ND	ND	ND	ND	ND	ND	ND
C	1259		ND	ND	20.9	4	ND	ND	ND	ND	ND	ND	ND
H	1307		ND	ND	20.9	3	ND	ND	ND	ND	ND	ND	ND
I	1311		ND	ND	20.9	2	ND	ND	ND	ND	ND	ND	ND
D	1315		ND	ND	20.9	4	ND	ND	ND	ND	ND	ND	ND
K	1320		ND	ND	20.8	3	ND	ND	ND	ND	ND	ND	ND
T	1326		ND	ND	20.8	4	ND	ND	ND	ND	ND	ND	ND
U	1330		ND	ND	20.8	1	ND	ND	ND	ND	ND	ND	**
V	1334		ND	ND	20.8	3	ND	ND	ND	ND	ND	ND	
S	1340		ND	ND	20.9	2	ND	ND	ND	ND	ND	ND	
P	1344		ND	ND	20.9	1	ND	ND	ND	ND	ND	ND	
E	1347		ND	ND	20.9	2	ND	ND	ND	ND	ND	ND	

\* Flame would not start  
\*\* Dead Battery

HCL, HF, COCL<sub>2</sub>-SPD

Location A: Barkley and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Stuyvesant High School  
Location M: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Heliport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: BRENNAN

U.S. EPA: Norrell

Date: 6/15/61

RST Site Project Manager Brennan

Location	R	L	N		
DataRAM ID No.	2646	2647	2643		
Flow Rate (Liters / Minute)	2.00/m	2.00/m	2.00/m		
Start Time	0758	0801	0821		
Stop Time	1421	1424	1429		
Run Time (Minutes)	383	383	368		
Minimum Concentration (ug/m <sup>3</sup> )	0.0	0.0	0.0		
Maximum Concentration (ug/m <sup>3</sup> )	41.0	280.8	191.6		
Average Concentration (TWA) (ug/m <sup>3</sup> )	4.4	4.1	4.8		

United States Environmental Protection Agency  
Removal Support Team  
DataRAM Monitoring Work Sheet

Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

Site: World Trade Center

Sampler: Lien

U.S. EPA: Norrell

Date: 12/18/01

RST Site Project Manager Brennan

Location	R	L	N			
DataRAM ID No.	2647	2646	2643			
Flow Rate (Liters/Minute)	2.0	2.0	2.0			
Start Time	09:00	09:04	09:22			
Stop Time	14:25	14:26	14:27			
Run Time (Minutes)	384	382	365			
Minimum Concentration (ug/m <sup>3</sup> )	3.6	4.1	0.0			
Maximum Concentration (ug/m <sup>3</sup> )	48.2	94.3	287.9			
Average Concentration (TWA) (ug/m <sup>3</sup> )	<del>11.6</del> 11.6 (uM)	12.5	12.1			

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/14/01

File Name	NYC448	NYC449	NYC450	NYC451	NYC453	NYC452
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent	Austin Tobin Plaza	North Tower	South Tower
Sample Number			A07219	A07220	A07221	A07222
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	250 mL	20 mL
Reporting Limit (RL)	20	20	20	20	20	250
Sample Conc. Units	ppb,	ppb,	ppb,	ppb,	ppb,	ppb,
Propylene	RL	RL	RL	RL	RL	2300
Chlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	32	3500
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	340
Chloroethane	RL	RL	RL	RL	RL	290
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	68	38	34	RL
Acetone	RL	RL	150	160	160	8800
Trichlorofluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	RL
M'YBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanol	RL	RL	RL	RL	26	1000
cis-1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	RL	1100
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	27	6000
Heptane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	110	41	37	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	390
cis-1,3-Dichlorocyclohexane	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	RL	2900
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
3-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	25	4600
m&p-Xylenes	RL	RL	RL	RL	RL	RL
o-Xylene	RL	RL	RL	RL	RL	RL
Styrene	RL	RL	RL	RL	RL	4300
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/15/01

File Name	NYC457	NYC458	NYC459	NYC460	NYC461	NYC464
Sample Location	Instrument Blank	Tedlar Bag Blank	Washing Tent Ambient Air	Austin Tobin Plaza	North Tower Plume	South Tower Plume
Sample Number:			A07223	A07226	A07224	A07225
Sample Height:			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	250 mL	200 mL
Reporting Limit (RL)	20	20	20	20	20	25
Sample Conc. Units	ppb	ppb	ppb	ppb	ppb	ppb
Propylene	RL	RL	RL	RL	RL	RL
Chlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorodifluoromethane	RL	RL	RL	RL	RL	RL
Dichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	RL	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	RL
Isopropyl Alcohol	RL	RL	77	RL	RL	RL
Acetone	RL	RL	RL	RL	RL	RL
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
3-Chloropropane	RL	RL	RL	RL	RL	RL
Methylvinyl Ether	RL	RL	RL	RL	RL	RL
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	RL	RL
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	RL	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	RL
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	RL	RL
Heptane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	RL
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	RL	RL
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	RL	RL
m,p-Xylenes	RL	RL	RL	RL	RL	RL
o-Xylene	RL	RL	RL	RL	RL	RL
Styrene	RL	RL	RL	RL	RL	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL



1859

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.

EPA Contract No. 68-W-00-113

DATE: 12/15/11 EARLY  
(10 U)

RST: SYDARTH

Location	Time	FID (units)	PID (units)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppb)
L	0802	0.1	0.1	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
M1	0810	ND	0.3	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
N	0821	ND	0.3	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
J	0840	ND	0.2	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
O	0845	ND	0.2	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
F	0855	ND	0.2	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
A	0902	ND	0.2	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
B	0915	ND	0.2	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
C	0920	ND	0.2	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
H	0930	ND	0.2	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
I	0940	ND	0.2	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
D	0950	ND	0.2	ND	20.9	1	ND	ND	ND	ND	ND	ND	ND
K	1000	ND	0.2	ND	20.9	2	ND	ND	ND	ND	ND	ND	ND
T	1010	ND	0.2	ND	20.9	1	ND	ND	ND	ND	ND	ND	ND
U	1020	ND	0.2	ND	20.9	1	ND	ND	ND	ND	ND	ND	ND
V	1025	ND	0.2	ND	20.9	3	ND	ND	ND	ND	ND	ND	ND
S	1038	ND	0.1	ND	20.9	1	ND	ND	ND	ND	ND	ND	ND
P	1046	ND	0.1	ND	20.9	3	ND	ND	ND	ND	ND	ND	ND
E	1055	ND	0.1	ND	20.9	3	ND	ND	ND	ND	ND	ND	ND

ACL, HF, COCl<sub>2</sub> ⇒ SPM

Location A: Barkley and West Broadway  
Location B: Church and Dey  
Location C: Liberty and Church  
Location D: Albany and Greenwich  
Location E: Liberty and South End  
Location F: West and Vesey  
Location G: No location  
Location H: Chase Plaza  
Location I: Wall Street and Broadway

Location J: West and Warren  
Location K: Albany and West  
Location L: Snyvesant High School  
Location M: West and Warren  
Location N: Pier 25 Volleyball  
Location O: No location  
Location P: Albany and South End  
Location Q: West and Murray  
Location R: No asbestos sampling

Location S: Rector and South End  
Location T: Pier 6 Halfport  
Location U: Pier 6 Exit 2  
Location V: Pier 6 Bus Sign  
Location W: No location  
Location X: No location  
Location Y: No location  
Location Z: No location

1860

United States Environmental Protection Agency  
Removal Support Team  
Air Monitoring Work Sheet



Roy F. Weston, Inc.  
EPA Contract No. 68-W-00-113

DATE: 12/15/01 (Late)

RST: Miranda

Location	Time	FID (min)	PID (min)	LEL (%)	O <sub>2</sub> (%)	CO (ppm)	H <sub>2</sub> S (ppm)	SO <sub>2</sub> (ppm)	Cl <sub>2</sub> (ppm)	HCN (ppm)	HCl (ppm)	HF (ppm)	COCl <sub>2</sub> (ppm)
L	1232	*	ND	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
M	1235		ND	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
N	1239		ND	ND	20.9	ND	ND	ND	ND	ND	ND	ND	ND
J	1246		ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND
Q	1251		ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND
F	1255		ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND
A	1302		ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND
B	1305		ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND
C	1309		ND	ND	21.0	3	ND	ND	ND	ND	ND	ND	ND
H	1316		ND	ND	21.0	ND	ND	ND	ND	ND	ND	ND	ND
I	1322		ND	ND	21.0	2	ND	ND	ND	ND	ND	ND	**
D	1330		ND	ND	21.0	3	ND	ND	ND	ND	ND	-9	
R	1335		ND	ND	21.0	3	ND	ND	ND	ND	ND	ND	
T	1341		ND	ND	21.0	1	ND	ND	ND	ND	ND	ND	
U	1343		ND	ND	21.0	ND	ND	ND	ND	ND	ND	7	
V	1346		ND	ND	21.1	1	ND	ND	ND	ND	ND	7	
S	1354		ND	ND	21.1	2	ND	ND	ND	ND	ND	ND	
P	1356		ND	ND	21.1	1	ND	ND	ND	ND	ND	ND	
E	1400		ND	ND	21.1	ND	ND	ND	ND	ND	ND	ND	

\* Flame would not light  
\*\* Dead battery

HCl, HF, COCl<sub>2</sub> - SPM

- Location A: Berkley and West Broadway
- Location B: Church and Dey
- Location C: Liberty and Church
- Location D: Albany and Greenwich
- Location E: Liberty and South End
- Location F: West and Vesey
- Location G: No location
- Location H: Chase Plaza
- Location I: Wall Street and Broadway

- Location J: West and Warren
- Location K: Albany and West
- Location L: Shaysvat High School
- Location M: West and Warren
- Location N: Pier 25 Volleyball
- Location O: No location
- Location P: Albany and South End
- Location Q: West and Murray
- Location R: No asbestos sampling

- Location S: Rector and South End
- Location T: Pier 6 Helipart
- Location U: Pier 6 Exit 2
- Location V: Pier 6 Bus Sign
- Location W: No location
- Location X: No location
- Location Y: No location
- Location Z: No location

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Tuesday, December 18, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 18, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 88 samples taken in and around ground zero from December 13 through December 15. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on December 6 for a total of 90 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 3,561, with 29 samples above the standard (27 of these were collected prior to September 30, one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

**Asbestos** - Samples were collected from additional asbestos monitors at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens) on December 6. None showed exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Eighteen air samples collected on December 15 were analyzed for asbestos. All were below the school re-entry standard.

**PM10** - Monitoring for particulate matter (particles less than 10 micrometers in diameter) was conducted from November 17 through November 29 at Park Row, Chambers and West Streets, the Coast Guard building in Battery Park and at P.S. 274 on Bushwick Avenue in Brooklyn. All 24-hour average values were below the National Ambient Air Quality Standard of 150 ug/m3.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on December 17 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene exceeded the OSHA standard at one location on the debris pile, the North Tower.

U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Tuesday, December 18, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Dec 13, 1200 - 2359 hrs)

All 21 samples analyzed were below the TEM AHERA standard.  
1 sample (Location C) was not collected due to equipment malfunction.

NYC / ER (Dec 14, 0001 - 1200 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 14, 1200 - 2359 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 15, 0001 - 1200 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

Landfill Ambient Air Sampling Locations

Fresh Kills (Dec 15, 0815 - 2210) - Asbestos

All 18 samples analyzed were below the TEM AHERA standard.  
1 sample ("Offsite" Location #19) was not submitted to the laboratory due to closed access to sampling location.

Ambient Air Sampling Locations

NYC / ER (Dec 6) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Chambers St./West St. (Site 2)
- Coast Guard Building: Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 7 samples were collected from these monitoring sites.  
All of the samples were below the TEM AHERA standard.  
A sample was not collected from Site 6.

NYC / ER (Nov 17) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was *17.1 ug/m<sup>3</sup>*.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was *22.88 ug/m<sup>3</sup>*.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *21.13 ug/m<sup>3</sup>*.  
Canal Street Post Office (Site 4) - No data reported.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *15.85 ug/m<sup>3</sup>*.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 18) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was *26.0 ug/m<sup>3</sup>*.  
Chambers St./West St. (Site 2) - 24-hr average concentration for this period was *10.11 ug/m<sup>3</sup>*.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *24.29 ug/m<sup>3</sup>*.  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was *8.36 ug/m<sup>3</sup>*.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - No data reported.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 19) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was *44.8 ug/m<sup>3</sup>*.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was *46.01 ug/m<sup>3</sup>*.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *34.61 ug/m<sup>3</sup>*.  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was *43.59 ug/m<sup>3</sup>*.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *29.9 ug/m<sup>3</sup>*.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 20) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was *20.8 ug/m<sup>3</sup>*.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was *18.14 ug/m<sup>3</sup>*.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was *13.39 ug/m<sup>3</sup>*.  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was *20.72 ug/m<sup>3</sup>*.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was *13.8 ug/m<sup>3</sup>*.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 21) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **36.8 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **27.91 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **20.30 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - No data reported.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **19.4 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 22) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **36.4 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - No data reported.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **28.41 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **32.61 ug/m<sup>3</sup>**.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **4.1 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 23) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **35.1 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - 24-hr average concentration for this period was **47.92 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **47.84 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **44.30 ug/m<sup>3</sup>**.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **46.5 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 24) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hour average concentration for this period was **12.27 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **30.87 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **27.20 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - No data reported.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **8.4 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 25) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hour average concentration for this period was **19.68 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **16.68 ug/m<sup>3</sup>**.

Coast Guard Building - Battery Park (Site 3) - No data reported.

Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **15.14 ug/m<sup>3</sup>**.

P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **14.7 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 26) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hour average concentration for this period was **27.62 ug/m<sup>3</sup>**.

Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **29.33 ug/m<sup>3</sup>**.

Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **21.84 ug/m<sup>3</sup>**.

Canal Street Post Office (Site 4) - No data reported.

P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **24.5 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 27) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hour average concentration for this period was **34.61 ug/m<sup>3</sup>**.

Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **32.74 ug/m<sup>3</sup>**.

Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **29.33 ug/m<sup>3</sup>**.

Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **28.87 ug/m<sup>3</sup>**.

P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **28.1 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 28) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hour average concentration for this period was **44.59 ug/m<sup>3</sup>**.

Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **45.55 ug/m<sup>3</sup>**.

Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **45.22 ug/m<sup>3</sup>**.

Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **40.60 ug/m<sup>3</sup>**.

P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **29.8 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 29) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hour average concentration for this period was **41.06 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **33.94 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **35.02 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - 24-hour average concentration for this period was **35.40 ug/m<sup>3</sup>**.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **14.2 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Nov 30) - Particulate Monitoring (PM<sub>10</sub>)

Park Row (Site 1) - 24-hour average concentration for this period was **40.39 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **42.47 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentration for this period was **37.77 ug/m<sup>3</sup>**.  
Canal Street Post Office (Site 4) - No data reported.  
P.S. 274 - 800 Bushwick Avenue, Brooklyn (Site 7) - 24-hour average concentration for this period was **35.8 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

## NYC / ER (Dec 17) - Volatile Organics (Mobile Laboratory)

Benzene exceeded OSHA TWA PEL (1 ppm) at one location (North Tower) in the debris area in the plume at ground level.  
1 of the 3 other samples (Location R) did not note any benzene above the detection limit (20 ppbv).



NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/15/01 08:15 to 22:10

Data Validation Date: 12/17/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	f/m <sup>3</sup>	f/cc	TEM (AHERA)			
							Structures (#)	5µ	S-f/cc**	
12/15/01	LF01588	P-1	720	Air	NA (1)	0	0	0	<8.75	<0.0047
12/15/01	LF01589	P-2	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/15/01	LF01590	P-3	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/15/01	LF01591	P-4	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/15/01	LF01592	P-5	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/15/01	LF01593	P-6	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/15/01	LF01594	P-7	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/15/01	LF01595	P-8	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/15/01	LF01596	P-9	720	Air	19.75	0.014	2***	0	17.5	0.0094
12/15/01	LF01597	W-11	720	Air	26.75	0.014	3***	0	26.25	0.0140
12/15/01	LF01598	W-12A	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/15/01	LF01599	W-12B	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/15/01	LF01599	B-13	720	Air	<7.0	<0.004	2***	0	17.5	0.0094
12/15/01	LF01600	B-14	720	Air	<7.0	<0.004	3***	0	35.00	0.0187
12/15/01	LF01601	T-15	720	Air	12.74	0.007	1***	0	8.75	0.0047
12/15/01	LF01602	T-16	720	Air	13.38	0.007	0	0	<8.75	<0.0047
12/15/01	LF01603	O-17	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/15/01	LF01604	O-18	720	Air	<7.0	<0.004	0	0	<8.75	<0.0047
12/15/01	LF01605	O-19	NS	Air	NS	NS	NS	NS	NS	NS
12/15/01	LF01606	MPHS-20	720	Air	<7.0	<0.004	1***	0	6.75	0.0047
12/15/01	LF01606	Lot Blank	0	Air	<7.0	n/a	0	0	<8.75	n/a
12/15/01	LF01607	Top Blank	0	Air	<7.0	n/a	0	0	<8.75	n/a

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA (1) - Not analyzed due to overloading of particulates  
 NA (2) - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected  
 NS - Sample not submitted due to inability to access the location

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/04  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fibers/cc (PCM), 70 S/mm<sup>2</sup>, volume >200 L, for 25 mm filter (TEM)

NYC Responses  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/13/01 1200 to 2359 Data Validation Date: 12/17/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	S-f/cc**	
12/13/01	RST-01863	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01864	M-1	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01865	N	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01866	J	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01867	C	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01868	F	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01869	B	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01890	G	NS	Air	NS	NS	NS	NS	NS
12/13/01	RST-01891	H	1118.6	Air	<7.0	<0.002	0	<13.33	<0.0048
12/13/01	RST-01892	H-Duplicate	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01893	I	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01894	I-Duplicate	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01895	D	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01896	K	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01897	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01898	U	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01899	V	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01900	S	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01901	P	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/13/01	RST-01902	E	1045.5	Air	<7.0	<0.003	0	<13.33	<0.0048
12/13/01	RST-01903	W	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/14/01	FB121401	Field Blank	0		n/a	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/14/01	TB121401	Trip Blank	0		<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Ely St.
- C: Top of West Broadway
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method, volume is based on pump setting
- \*\* S-f/cc (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 12/14/01 0001 to 1200  
Data Validation Date: 12/17/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/m <sup>2</sup>	f/cc	Structures (#)	0.5µ-5µ	5µ	S-fiber**
12/14/01	RST-01904	L	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01905	M-1	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01906	N	1152.2	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01907	O	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01908	P	720	Air	<7.0	<0.002	0	<13.33	0	<0.0042
12/14/01	RST-01909	F	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01910	A	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01911	B	720	Air	7.64	0.004	0	<8.85	0	<0.0048
12/14/01	RST-01912	C	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01913	H	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01914	I-Duplicate	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01915	I	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01916	I-Duplicate	654	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01917	D	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01918	K	720	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	0	<8.85	0	<0.0048
12/14/01	RST-01919	T	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01920	U	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01921	V	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01922	S	698	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01923	P	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01924	E	720	Air	<7.0	<0.004	0	<8.85	0	<0.0048
12/14/01	RST-01925	W	720	Air	9.55	0.005	0	<8.85	0	<0.0048
12/14/01	FB121401	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/14/01	TB121401	Trip Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Key:  
\* Sample volume (liters) is below recommended limit for the TEM method except for sample RST-1908; volume is based on pump reading.  
\*\* Structure (S) is roughly equivalent to fiber (f)  
\*\*\* Chrysotile  
NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
NA<sup>(2)</sup> - Not analyzed for TEM  
n/a - Not applicable  
NR - Not requested  
NS - Sample not submitted

M: Western end of Harrison St. at West St. (on foot next to bulkhead)  
M1: West St. - 50 yards south of Harrison St. at bulkhead  
N: South side of Pier 25 (next to volleyball ct)  
P: NE corner of South End Ave. & Albany  
O: Barclay & West St. (center island) in proximity to USCG command post  
R: TAGA Bus Location  
S: Reactor & South End  
T: Pier 6 Heliport  
U: Pier 6 Exit 2  
V: Pier 6 Bus Sign  
W: Wash Tent Common Area

Sampling Locations:  
A: NE corner of West Broadway & Barclay  
B: NE corner of Church & Liberty  
C: Top of Church & Liberty  
C1: SW corner of Broadway & Liberty St.  
D: East end of Albany St. at Greenwich St.  
E: Western end of Liberty St. at South End Ave  
F: Northern median strip of Vesey & West St  
G: Church and Duane St.  
H: South side of Chase Manhattan Plaza at Pine St.  
I: SE corner of Wall St. & Broadway  
J: NE corner of Warren & West St.  
K: West St. & Albany in median strip  
L: On walkway toward North Park rec area (north side of Suyessant High), access to TAGA bus area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/m<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Responses  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 12/14/01 1200 to 2359

Data Validation Date: 12/17/01

PCM by NIOSH 7400				TEM (AHERA)					
Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	f/m <sup>2</sup>	f/cc	Structures (#)	S- fibers**	S/m <sup>3</sup>
12/14/01	RST-01926	L	720	Air	<7.0	<0.004	0	1***	8.89
12/14/01	RST-01927	M-1	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01928	N	1057.4	Air	<7.0	<0.003	0	0	<13.33
12/14/01	RST-01929	J	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01930	Q	1154.3	Air	<7.0	<0.002	0	0	<13.33
12/14/01	RST-01931	F	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01932	A-Dup	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01933	B	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01935	C	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01936	C-Dup	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01937	H	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01938	I	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01939	D	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01940	K	46***	Air	<7.0	<0.059	0	0	<8.00
12/14/01	RST-01941	L	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01942	U	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01943	V	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01944	S	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01945	P	720	Air	<7.0	<0.004	0	0	<8.89
12/14/01	RST-01946	E	720	Air	<7.0	<0.004	0	0	<8.89
12/15/01	FB121501	Field Blank	0	Air	<7.0	<0.004	0	1***	8.89
12/15/01	TB121501	Trip Blank	0	Air	<7.0	n/a	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(3)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: West side of Broadway & Liberty St.
- D: SW corner of Broadway & Liberty St.
- E: East end of Albany St. at Greenwich St.
- F: West end of Liberty St. at South End Ave
- G: Northern median strip of Vesey & West St
- H: Church and Duane St.
- I: South side of Chase Manhattan Plaza at Pine St.
- J: SE corner of Wall St. & Broadway
- K: NE corner of Warren & West St.
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on trip reading
- \*\* Structures (#) is roughly equivalent to fiber (f)
- \*\*\* Chromatide
- \*\*\*\* Extremely low sample volume collected
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Sample not submitted

Matrix:

- M: Western end of Harrison St. at West St. (on lot next to bulkhead)
- M1: West St. 50'
- N: South side of Pier 25 (next to volleyball C)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rectox & South End
- T: Pier 6 Heliprot
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Responses  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 12/15/01 00:01 to 12:00  
Data Validation Date: 12/17/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	Structures (f)	Structures (f)	5µ	S-f/cc**	
12/15/01	RST-01948	L	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01949	M-1	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01950	N	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01951	O	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01952	J	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01953	F	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01954	A	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01955	B	720	Air	8.28	0.004	0	0	0	8.89	0.0048
12/15/01	RST-01956	B-Dup	720	Air	8.92	0.005	0	0	0	<8.89	<0.0048
12/15/01	RST-01957	C	710	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01958	H	1154.3	Air	7.01	0.002	0	0	0	<13.53	<0.0044
12/15/01	RST-01959	I	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01960	D-Dup	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01961	K	635	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01962	Y	703	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01963	U	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01964	V	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01965	S	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01966	P	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01967	E	703.8	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01968	E	703.8	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01969	Field Blank	0	PA	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-1361	Field Blank	0	PA	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	TR-21361	Tripp Blank	0	PA	<7.0	<0.004	0	0	0	<8.89	<0.0048

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church & Duane St.
- H: SE corner of Church & Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

PCM by NIOSH 7400

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Pier 6 & South End
- T: Pier 6 East 2
- U: Pier 6 Bus Stop
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- NS - Not applicable
- NR - Not reported
- MS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 400/PR Part 763 (AHERA)  
Standard criteria: EPA 400/PR Part 763 (AHERA): 0.01 fibers/cc (PCM), 70 S/m<sup>3</sup>, volume 7200 L for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/06/01 1200 to 2400  
 Data Validation Date: 12/12/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
12/06/01	7093-18-0070	Park Row	1292	Air	<7.0	<0.002	0	<16.00	<0.0048	
12/06/01	7093-19-0070	BMCC	1440	Air	<7.0	<0.002	0	<16.00	<0.0043	
12/06/01	7093-20-0070	Coast Guard	1440	Air	<7.0	<0.002	0	<16.00	<0.0043	
12/06/01	NS	Manhattan PS # 143	NS	Air	NS	NS	NS	NS	NS	
12/06/01	7094-09-0060	Bronx PS #154	1440	Air	<7.0	<0.002	0	<16.00	<0.0043	
12/06/01	7095-12-0064	Queens PS #199	1440	Air	<7.0	<0.002	0	<16.00	<0.0043	
12/06/01	7095-98-0066	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	<16.00	<0.0043	
12/06/01	7097-18-0063	Staten Island PS #44	1440	Air	<7.0	<0.002	0	<16.00	<0.0043	

- Key:
- \*Structure (S) roughly equivalent to fiber (f)
  - \*\*Sample volume is based on pump reading
  - \*\*\* Sample volume is below recommended limit for TEM analysis
  - \*\*\*\* Chrysler
  - NR - analysis not requested
  - NS - Sample not submitted for analysis
  - n/a - Not applicable

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NO QC EVALUATION HAS BEEN PERFORMED,  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/17/01

File Name	NYC476	NYC479	NYC480	NYC482	NYC485	NYC483
Sample Location	Instrument Blank	Tedlar Bag Blank	Location R	Austin Tobin Plaza	North Tower	South Tower
Sample Number			Ambient Air		Plume	Plume
Sample Height			A07231	A07232	A07233	A07234
Sample Volume		250 mL	Breathing Level	Breathing Level	Ground Level	Ground Level
Reporting Limit (RL)	20	20	20	20	20	20
Sample Conc. Units	ppb <sub>v</sub>	ppb <sub>v</sub>	ppb <sub>v</sub>	ppb <sub>v</sub>	ppb <sub>v</sub>	ppb <sub>v</sub>
Propylene	RL	RL	RL	RL	21000	82
Chlorodifluoromethane	RL	RL	RL	1900	RL	99
Dichlorodifluoromethane	RL	RL	RL	1900	RL	RL
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	2900	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	30	RL
Chloroethane	RL	RL	RL	RL	390	RL
Trichlorofluoromethane	RL	RL	RL	550	64	40
Isopropyl Alcohol	RL	RL	74	66	RL	29
Acetone	RL	RL	RL	240	4100	310
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	150	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	33
MTBE	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	25	1400	RL
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	23	1300	74
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	2200	110
1,1,1-Trichloroethane	RL	RL	RL	48	RL	44
Cyclohexane	RL	RL	RL	RL	65	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	320	7900	46
Heptane	RL	RL	RL	21	1200	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	410	170
Methyl Isobutyl Ketone	RL	RL	RL	RL	24	RL
Gas-1,3-Dichloropropane	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	97	7300	120
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethane	RL	RL	RL	RL	22	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	33	66	RL
Ethylbenzene	RL	RL	RL	87	5200	68
m,p-Xylenes	RL	RL	RL	30	1400	150
o-Xylene	RL	RL	RL	30	790	83
Styrene	RL	RL	RL	35	750	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	430	28
1,3,5-Trimethylbenzene	RL	RL	RL	RL	740	32
1,2,4-Trimethylbenzene	RL	RL	RL	RL	320	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL

**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Wednesday, December 19, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 19, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 44 samples taken in and around ground zero from December 15 and 16. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on December 12 and 13 for a total of 50 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 3,611, with 29 samples above the standard (27 of these were collected prior to September 30, one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

**Asbestos** - Samples were collected from additional asbestos monitors at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens) on December 12 and 13. None showed exceedances of the AHERA re-entry standard.

**PM<sub>2.5</sub>** - Monitoring for fine particulate matter (particles less than 2.5 micrometers in diameter) was conducted on December 14, 15 and 16 at Pace University, Borough of Manhattan Community College, the Coast Guard building in Battery Park and on Wall Street. All 24-hour averages were below the National Ambient Air Quality Standard (NAAQS) of 65 ug/m<sup>3</sup> for all stations. These results were also less than 40 ug/m<sup>3</sup>, a level on the EPA Air Quality Index indicating that air quality is unhealthy for sensitive populations (e.g., those with respiratory illnesses).

**PM<sub>10</sub>** - Monitoring for particulate matter (particles less than 10 micrometers in diameter) was conducted on December 14, 15 and 16 at a location on Wall Street. All 24-hour average values were below the National Ambient Air Quality Standard of 150 ug/m<sup>3</sup>.



U.S. Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))  
Sampling Situation Report  
Wednesday, December 19, 2001

Fixed Ambient Air Sampling Locations (Asbestos)

NYC / ER (Dec 15, 1200 - 2359 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

NYC / ER (Dec 16, 0001 - 1200 hrs)

All 22 samples analyzed were below the TEM AHERA standard.

Ambient Air Sampling Locations

NYC / ER (Dec 12-13) - Asbestos Monitoring (Particulate Monitoring Stations)

Monitoring sites include:

- Park Row (Site 1)
- Chambers St./West St. (Site 2)
- Coast Guard Building - Battery Park (Site 3)
- Public School 154: 333 East 135<sup>th</sup> St. Bronx (Site 5)
- Intermediate School 143: 511 West 182<sup>nd</sup> St., Manhattan (Site 6)
- Public School 274: 800 Bushwick Ave., Brooklyn (Site 7)
- Public School 44: 80 Maple Parkway, Staten Island (Site 8)
- Public School 199: 3290 - 48<sup>th</sup> Ave., Queens (Site 9)

During this period a total of 16 samples were collected from these monitoring sites. All of the samples were below the TEM AHERA standard.

NYC / ER (Dec 14) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **20.76 ug/m<sup>3</sup>**.

Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **22.24 ug/m<sup>3</sup>**.

Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **23.44 ug/m<sup>3</sup>**.

Wall Street - 24-hour average concentrations for this period was **23.34 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 14) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **31.79 ug/m<sup>3</sup>**.

All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Dec 15) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **6.23 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **6.95 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **4.66 ug/m<sup>3</sup>**.  
Wall Street - 24-hour average concentrations for this period was **9.62 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 15) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **20.28 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

NYC / ER (Dec 16) - Particulate Monitoring (TEOM PM<sub>2.5</sub>)

Park Row (Site 1) - 24-hr average concentration for this period was **7.92 ug/m<sup>3</sup>**.  
Chambers St./West St. (Site 2) - 24-hour average concentration for this period was **12.10 ug/m<sup>3</sup>**.  
Coast Guard Building - Battery Park (Site 3) - 24-hour average concentrations for this period was **8.12 ug/m<sup>3</sup>**.  
Wall Street - 24-hour average concentrations for this period was **13.66 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>2.5</sub> (65 ug/m<sup>3</sup>).

NYC / ER (Dec 16) - Particulate Monitoring (TEOM PM<sub>10</sub>)

Wall Street - 24-hour average concentrations for this period was **23.21 ug/m<sup>3</sup>**.  
All readings below the National Ambient Air Quality Standard for PM<sub>10</sub> (150 ug/m<sup>3</sup>).

**Mercury:**  
***In Your Community and  
the Environment***

DO YOU... NEED AN EARTH DAY PROJECT OR SERVICE ACTIVITY?...WANT TO HELP STUDENTS UNDERSTAND THAT PLAYING WITH MERCURY ISN'T SAFE?

CHECK OUT THIS SPECIAL WORKSHOP AT SCONYC'S MARCH 23<sup>RD</sup> CONFERENCE

We have all seen the reports and the newspaper headlines : "School Closed for Mercury Contamination Investigation," "School Closed for Cleanup after Mercury Scare" and "Student Prank Shuts Down Mercury Contaminated School."

There is still a lot of mercury in schools and mercury spills occur on a regular basis.

AT THIS WORKSHOP YOU WILL FIND OUT HOW TO:

- help students, colleagues/teachers and administrators understand the health hazards and environmental fate of mercury;
- ensure the proper management and recycling of mercury and mercury containing products at schools;
- promote use of alternative products that do not contain mercury;
- prevent mercury spills and promote proper spill cleanup; and possibly most important-
- send the message home, so that students and their families can learn about less toxic alternatives.

YOU WILL RECEIVE a set of teaching materials for Mercury: In Your Community and Environment and hands on experience. You leave the session ready to implement this unit. There are even opportunities to receive a free digital thermometer

PLAN TO ATTEND THIS AFTERNOON DOUBLE SESSION ON MARCH 23<sup>RD</sup> AT SCONYC'S ANNUAL CONFERENCE AT SOUTH SHORE HIGH SCHOOL

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NYC Responses  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/15/01 1200 to 2359  
 Data Validation Date: 12/18/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)			S-fiber**	
					f/cc	f/m <sup>3</sup>	Structures (#)	0.5µ - 5µ	5µ		S/mmm <sup>2</sup>
12/15/01	RST-01970	L	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01971	M-1	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01972	N	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01973	O	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01974	P	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01975	F	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01976	A	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01977	B	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01978	C	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01979	H	955.4	Air	<7.0	<0.003	0	0	0	<11.43	<0.0046
12/15/01	RST-01980	I	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01981	D	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01982	Y	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01983	X	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01984	J-Dup	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01985	U	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01986	V	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01987	V-Dup	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01988	S	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01989	P	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	RST-01990	E	974.1	Air	<7.0	<0.003	0	0	0	<11.43	<0.0046
12/15/01	RST-01991	W	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/15/01	PB121601	Field Blank	0	Air	<7.0	n/a	NA <sup>(5)</sup>	NA <sup>(5)</sup>	NA <sup>(5)</sup>	NA <sup>(5)</sup>	NA <sup>(5)</sup>
12/15/01	TB121601	Top Blank	0	Air	<7.0	n/a	NA <sup>(5)</sup>	NA <sup>(5)</sup>	NA <sup>(5)</sup>	NA <sup>(5)</sup>	NA <sup>(5)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- CH: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: Eastern end of Wall St. & West St
- K: West St. & Albany
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile
- \*\*\*\* Extremely low sample volume collected
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 783 (AHERA)  
 Standard criteria: EPA 40CFR Part 783 (AHERA): 0.01 fiber/cc (PCM), 70 S/mmm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results at Fixed Locations  
Sampling Date and Time: 12/16/01 0001 to 1200  
Data Validation Date: 12/18/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)		S-fiber**
					fmm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	
12/16/01	RST-01932	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-01933	M	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-01934	N	853.4	Air	<7.0	<0.003	0	<8.89	<0.0048
12/16/01	RST-01935	J	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-01936	Q	974.1	Air	<7.0	<0.003	0	<11.43	<0.0048
12/16/01	RST-01937	F	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-01938	A	718	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-02000	B	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-02001	H	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-02002	I	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-02003	J	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-02004	K	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-02005	T	633	Air	<7.0	<0.004	0	<8.00	<0.0048
12/16/01	RST-02006	U	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-02007	U-Dup	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-02008	V	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-02009	S	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-02010	S-Dup	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-02011	P	958	Air	<7.0	<0.004	0	<8.89	<0.0051
12/16/01	RST-02012	L	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	RST-02013	W	720	Air	<7.0	<0.004	0	<8.89	<0.0048
12/16/01	FB121601	Field Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/16/01	TB121601	Trp Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

**Sampling Locations:**

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Dey St.
- C: Trinity (a.k.a. Church) & Liberty
- C1: SW corner of Broadway & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of West Broadway Plaza at Pine St.
- I: SE corner of West St. & Broadway
- J: NE St. & Albany in median strip
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

- M: Western end of Harrison St. at West St. (on free next to bulkhead)
- M1: West St. - 50 yards south of Harrison St. at bulkhead
- N: South side of Pier 25 (next to volleyball ct)
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Pier 6 South End
- T: Pier 6 Hoboken
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

**Key:**  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 \*\*\*\* Extremely low sample volume collected  
 NA<sup>(1)</sup>: Not analyzed due to overloading of plates  
 NA<sup>(2)</sup>: Not analyzed for TEM  
 n/a: Not applicable  
 NR: Not requested  
 NS: Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/1994  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA); 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/12/01 1200 to 2400  
 Data Validation Date: 12/18/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
12/12/01	7093-18-0076	Park Row	1380	Air	<7.0	<0.002	0	<16.00	<0.0045	
12/12/01	7093-19-0076	Chamber St. <sup>(a)</sup>	1392	Air	<7.0	<0.002	0	<16.00	<0.0044	
12/12/01	7093-20-0076	Coast Guard	1412	Air	<7.0	<0.002	0	<16.00	<0.0044	
12/12/01	7093-15-0075	Manhattan PS # 143	1440	Air	<7.0	<0.002	0	<16.00	<0.0043	
12/12/01	7094-09-0065	Bronx PS #154	1440	Air	<7.0	<0.002	0	<16.00	<0.0043	
12/12/01	7096-12-0070	Queens PS #199	1440	Air	<7.0	<0.002	0	<16.00	<0.0043	
12/12/01	7095-98-0072	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	<16.00	<0.0043	
12/12/01	7097-18-0068	Staten Island PS #44	1440	Air	<7.0	<0.002	0	<16.00	<0.0043	

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysoile
- NR - analysis not requested
- NS - Sample not submitted for analysis
- n/a - Not applicable
- (a) - Sample location previously identified as BMCC

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/13/01 1200 to 2400  
 Data Validation Date: 12/17/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/mmm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc <sup>a</sup>	
							0.5µ - 5µ	5µ		
12/13/01	7093-19-0077	Park Row	1362	Air	<7.0	<0.002	0	0	<16.00	<0.0045
12/13/01	7093-19-0077	Chamber St <sup>(b)</sup>	1108***	Air	<7.0	<0.002	0	0	<13.33	<0.0046
12/13/01	7093-20-0077	Coast Guard	1152***	Air	<7.0	<0.002	0	0	<13.33	<0.0045
12/13/01	7093-15-0076	Manhattan PS #143	1440	Air	7.01	0.002	0	0	<16.00	<0.0043
12/13/01	7094-09-0066	Bronx PS #154	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/13/01	7096-12-0071	Queens PS #199	1390	Air	<7.0	<0.002	0	0	<16.00	<0.0044
12/13/01	7095-98-0073	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/13/01	7097-19-0069	Staten Island PS #44	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043

- Key:
- <sup>a</sup>Structure (S) roughly equivalent to fiber (f)
  - <sup>\*\*</sup> Sample volume is based on pump reading
  - <sup>\*\*\*</sup> Sample volume is below recommended limit for TEM analysis
  - <sup>\*\*\*\*</sup> Chrysotile
  - NR - analysis not requested
  - NS - Sample not submitted for analysis
  - n/a - Not applicable
  - <sup>(b)</sup> - Sample location previously identified as BMCC

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



**U.S. Environmental Protection Agency (EPA)**  
**Daily Summary**  
**Thursday, December 20, 2001**

The U.S. Environmental Protection Agency (EPA) and other federal, state and local agencies have collected extensive environmental monitoring data from the World Trade Center site and nearby areas in Manhattan, Brooklyn and New Jersey. Since September 11, EPA has taken samples of the air, dust, water, river sediments and drinking water and analyzed them for the presence of pollutants that might pose a health risk to response workers at the World Trade Center site and the public. The samples are evaluated against a variety of benchmarks, standards and guidelines established to protect public health under various conditions. EPA is collecting data from more than 20 fixed monitors in and around ground zero and additional monitors in the Bronx, Brooklyn, Queens and Staten Island. The Agency is also using portable sampling equipment to collect data from a range of locations.

**Most Recent Results (as of December 20, 2001 at 5:00 p.m.)**

**Air: Fixed Monitors in New York:**

**Asbestos** - EPA analyzed 44 samples taken in and around ground zero from December 16 to December 17. In addition, EPA sampled for asbestos at three additional lower Manhattan locations on December 9, 14<sup>th</sup> and 15<sup>th</sup> for a total of 51 samples. All samples showed results less than 70 structures per square millimeter, which is the Asbestos Hazard Emergency Response Act (AHERA) standard for allowing children to re-enter school buildings after asbestos removal activities. This brings the total number of air samples collected and analyzed for lower Manhattan to 3,662, with 29 samples above the standard (27 of these were collected prior to September 30, one was collected on October 9 and the other on November 27).

**Air: Fixed Monitors outside lower Manhattan:**

**Asbestos** - Samples were collected from additional asbestos monitors at Public School 154 (33 East 135th St., Bronx), Intermediate School 143 (511 W. 182nd St., Manhattan), P.S. 274 (800 Bushwick Ave, Brooklyn), P.S. 44 (80 Maple Parkway, Staten Island) and P.S. 199 (3290 48th St., Queens) on December 9, 14<sup>th</sup> and 15<sup>th</sup>. None showed exceedances of the AHERA re-entry standard.

**Staten Island Landfill:**

**Air (Asbestos)** - Thirty-eight air samples collected on December 14, 16<sup>th</sup> and 17<sup>th</sup> were analyzed for asbestos. All were below the school re-entry standard.

**VOCs** - Sampling for volatile organic compounds (VOCs) was conducted on December 18 in the direct area of the debris pile at ground zero. To protect workers at the work site, EPA takes grab samples of VOCs where smoke plumes have been sighted. The results are snapshots of the levels at a moment in time. OSHA's protective standards set a permissible exposure limit (PEL) averaged over an 8-hour day. Benzene exceeded the OSHA standard of 1 part per million (ppm) at the North Tower debris pile. There were no exceedances for benzene at the South Tower, the EPA Wash Tent (West St. and Murray) and Austin Tobin Plaza

**Direct Air Readings** - EPA did air monitoring in and around ground zero for a number of compounds on December 18. No significant readings were found.

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/09/01 1200 to 2400 (a)  
 Data Validation Date: 12/13/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/min <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
12/09/01	7093-18-0073	Park Row	1374	Air	<7.0	<0.002	0	<16.00	<0.0045
12/09/01	7093-20-0073	Coast Guard	1440	Air	<7.0	<0.002	0	<16.00	<0.0043
12/09/01	7093-19-0073	BMCC	1132***	Air	<7.0	<0.002	0	<13.33	<0.0045
12/09/01	7097-18-0065	Staten Island PS #44	1440	Air	<7.0	<0.002	0	<16.00	<0.0043
12/09/01	7095-98-0069	Brooklyn PS #274	1192***	Air	<7.0	<0.002	0	<13.33	<0.0043
12/09/01	7096-12-0067	Queens PS #199	1242	Air	<7.0	<0.002	0	<13.33	<0.0041
12/08/01(a)	7094-09-0062	Bronx PS #154	1300	Air	<7.0	<0.002	0	<16.00	<0.0047
12/09/01	7093-15-0072	Manhattan PS # 143	1440	Air	<7.0	<0.002	0	<16.00	<0.0043

Key: \*Structure (S) roughly equivalent to fiber (f)  
 \*\* Sample volume is based on pump reading  
 \*\*\* Sample volume is below recommended limit for TEM analysis  
 \*\*\*\* Chrysolite  
 NR - analysis not requested  
 NS - Sample not submitted for analysis  
 n/a - Not applicable  
 (a) - Sample 7094-09-0062, Bronx PS #154, was collected on 12/08/01 1200 to 2250

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 nm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for Staten Island Landfill  
 Sampling Date and Times: 12/16/01 0821 to 2147<sup>(a)</sup> Data Validation Date: 12/19/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume <sup>(b)</sup>	Matrix	PCM by NIOSH 7400			TEM (AHERA)		
					f/ftc	Structures (#)	S- /ftc**	0.5µ - 5µ	5µ	S- /ftc**
12/16/01	LF01608	P-1	720	Air	<7.0	<0.016	0	0	<8.75	<0.0178
12/16/01	LF01609	P-2	720	Air	<7.0	<0.016	0	0	<8.75	<0.0099
12/16/01	LF01610	P-3	720	Air	<7.0	<0.016	0	0	<8.75	<0.0047
12/16/01	LF01611	P-4	720	Air	<7.0	<0.016	0	0	<8.75	<0.0047
12/16/01	LF01612	P-5	720	Air	<7.0	<0.016	0	0	<8.75	<0.0047
12/16/01	LF01613	P-6	720	Air	<7.0	<0.016	0	0	<8.75	<0.0047
12/16/01	LF01614	P-7	720	Air	<7.0	<0.016	0	0	<8.75	<0.0047
12/16/01	LF01615	P-8	720	Air	<7.0	<0.016	0	0	<8.75	<0.0140
12/16/01	LF01616	W-11	720	Air	25.48	0.014	0	0	<8.75	<0.0047
12/16/01	LF01617	W-12A	720	Air	38.22	0.020	0	0	<8.75	<0.0047
12/16/01	LF01618	W-12B	720	Air	7.69	0.004	0	0	<8.75	<0.0047
12/16/01	LF01619	B-1	720	Air	8.92	0.005	0	0	<8.75	<0.0047
12/16/01	LF01620	B-4	720	Air	<7.0	<0.016	0	0	<8.75	<0.0047
12/16/01	LF01621	T-15	720	Air	<7.0	<0.016	0	0	<8.75	<0.0047
12/16/01	LF01622	T-16	720	Air	38.22	0.020	0	0	<8.75	<0.0047
12/16/01	LF01623	O-17	720	Air	<7.0	<0.016	0	0	<8.75	<0.0047
12/16/01	LF01624	O-18	720	Air	<7.0	<0.016	0	0	<8.75	<0.0047
12/14/01 <sup>(a)</sup>	LF01584	O-19	720	Air	<7.0	<0.016	0	0	<8.75	<0.0047
12/16/01	LF01625	MPHS-20	720	Air	<7.0	<0.016	0	0	<8.75	<0.0047
12/16/01	LF01626	Lot Blank	0	Air	<7.0	n/a	0	0	NA <sup>(c)</sup>	NA <sup>(c)</sup>
12/16/01	LF01627	Trip Blank	0	Air	<7.0	n/a	0	0	NA <sup>(c)</sup>	NA <sup>(c)</sup>

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 NA<sup>(1)</sup> - Not analyzed due to overloading of particulates  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NC - Not collected  
 NS - Not sampled  
 (a) Sample collected on 12/14/01 0820 to 2120, but not retrieved until 12/17/01 due to location access limitations

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
Asbestos Air Sampling Results for Staten Island Landfill  
Sampling Date and Times: 12/17/01 0815 to 2130

Data Validation Date: 12/19/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (A-HERA)		
					fmm <sup>2</sup>	ficc	f/cc	Structures (#)	5µ	S-f/cc**
12/17/01	LF01628	P-1	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01629	P-2	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01630	P-3	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01631	P-4	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01632	P-5	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01633	P-6	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01634	P-7	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01635	P-8	720	Air	15.26	0.005	<8.75	0	0	<0.0047
12/17/01	LF01636	W-11	720	Air	10.19	0.005	<8.75	0	0	<0.0047
12/17/01	LF01637	W-12A	720	Air	<7.0	<0.004	<8.75	1***	1***	17.50 0.0094
12/17/01	LF01638	W-12B	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01639	B-13	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01640	B-14	720	Air	59.57	0.032	<8.75	0	0	<0.0047
12/17/01	LF01641	T-15	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01642	T-16	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01643	O-18	698	Air	8.9	0.004	<8.75	0	0	<0.0047
12/17/01	LF01644	O-18	698	Air	8.9	0.004	<8.75	0	0	<0.0047
12/17/01	LF01645	MPHS-20	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01646	MPHS-20	720	Air	<7.0	<0.004	<8.75	0	0	<0.0047
12/17/01	LF01647	Lot Blank	0	Air	<7.0	n/a	<8.75	0	0	NA <sup>(2)</sup>
12/17/01	LF01648	Trip Blank	0	Air	<7.0	n/a	<8.75	0	0	NA <sup>(2)</sup>

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Chrysotile

NA<sup>(1)</sup> - Not analyzed due to overloading of particulates

NA<sup>(2)</sup> - Not analyzed for TEM

NS - Sample not collected

NC - Sample not collected

NS - Not sampled

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mmm<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/16/01 1200 to 2359  
 Data Validation Date: 12/19/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400			TEM (AHERA)			
					f/cc	f/m <sup>3</sup>	f/cc	Structures (#)	S <sub>10</sub>	S <sub>10</sub> -f/cc**	
12/16/01	RST-02014	L	406	Air	<7.0	<0.007	0	0	0	<8.00	<0.0076
12/16/01	RST-02015	M-1	720	Air	<7.0	<0.004	0	0	0	<8.86	<0.0048
12/16/01	RST-02016	N	1224*	Air	<7.0	<0.002	0	0	0	<13.33	<0.0042
12/16/01	RST-02017	J	720	Air	14.85	0.003	0	0	0	<8.89	<0.0048
12/16/01	RST-02018	Q	720	Air	<7.0	<0.002	0	0	0	<13.33	<0.0042
12/16/01	RST-02019	R	720	Air	7.6	0.002	0	0	0	<8.89	<0.0048
12/16/01	RST-02020	A	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/16/01	RST-02021	B	720	Air	9.55	0.005	0	0	0	<8.89	<0.0048
12/16/01	RST-02022	C	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/16/01	RST-02023	H	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/16/01	RST-02024	I	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/16/01	RST-02025	J	720	Air	<7.0	<0.004	1***	2***	2***	25.67	0.0143
12/16/01	RST-02026	K	720	Air	7.84	0.004	0	0	0	<8.89	<0.0048
12/16/01	RST-02027	L	720	Air	15.82	0.003	0	0	0	<8.89	<0.0048
12/16/01	RST-02028	M	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/16/01	RST-02029	V	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/16/01	RST-02030	S	720	Air	8.28	0.004	0	0	0	<8.89	<0.0048
12/16/01	RST-02031	P	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/16/01	RST-02032	P-Dup	720	Air	<7.0	<0.004	0	0	0	<8.89	<0.0048
12/16/01	RST-02033	E	505	Air	<7.0	<0.005	0	0	0	<8.00	<0.0051
12/16/01	RST-02034	E-Dup	720	Air	7.01	0.004	0	0	0	<8.89	<0.0048
12/16/01	RST-02035	W	720	Air	8.92	0.005	0	0	0	<8.89	<0.0048
12/17/01	19121701	Lot Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/17/01	19121701	Piled Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/17/01	19121701	Top Blank	0	Air	<7.0	n/a	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>

Sampling Locations:  
 A: NE corner of West Broadway & Barclay  
 B: SE corner of Church & Day St.  
 C: Trinity (e.k.a. Church) & Liberty  
 D: SW corner of Broadway & Liberty St.  
 E: East end of Albany St. at Greenwich St.  
 F: Western end of Liberty St. at South End Ave  
 G: Northern median slip of Vesey & West St  
 H: Church and Duane Street Intersection Plaza at Pine St.  
 I: South side of Church & Broadway  
 J: SE corner of Wall St. & Broadway  
 K: NE corner of Warren & West St.  
 L: On walkway toward North Park rec area (north side of Suyvesant High), access to TAGA bus area

PCM by NIOSH 7400  
 f/cc  
 f/m<sup>3</sup>

TEM (AHERA)  
 Structures (#)  
 S<sub>10</sub>  
 S<sub>10</sub>-f/cc\*\*

Key:  
 \* Sample volume (liters) is below recommended limit for the TEM method except for samples RST-02016 and RST-02018; volume is based on pump reading  
 \*\* Structure (S) is roughly equivalent to fiber (f)  
 \*\*\* Chrysotile  
 \*\*\*\* Extremely low sample volume collected  
 NA<sup>(1)</sup> - Not analyzed due to overloading of microbalances  
 NA<sup>(2)</sup> - Not analyzed for TEM  
 n/a - Not applicable  
 NR - Not requested  
 NS - Sample not submitted

NIOSH 7400: Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (f/cc), 70 S<sub>10</sub>/m<sup>3</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Responses  
 Asbestos Air Sampling Results at Fixed Locations  
 Sampling Date and Time: 12/17/01 0001 to 1200  
 Data Validation Date: 12/19/01

Sampling Date	Sample No.	Sampling Location	Sample Volume*	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/m <sup>2</sup>	f/cc	Structures (#) 0.5µ - 5µ	5µ - 10µ	S-f/cc**	
12/17/01	RST-02035	L	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/17/01	RST-02037	M-1	720	Air	10.19	0.005	0	1***	8.89	0.0048
12/17/01	RST-02038	N	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/17/01	RST-02039	N-Dup	343	Air	<7.0	<0.008	0	0	<8.00	<0.0090
12/17/01	RST-02040	J	720	Air	9.92	0.005	0	0	<8.89	<0.0048
12/17/01	RST-02041	J-Dup	720	Air	10.19	0.005	0	0	<8.89	<0.0048
12/17/01	RST-02042	F	720	Air	10.19	0.005	0	0	<8.89	<0.0048
12/17/01	RST-02043	F	720	Air	11.48	0.006	1***	0	8.89	0.0048
12/17/01	RST-02044	A	720	Air	15.29	0.008	0	0	<8.89	<0.0048
12/17/01	RST-02045	B	720	Air	<7.0	<0.004	0	0	<8.00	<0.0044
12/17/01	RST-02046	C	695	Air	<7.0	<0.002	0	0	<13.33	<0.0043
12/17/01	RST-02047	H	1183.2	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/17/01	RST-02048	I	720	Air	<7.0	<0.005	0	0	<8.00	<0.0054
12/17/01	RST-02049	D	575	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/17/01	RST-02050	K	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/17/01	RST-02051	I	709	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/17/01	RST-02052	V	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/17/01	RST-02053	V	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/17/01	RST-02054	S	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/17/01	RST-02055	P	720	Air	<7.0	<0.004	0	0	<8.89	<0.0048
12/17/01	RST-02056	E	870.4	Air	9.55	0.004	0	0	<10.00	<0.0044
12/17/01	RST-02057	W	132***	Air	7.84	0.022	0	0	<8.00	<0.0233
12/17/01	LB121701	Lot Blank	0		n/a	n/a	NA <sup>(6)</sup>	NA <sup>(6)</sup>	NA <sup>(6)</sup>	NA <sup>(6)</sup>
12/17/01	FB121701	Field Blank	0		<7.0	n/a	NA <sup>(6)</sup>	NA <sup>(6)</sup>	NA <sup>(6)</sup>	NA <sup>(6)</sup>
12/17/01	TB121701	Tip Blank	0		<7.0	n/a	NA <sup>(6)</sup>	NA <sup>(6)</sup>	NA <sup>(6)</sup>	NA <sup>(6)</sup>

Sampling Locations:

- A: NE corner of West Broadway & Barclay
- B: SE corner of Church & Day St.
- C: NW corner of Church & Liberty St.
- D: East end of Albany St. at Greenwich St.
- E: Western end of Liberty St. at South End Ave
- F: Northern median strip of Vesey & West St
- G: Church and Duane St.
- H: South side of Chase Manhattan Plaza at Pine St.
- I: SE corner of Wall St. & Broadway
- J: NE corner of Warren & West St.
- K: West St. & Albany in median strip
- L: On walkway toward North Park rec area (north side of Surveasant High), access to TAGA bus area

Key:

- \* Sample volume (liters) is below recommended limit for the TEM method; volume is based on pump reading
- \*\* Structure (S) is roughly equivalent to fiber (f)
- \*\*\* Extremely low sample volume collected
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM
- n/a - Not applicable
- NR - Not requested
- NS - Sample not submitted

- M: Western end of Harrison St. at West St. (on tree next to bulkhead)
- M1: West St. - 25 yards south of Harrison St. at bulkhead
- N: South end of Vesey St. at Broadway St.
- P: NE corner of South End Ave. & Albany
- Q: Barclay & West St. (center island) in proximity to USCG command post
- R: TAGA Bus Location
- S: Rector & South End
- T: Pier 6 Helipad
- U: Pier 6 Exit 2
- V: Pier 6 Bus Sign
- W: Wash Tent Common Area

NIOSH 7400: Filter Analysis of Air Samples via NIOSH 7400, Revision 3, Issues 2, 8/15/84  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fibres/cc (PCM), 70 f/m<sup>3</sup>, Volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/14/01 1200 to 2400  
 Data Validation Date: 12/19/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)	Matrix	PCM by NIOSH 7400		TEM (AHERA)		
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*
12/14/01	7093-15-0077	Manhattan PS # 143	1440	Air	8.92	0.002	0	<16.00	<0.0043
12/14/01	7094-09-0067	Bronx PS #154	1302	Air	14.01	0.004	0	<16.00	<0.0047
12/14/01	7096-12-0072	Queens PS #199	1374	Air	<7.0	<0.002	0	<16.00	<0.0045
12/14/01	7095-98-0074	Brooklyn PS #274	1440	Air	15.29	0.004	0	<16.00	<0.0043
12/14/01	7097-16-0070	Staten Island PS #44	1440	Air	<7.0	<0.002	0	<16.00	<0.0043
12/14/01	7093-18-0078	Park Row Chamber SL	152***	Air	NA <sup>(1)</sup>	NA <sup>(1)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>	NA <sup>(2)</sup>
12/14/01	7093-19-0078	Chamber SL	NS	Air	NS	NS	NS	NS	NS
12/14/01	7093-20-0078	Coast Guard	1440	Air	<7.0	<0.002	0	<16.00	<0.0043

- Key:**
- \*Structure (S) roughly equivalent to fiber (f)
  - \*\* Sample volume is based on pump reading
  - \*\*\* Extremely low sample volume collected; below the recommended limit for TEM analysis
  - \*\*\*\* Chrysolite
  - NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
  - NA<sup>(2)</sup> - Not analyzed for TEM due to wet filter
  - n/a - Not applicable
  - NR - analysis not requested
  - NS - Sample not submitted for analysis due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)

NYC Response  
 Asbestos Air Sampling Results for WTC Extended Network  
 Sampling Date and Time: 12/15/01 1200 to 2400  
 Data Validation Date: 12/19/2001

Sampling Date	Sample No.	Sampling Location	Sample Volume (L)**	Matrix	PCM by NIOSH 7400		TEM (AHERA)			
					f/mm <sup>2</sup>	f/cc	Structures (#)	S/mm <sup>2</sup>	S-f/cc*	
12/15/01	7093-18-0079	Park Row	1354	Air	<7.0	<0.002	0	0	<16.00	<0.0045
12/15/01	7093-19-0079	Chamber St.	1314	Air	<7.0	<0.002	0	0	<16.00	<0.0047
12/15/01	7093-20-0079	Coast Guard	1160***	Air	<7.0	<0.002	0	0	<13.33	<0.0044
12/15/01	7093-15-0078	Manhattan PS # 143	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/15/01	7094-09-0068	Bronx PS #154	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/15/01	7096-12-0073	Queens PS #199	1286	Air	<7.0	<0.002	0	0	<16.00	<0.0048
12/15/01	7095-98-0075	Brooklyn PS #274	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043
12/15/01	7097-18-0071	Staten Island PS #44	1440	Air	<7.0	<0.002	0	0	<16.00	<0.0043

Key:

- \*Structure (S) roughly equivalent to fiber (f)
- \*\* Sample volume is based on pump reading
- \*\*\* Sample volume is below recommended limit for TEM analysis
- \*\*\*\* Chrysotile
- NA<sup>(1)</sup> - Not analyzed due to overloading of particulates
- NA<sup>(2)</sup> - Not analyzed for TEM due to wet filter
- n/a - Not applicable
- NR - analysis not requested
- NS - Sample not submitted for analysis due to no sample volume

NIOSH 7400: Fiber Analysis of Air samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94  
 Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) EPA 40CFR Part 763 (AHERA)  
 Standard criteria: EPA 40CFR Part 763 (AHERA): 0.01 fiber/cc (PCM), 70 S/mm<sup>2</sup>, volume 1200 L, for 25 mm filter (TEM)



NO QC EVALUATION HAS BEEN PERFORMED.  
 DATA VALIDITY IS UNSUBSTANTIATED  
 AND THE DATA SHOULD BE USED WITH DISCRETION  
 WTC TEDLAR BAG AIR ANALYSIS, TO-15 MODIFIED METHOD  
 DRAFT GC/MS Results for 12/18/01

File Name	NYC495	NYC496	NYC497	NYC498	NYC499	NYC501
Sample Location	Instrument Blank	Tedlar Bag Blank	Location R	Austin Tobin Plaza	North Tower	South Tower
			Ambient Air		Plume	Plume
Sample Number			A07235	A07238	A07236	A07237
Sample Height			Breathing Level	Breathing Level	Ground Level	Ground Level
Sample Volume		250 mL	250 mL	250 mL	10 mL	250 mL
Reporting Limit (RL)	20	20	20	20	500	20
Sample Conc. Units	ppb,	ppb,	ppb,	ppb,	ppb,	ppb,
Propylene	RL	RL	RL	RL	4900	RL
Chlorodifluoromethane	RL	RL	RL	RL	RL	150
Dichlorodifluoromethane	RL	RL	RL	RL	RL	32
Dichlorotetrafluoroethane	RL	RL	RL	RL	RL	RL
Chloromethane	RL	RL	RL	RL	6300	RL
Vinyl Chloride	RL	RL	RL	RL	RL	RL
1,3-Butadiene	RL	RL	RL	RL	RL	RL
Bromomethane	RL	RL	RL	RL	RL	RL
Chloroethane	RL	RL	RL	RL	RL	RL
Trichlorofluoromethane	RL	RL	RL	RL	RL	42
Isopropyl Alcohol	RL	RL	RL	RL	RL	25
Acetone	RL	RL	RL	RL	13000	53
Trichlorotrifluoroethane	RL	RL	RL	RL	RL	RL
1,1-Dichloroethene	RL	RL	RL	RL	RL	RL
3-Chloropropene	RL	RL	RL	RL	RL	RL
Methylene Chloride	RL	RL	RL	RL	RL	31
MIBK	RL	RL	RL	RL	RL	RL
trans-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Hexane	RL	RL	RL	RL	RL	27
1,1-Dichloroethane	RL	RL	RL	RL	RL	RL
Vinyl Acetate	RL	RL	RL	RL	RL	RL
2-Butanone	RL	RL	RL	RL	3100	RL
cis-1,2-Dichloroethene	RL	RL	RL	RL	RL	RL
Ethyl Acetate	RL	RL	RL	RL	RL	RL
Chloroform	RL	RL	RL	RL	RL	RL
Tetrahydrofuran	RL	RL	RL	RL	1200	RL
1,1,1-Trichloroethane	RL	RL	RL	RL	RL	59
Cyclohexane	RL	RL	RL	RL	RL	RL
Carbon Tetrachloride	RL	RL	RL	RL	RL	RL
1,2-Dichloroethane	RL	RL	RL	RL	RL	RL
Benzene	RL	RL	RL	RL	4400	RL
Heptane	RL	RL	RL	RL	RL	RL
Trichloroethene	RL	RL	RL	RL	RL	RL
1,2-Dichloropropane	RL	RL	RL	RL	RL	RL
1,4-Dioxane	RL	RL	RL	RL	RL	51
Methyl Isobutyl Ketone	RL	RL	RL	RL	RL	RL
cis-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
Toluene	RL	RL	RL	RL	2700	37
trans-1,3-Dichloropropene	RL	RL	RL	RL	RL	RL
1,1,2-Trichloroethane	RL	RL	RL	RL	RL	RL
2-Hexanone	RL	RL	RL	RL	RL	RL
Tetrachloroethene	RL	RL	RL	RL	RL	RL
Dibromochloromethane	RL	RL	RL	RL	RL	RL
1,2-Dibromoethane	RL	RL	RL	RL	RL	RL
Chlorobenzene	RL	RL	RL	RL	RL	RL
Ethylbenzene	RL	RL	RL	RL	2600	RL
m&p-Xylenes	RL	RL	RL	RL	RL	76
o-Xylene	RL	RL	RL	RL	RL	47
Styrene	RL	RL	RL	RL	1000	RL
Bromoform	RL	RL	RL	RL	RL	RL
1,1,2,2-Tetrachloroethane	RL	RL	RL	RL	RL	RL
4-Ethyltoluene	RL	RL	RL	RL	RL	RL
1,3,5-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trimethylbenzene	RL	RL	RL	RL	RL	RL
1,3-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,4-Dichlorobenzene	RL	RL	RL	RL	RL	RL
Benzyl Chloride	RL	RL	RL	RL	RL	RL
1,2-Dichlorobenzene	RL	RL	RL	RL	RL	RL
1,2,4-Trichlorobenzene	RL	RL	RL	RL	RL	RL
Hexachloro-1,3-Butadiene	RL	RL	RL	RL	RL	RL