



U.S. ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF INSPECTOR GENERAL

*Catalyst for Improving the Environment*

## Evaluation Report

# EPA Should Improve Oversight of Long-Term Monitoring at PAB Oil and Chemical Services, Inc., Superfund Site in Louisiana

Report No. 10-P-0229

September 21, 2010



**Report Contributors:**

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Patrick Milligan  
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**Abbreviations**

EPA	U.S. Environmental Protection Agency
NPL	National Priorities List
OIG	Office of Inspector General
RPM	Remedial Project Manager

**Cover photo:** Monitoring well MW-7 at the remediated PAB Oil and Chemical Services, Inc., Superfund Site, Abbeville, Louisiana, March 2008. (EPA OIG photo)



# At a Glance

*Catalyst for Improving the Environment*

## Why We Did This Review

The Office of Inspector General (OIG) is testing long-term monitoring results at Superfund sites the U.S. Environmental Protection Agency (EPA) has deleted from the National Priorities List (NPL). PAB Oil and Chemical Services, Inc., Superfund Site, in Abbeville, Louisiana, is one of eight sites being reviewed. In March 2008, the OIG obtained ground water samples from the site and conducted an inspection.

## Background

EPA placed PAB on the Superfund NPL in 1989. Recovery and disposal of oil and gas wastes had contaminated the site with arsenic, barium, and organic compounds. Remedial action included treating, consolidating, and capping the onsite soils and wastes. Region 6 deleted PAB from the NPL in 2000 after it met clean-up goals.

**For further information, contact our Office of Congressional, Public Affairs and Management at (202) 566-2391.**

**To view the full report, click on the following link:**  
[www.epa.gov/oig/reports/2010/20100921-10-P-0229.pdf](http://www.epa.gov/oig/reports/2010/20100921-10-P-0229.pdf)

## ***EPA Should Improve Oversight of Long-Term Monitoring at PAB Oil and Chemical Services, Inc., Superfund Site in Louisiana***

### What We Found

Our independent ground water sampling results from the PAB Oil and Chemical Services, Inc., Superfund Site were consistent with Region 6's valid historical results. However, we found that Region 6 accepted from the responsible parties' contractor two types of invalid ground water data at PAB and included that invalid data in its analyses. For two wells, data were collected on stagnant water at the bottom of the wells, below screen openings where the water enters the wells. Consequently, data on both water quality and water levels were collected contrary to accepted procedures and were invalid. Ground water level measurements are needed to understand the direction ground water flows. Measures of water quality are needed to ensure that the contamination treatment actions are successful and ground water quality does not degrade.

Region 6 said it was aware of the declined water level condition, but noted it had data from other wells that were sufficient to determine the direction of ground water flow and that the remedy was protective of human health and the environment. We agree that the invalid data did not have adverse implications for the Region's protection decision because ground water flows past these two wells *before* flowing under the area where contaminated soils and wastes were capped. However, if ground water conditions were to change, the invalid data could impede the Region's ability to determine whether the site's clean-up remedy is still protective and whether the network of ground water monitoring wells remains effective.

### What We Recommend

We recommended that Region 6 improve oversight at PAB by amending the site's most recent Five-Year Review to identify invalid data, and by modifying the long-term monitoring plan to ensure collection and reporting of valid data on site conditions. The Region's official response only partly addressed one recommendation and did not address the other. In a follow-up meeting, Region 6 staff committed to completing actions that would meet the intent of both recommendations. We consider both recommendations to be "undecided with resolution efforts in progress." In its final response to this report, Region 6 should provide a corrective actions plan for both recommendations, including estimated or actual milestone completion dates.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

September 21, 2010

**MEMORANDUM**

**SUBJECT:** EPA Should Improve Oversight of Long-Term Monitoring at  
PAB Oil and Chemical Services, Inc., Superfund Site in Louisiana  
Report No. 10-P-0229

**FROM:** Arthur A. Elkins, Jr.  
Inspector General

A handwritten signature in black ink, appearing to read "Arthur A. Elkins, Jr.", is written over the typed name of the Inspector General.

**TO:** Al Armendariz  
Region 6 Administrator

This is our report on the subject evaluation conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). This report contains the findings from our sampling at the PAB Oil and Chemical Services, Inc., Superfund Site and corrective actions the OIG recommends. Region 6 provided comments on our draft report. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established resolution procedures.

The estimated cost of this report – calculated by multiplying the project's staff days by the applicable daily full cost billing rates in effect at the time, then adding the contractor costs – is \$202,633.

**Action Required**

In accordance with EPA Manual 2750, you are required to provide a written response to this report within 90 calendar days. Your response will be posted on the OIG's public Website, along with our comments on your response. Your response should be provided in an Adobe PDF file that complies with the accessibility requirements of section 508 of the Rehabilitation Act of 1973, as amended. If your response contains data that you do not want to be released to the public, you should identify the data for redaction. You should include a corrective actions plan for agreed-upon actions, including milestone dates. We have no objections to the further release of this report to the public. This report will be available at <http://www.epa.gov/oig>.

If you or your staff have any questions regarding this report, please contact Wade Najjum, Assistant Inspector General, at (202) 566-0832 or [najjum.wade@epa.gov](mailto:najjum.wade@epa.gov); or Carolyn Copper, Director for Program Evaluation, Hazardous Waste Issues, at (202) 566-0829 or [copper.carolyn@epa.gov](mailto:copper.carolyn@epa.gov).

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# Chapter 1

## Introduction

### Purpose

The Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA) is evaluating long-term monitoring at Superfund sites deleted from the National Priorities List (NPL). This evaluation is to determine whether EPA has valid and reliable data on the conditions of these sites. PAB Oil and Chemical Services, Inc., Superfund Site, in Abbeville, Louisiana, is one of eight sites being reviewed. At PAB, we collected ground water samples and conducted a site inspection. We compared our results to past results reported by EPA Region 6.

### Background

PAB was a recovery and disposal facility for mud and saltwater generated in oil and gas exploration and production. Operations at PAB started in 1978 and lasted for approximately 5 years. Site activities resulted in arsenic, barium, and organic compound contamination of onsite soil and wastes. EPA placed PAB on the Superfund NPL in 1989. After determining that remedial action had achieved the clean-up goals, Region 6 deleted PAB from the NPL in January 2000.

The 1993 Record of Decision stated that ground water would be monitored for 30 years to ensure that the contamination treatment actions are successful and ground water quality does not degrade. The responsible parties' 1998 monitoring plan called for ground water levels to be measured and ground water samples to be collected semiannually. The newest plan, approved by Region 6 in 2009, states that the responsible parties will measure water levels in nine monitoring wells once per year and, prior to 2012, sample four of the wells twice and one well once to assess ground water quality.

The Comprehensive Environmental Response, Compensation, and Liability Act (also known as Superfund) requires that Region 6 review every 5 years the protection provided by the remedial action at sites where contaminants were left in place. This is called the Five-Year Review. Region 6 based its Five-Year Reviews at PAB on the information the responsible parties submitted in their monitoring reports. The next Five-Year Review is required in 2012.

### Noteworthy Achievements

In 1991, the responsible parties conducted an emergency action to remove oil, water, and sludge from a large tank, which had damaged supports, and from three

other smaller tanks. In 1994, Region 6 issued a unilateral administrative order requiring the responsible parties to perform the remedial action described in the 1993 Record of Decision. In response, the responsible parties drained contaminated water from the onsite pond, removed contaminated pond sediments, and backfilled the area with clean soil. They then consolidated, stabilized, solidified, and capped the contaminated material onsite.

Since completion of the remedial actions, Region 6 has conducted two required Five-Year Reviews at PAB. Region 6 concluded in both Five-Year Reviews that the clean-up remedy was protective of human health and the environment and will remain so provided actions identified in the Five-Year Reviews are implemented.

## **Scope and Methodology**

We conducted the field work for this evaluation from January 2008 to August 2010 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the evaluation to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our evaluation objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our evaluation objective.

We reviewed site documents, including monitoring reports, the Record of Decision and related documents, and the Five-Year Review reports. We interviewed the site's remedial project managers (RPMs) from Region 6 and the Louisiana Department of Environmental Quality. From the site records, we assembled historical water level and water quality data. We invalidated data collected when the water level measurement showed the level was below the bottom of the well's screen opening. The screen opening is the perforated part of the well through which ground water enters the well. In the situation where the measured water level was below the screen opening, the measurement and any sample that may have been taken do not represent conditions in the ground water. See Appendix A for details on invalid ground water level data.

We collected ground water samples and conducted a site inspection in March 2008. We compared our ground water sampling results to the historical sampling results we determined to be valid. Our independent sampling results were consistent with Region 6's valid historical results. We also compared our results to federal drinking water standards, the only applicable water quality standards. Our sampling results did not exceed the applicable standards. Appendix B provides details on our sampling methodology, data analyses, and results.

We requested that Region 6 provide official comments on this report. The Region provided its response, provided in Appendix C, on August 20, 2010.



## Chapter 2

### Region 6 Included Invalid Data in Ground Water Analyses

Region 6 accepted from the responsible parties' contractor two types of invalid ground water data at PAB and included that invalid data in its analyses. For two wells, data were collected on stagnant water at the bottom of the wells, below screen openings where the water enters the wells. Consequently, data on both water quality and water levels were collected contrary to accepted procedures and were invalid. Ground water level measurements are needed to understand the direction ground water flows. Measures of water quality are needed to ensure that the clean-up remedy is successful and ground water quality does not degrade. Region 6 said it was aware in 2003 of the declined water level condition, but noted it had data from other wells that were sufficient to determine the direction of ground water flow and that the remedy was protective of human health and the environment. We agree that the invalid data did not have adverse implications for the Region's protection decision because ground water flows past these two wells *before* flowing under the area where contaminated soils and wastes were capped. However, if ground water conditions were to change, the invalid data could impede the Region's ability to determine whether the site's clean-up remedy is still protective and whether the network of ground water monitoring wells remains effective.

#### Invalid Water Quality Data

Region 6 included invalid ground water quality results in its 2002 and 2007 Five-Year Reviews of PAB. Six times, from 2001 through 2003, the contractor collected a water quality sample from a well (MW-3) even though the water level had dropped below the well's screen opening, the part of the well through which water enters. This same sample collection error occurred again in 2007 for well MW-3, and for the first time in a second well, MW-4. In each of these cases, the contractor did not follow accepted procedures because the water sample was withdrawn from stagnant water at the bottom of the well and was not a representative ground water sample. Because the contractor did not obtain a representative ground water sample due to the low water level, the result was invalid.

The Region 6 RPM told the OIG that he was aware of the declined water level in 2003 but that he could determine remedy protectiveness using results from the other monitoring wells. The contractor sampled these other wells properly because their screen openings were set lower. Ground water flows past the two

problem wells and then under the part of the site where soil and wastes were treated, consolidated, and capped. We agree that water quality data from these two wells are not necessary for determining whether the remedy remains protective. However, assessing the validity of the water quality data received from the responsible parties is a fundamental step in the Region's oversight activities. Although the RPM stated that he was aware of the declined water level problem, the RPM has not marked the water quality data as invalid in the site records.

## **Invalid Water Level Data**

Our analysis of the data that the responsible parties' contractor submitted to Region 6 shows that most of the water level data collected since July 2000 from the two problem monitoring wells (MW-3 and MW-4) were invalid. Appendix A presents a data table and detailed description of invalid water level data. As noted, the data were invalid because at the time the responsible parties measured the water level, the level was below the well's screen opening. Therefore, the measurement in the well did not represent the actual ground water level. The Region 6 RPM said that he first became aware of the problem with these two wells in 2003 when he was assigned the site. However, we found no evidence that the RPM marked the data as invalid in the site records or discussed the declined water level problem with the responsible parties and their contractor until we brought the problem to the RPM's attention in 2009.

Region 6 uses ground water level measurements to determine the direction ground water flows. A monitoring network aligned along the ground water flow direction is fundamental to decisions on the success of a clean-up remedy. If the direction changes, the network of wells used to monitor ground water quality also may need to change.

The ground water levels at PAB declined about 5 feet from the start of the remedial investigation in 1991 to the middle of 2000, and have remained depressed (see table in Appendix A). Consequently, since July 2000, the measured level was below the well's screen opening 11 of the 15 times the responsible parties' contractor measured the water level in MW-3, and 14 of the 15 times the water level was measured in MW-4,. These measurements are invalid because they do not represent the water level condition in the ground water.

We agree at present with the RPM's assessment that he can determine ground water flow conditions without measurements in these two wells. However, two long-term monitoring reports from the responsible parties' contractor, from 2006 and 2009, did not support the presumed northwest direction of ground water flow. Valid water level measurements in other years' reports, dating back to the remedial investigation, supported the interpretation that ground water flow was toward the northwest. In 2006, the contractor reported that the direction had

shifted from the northwest to the southwest. In 2009, the contractor showed the direction ranging from the northwest to the east (see map in Appendix A). Region 6, as part of its oversight responsibilities, should have questioned the validity of these flow directions, removed the invalid data, and reevaluated the ground water flow direction.

## Conclusions

We documented occurrences of invalid site condition data received by Region 6 from the responsible parties' contractor. The invalid water quality and water level data do not have adverse implications for the Region's determination that the clean-up remedy protects human health and the environment. However, Region 6 has not taken steps to keep invalid data from the site records and improve its oversight of the contractor's site data. Not addressing the collection, receipt, or disclosure of invalid data may result in the Region being unable to detect future conditions that show the monitoring network is not effective or the remedy is not protective of human health and the environment.

## Recommendations

We recommend that the Regional Administrator, Region 6:

- 2-1 Issue an addendum to the 2007 Five-Year Review identifying the invalid data in the PAB site records, addressing how the invalid data affects the Region's protectiveness determination, and establishing the valid ground water level and ground water quality records for PAB.
- 2-2 Modify the long-term monitoring plan for PAB to include procedures that ensure the Region and the responsible parties collect and report valid information on site ground water level and ground water quality conditions.

## EPA Region 6 Response to Draft Report and OIG Evaluation

Region 6's response to the draft report did not address Recommendation 2-1. Also, the Region responded that it had updated its operation and maintenance plan, and as such, Recommendation 2-2 should be closed. In a follow-up meeting, OIG and Region 6 personnel discussed the Region's response and reached agreement on issues that the Region must respond to in its final response to this report. Region 6's official comments and OIG's evaluation are summarized below and included in full in Appendix C.

Given the Region's official written response, Recommendation 2-1 is designated in the final report as "undecided with resolution efforts in progress." In our follow-up meeting, regional staff affirmed the Region's commitment to issuing an addendum to the 2007 Five-Year Review Report. In its 90-day response to this

report, Region 6 should provide an actual or estimated milestone date for completion of Recommendation 2-1.

In its official response to the report, Region 6 stated that because the operations and maintenance plan had been updated, Recommendation 2-2 should be designated as “closed.” We do not agree that this action fully addresses the recommendation. In our follow-up meeting with the Region, we discussed the additional needed actions. Region 6 staff committed to addressing the OIG’s concerns. This recommendation is designated as “undecided with resolution efforts in progress.” In its 90-day response, Region 6 should provide an acceptable corrective actions plan, along with any planned or completed milestone dates.

## **Status of Recommendations and Potential Monetary Benefits**

RECOMMENDATIONS						POTENTIAL MONETARY BENEFITS (in \$000s)	
Rec. No.	Page No.	Subject	Status <sup>1</sup>	Action Official	Planned Completion Date	Claimed Amount	Agreed To Amount
2-1	5	Issue an addendum to the 2007 Five-Year Review identifying the invalid data in the PAB site records, addressing how the invalid data affects the Region's protectiveness determination, and establishing the valid ground water level and ground water quality records for PAB.	U	Regional Administrator, Region 6			
2-2	5	Modify the long-term monitoring plan for PAB to include procedures that ensure the Region and the responsible parties collect and report valid information on site ground water level and ground water quality conditions.	U	Regional Administrator, Region 6			

<sup>1</sup> O = recommendation is open with agreed-to corrective actions pending  
 C = recommendation is closed with all agreed-to actions completed  
 U = recommendation is undecided with resolution efforts in progress

**Appendix A*****Details on Invalid Ground Water Level Data***

Our analysis of Region 6's ground water level data for PAB shows that most of the water level data collected since July 2000 from two monitoring wells (MW-3 and MW-4) were invalid. We determined that the data were invalid because the reported water level was below the well's screen opening. If the water level in the ground water is below the bottom of the screen opening, then ground water cannot flow into the well, and any water in the well is not representative of ground water conditions.

Table A-1 presents the water level information as given in annual monitoring reports. The earliest data and information on the elevations of the well screen openings are from the 1993 Remedial Investigation Report. As is shown in Table A-1, 14 of the 15 times the contractor measured water levels since July 2000, the level was below well MW-4's screen opening. The same conditions were present at well MW-3 in 11 of the 15 times the contractor measured water levels. The low ground water level in the two monitoring wells rendered them unusable for most of the last 10 years. Table A-1 shows the invalid data in bold and italics.

Some of the uncharacteristic ground water flow directions reported in site documents occurred because the responsible parties' contractor included invalid data for wells MW-3 and MW-4. The 2009 annual monitoring report provides one example in which the contractor presented information on the ground water flow direction that was counter to the established direction toward the northwest. Figure A-1 shows the contractor's ground water map from the 2009 report. Region 6 should have questioned the validity of the map; not doing so demonstrated a lack of oversight by the Region of the PAB monitoring activities.

Table A-1: Water Levels at PAB

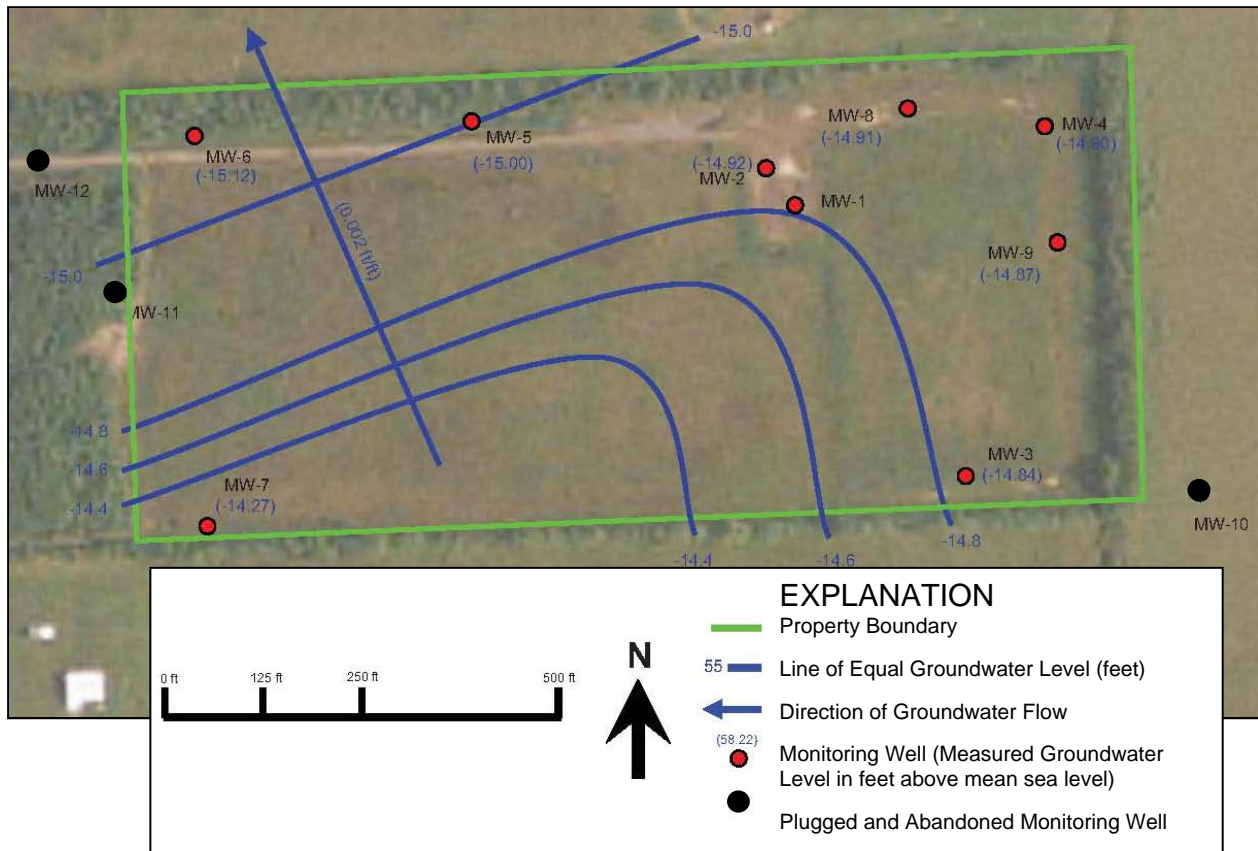
Water level elevation, in feet relative to mean sea level										
	Date	MW-1	MW-2	MW-3*	MW-4*	MW-5	MW-6	MW-7	MW-8	MW-9
	03/22/1991	-10.07	-10.38	-10.32	-10.32	-10.51	-10.52	-10.47	-10.34	-10.31
	08/20/1991	-9.51	-9.81	-9.76	-9.77	-9.95	-9.99	-9.89	-9.79	-9.76
	10/29/1991	-9.38	-9.71	-9.66	-9.65	-9.84	-9.85	-9.81	-9.68	-9.64
	12/04/1991	-9.36	-9.68	-9.64	-9.63	-9.81	-9.85	-9.79	-9.65	-9.62
	02/04/1992	-8.77	-9.10	-9.08	-9.05	-9.26	-9.23	-9.21	-9.08	-9.07
	01/27/1999	-11.72	-12.06	-8.03	-12.02	-12.25	-12.25	-12.16	-12.05	-12.02
	07/20/1999	-12.68	-13.00	-12.93	-12.94	-13.24	-13.23	-13.15	-12.98	-12.95
	01/19/2000	-13.03	-13.35	-12.58	-13.31	-13.56	-13.55	-13.47	-13.34	-13.30
1	07/18/2000	-14.43	-14.73	-14.65	<b>-14.65</b>	-14.92	-14.96	-14.86	-14.72	-14.66
2	01/15/2001	-14.81	-15.23	<b>-15.03</b>	<b>-15.47</b>	-15.28	-15.37	-15.19	-15.07	-15.05
3	08/01/2001	-15.23	-15.52	<b>-15.46</b>	<b>-15.22</b>	-15.70	-15.77	-15.65	-15.51	-15.47
4	02/20/2002	-15.03	-15.22	<b>-15.09</b>	<b>-15.64</b>	-15.00	-14.23	-14.36	-15.31	-15.26
5	09/19/2002	-15.42	-15.72	<b>-15.62</b>	<b>-14.92</b>	-15.88	-15.93	-15.83	-15.70	-15.66
6	03/17/2003	-14.62	-14.95	<b>-14.78</b>	<b>-14.92</b>	-15.17	-15.17	-15.06	-14.92	-14.88
7	08/19/2003	-14.65	-14.94	<b>-14.81</b>	<b>-14.89</b>	-15.12	-15.18	-15.07	-14.93	-14.90
8	03/23/2004	-14.30	-14.60	-14.45	<b>-14.50</b>	-14.76	-14.84	-14.73	-14.59	-14.54
9	03/08/2005	-13.97	-14.28	-14.23	-14.23	-14.38	-14.54	-14.36	-14.25	-14.24
10	03/31/2006	-15.01	-15.08	<b>-15.00</b>	<b>-14.96</b>	-15.15	-15.30	-15.97	-15.06	-15.01
11	03/01/2007	-14.94	-15.26	<b>-15.19</b>	<b>-15.22</b>	-15.37	-15.46	-15.44	-15.25	-15.22
12	01/02/2008	-14.73	-15.03	<b>-14.98</b>	<b>-14.96</b>	-15.13	-15.25	-15.17	-15.02	-15.02
13	02/25/2009	-14.60	-14.92	<b>-14.84</b>	<b>-14.90</b>	-15.00	-15.12	-14.27	-14.91	-14.87
14	05/11/2009	-14.58	-14.89	-14.58	<b>-14.63</b>	-14.83	-14.84	not reported	-14.87	-14.66
15	08/2009**	-15.31	-15.41	<b>-15.30</b>	<b>-15.27</b>	-15.41	-15.63	-15.45	-15.39	-15.34
Elevation of the bottom of the well's screen opening, in feet relative to mean sea level										
		MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9
		-96.1	-16.0	-14.7	-14.4	-16.8	-17.9	-16.9	-22.8	-20.4

Sources: Remedial investigation and long-term monitoring reports for PAB.

\* Values recorded in **bold and italics** fall below the well's screen opening, making them **invalid**.

\*\* Exact date of August 2009 measurements taken by responsible parties' contractor was not given in the site records.

Figure A-1: February 2009 Water Levels for PAB Ground Water Wells



Source: Responsible parties' map of measured ground water levels at PAB, February 2009. The map included invalid water levels at monitoring wells MW-3 and MW-4. The map's format was simplified by the OIG in the following ways: the incorrect symbol for MW-10 was corrected, yellow symbols were change to black for purposes of printing in black and white, and the explanation was shortened in length.



**Appendix B*****Details on Sampling Methodology, Data Analyses,  
and Results of Comparisons and Site Inspection*****Sampling Methodology**

We acquired a qualified environmental contractor from the list of General Services Administration contractors to measure water levels, take water quality samples from six ground water monitoring wells, and conduct an inspection during March 3-7, 2008. We sampled a seventh well (MW-4) but invalidated the results because the water level was below the well's screen opening (see Appendix A). OIG analysts were present to ensure that proper sampling, site inspection, and quality assurance protocols were followed.

We followed the same sampling methods and protocols used in the long-term monitoring program. Before sampling, we measured water levels and then purged each well of three well casing volumes of water, or until we drained the well dry. We then sampled each well using a disposable bailer. Samples for dissolved metal analyses were passed through disposable filters attached directly to the bailer, pressurized using a hand-powered pump. We recorded temperature, pH, oxidation-reduction potential, dissolved oxygen concentration, and turbidity of the bailed water, after removing the samples for laboratory analyses.

Two laboratories analyzed the samples for concentrations of volatile organic compounds, semivolatile organic compounds, and dissolved metals using EPA-approved methods. Due to the limitations of the scope of our evaluation, the laboratories did not analyze for other contaminants typically monitored in drinking water, such as nitrate.

**Data Analyses**

We analyzed our sampling results to determine whether Region 6 has been obtaining valid and reliable data on ground water conditions at PAB. First, we compared our results to historical data collected from 2000 through 2007 to determine whether our data were consistent with data Region 6 has been receiving from the responsible parties. OIG results greater than two standard deviations above average historical concentrations were deemed to be different from the historical data. We also evaluated our results in the context of applicable standards and their potential effect on Region 6's protectiveness determination for PAB. This required us to identify all OIG results that exceeded federal drinking water standards.

We did not include invalid data resulting from water levels that were below the bottom of the well's screen opening at the time the measurement and sample were taken. This was the case for most of the water level and all of the water quality data from wells MW-3 and MW-4. We also did not include the data Region 6 contractors collected from well MW-4 in 2005 as part of the Hurricane Rita assessment, because the validity of the sample could not be determined as a water level was not measured.

## **Results of Comparisons and Site Inspection**

Aside from most of the data from two problematic wells (MW-3 and MW-4), our sampling results confirm that Region 6 had received valid data on ground water conditions at PAB. Our laboratory results showed no organic compounds or metals above safe levels for drinking water. Our results were consistent with those Region 6 had received in the long-term monitoring reports (2000 through 2007) and used in the 2007 Five-Year Review for PAB. Our site inspection in March 2008 showed that the responsible parties were properly maintaining the site in accordance with the EPA-approved operation and maintenance plan. We observed that the clay cap covering wastes was well maintained. We observed several breaches in the perimeter fence, which Region 6 also noted in its 2007 Five-Year Review. The responsible parties reported to Region 6 in October 2008 that they had repaired the fence.

## Appendix C

## ***EPA Region 6 Response to Draft Report and OIG Evaluation***



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS TX 75202-2733

August 20, 2010

### **MEMORANDUM**

**SUBJECT:** Draft Evaluation Report: PAB Oil and Chemical Services, Inc. Site

**FROM:** Al Armendariz  
Region 6 Administrator

**TO:** Carolyn Cooper  
Director for Program Evaluation  
Hazardous Waste Issues

On July 19, 2010, you provided me with a summary of concerns which led you to conclude that the Environmental Protection Agency (EPA) should improve oversight of long-term monitoring at the PAB Oil and Chemical Services, Inc. (PAB) Superfund site in Abbeville, Louisiana.

The EPA continues to seek ways to improve its oversight of remedial activities at all of its Superfund sites, and certainly your comments have assisted us in this endeavor. We appreciate your agreement with our conclusion that the monitoring data issues did not affect the protectiveness finding of the remedy.

We appreciate your comments concerning the PAB site and I look forward to your assistance in resolving any concerns regarding the long-term monitoring data issues at the site.

Attachments

**OIG Response 1:** The OIG acknowledges the Region's commitment to resolving long-term monitoring issues at the site.

## **Region 6 Response to the Office of Inspector General's (OIG) Draft Report on the Long-Term Oversight Monitoring at the PAB Oil Superfund Site**

This document transmits the Region 6 response and comments on the OIG's draft evaluation report on the EPA oversight of long-term monitoring at PAB Oil and Chemical Services, Inc. Superfund Site in Abbeville, Louisiana. The EPA notes the OIG determined the oversight issues it identified at the PAB site did not affect the EPA's remedy protectiveness determination.

Region 6 would like to offer comments on a few specific issues that you raised in your evaluation.

### **Region 6 Response**

#### **Report Title: EPA Should Improve Oversight of Long-term Monitoring at PAB Oil and Chemical Services, Inc. Superfund Site in Louisiana**

*Narrative Response:* The title of the evaluation does not reflect the conclusions in the draft report. The draft report concluded that the invalid water quality and water level data identified by the OIG was not used by the EPA in assessing the protectiveness of the remedy. In addition, the draft report indicated that the invalid data does not have adverse implications concerning the determination of whether or not the remedy protects humans and the environment. The only finding in the draft report concerning the invalid data was the EPA did not address the invalid data in any correspondence related to the site.

*Proposed Revision:* The title of the evaluation should be re-written. "EPA Should Clarify Long-Term Monitoring Data Issues at the PAB Oil and Chemical Services, Inc. Superfund Site in Louisiana"

**OIG Response 2:** The OIG does not agree that revisions are needed. The OIG did not conclude that the oversight weaknesses we identified would never lead to an unacceptable outcome, and such a conclusion cannot be reached. Rather, the OIG concluded that improvements are needed to ensure that the oversight weaknesses we identified do not cause problems in the future. Specifically, the OIG states in the At a Glance: "if ground water conditions were to change, the invalid data could impede the Region's ability to determine whether the site's clean-up remedy is still protective and whether the network of ground water monitoring wells remains effective."

**At A Glance, What We Found: EPA included invalid data in its analyses. Paragraph 1, 2<sup>nd</sup> Sentence**

*Narrative Response:* In the second sentence of “At A Glance, What We Found”, you indicate that the EPA included invalid data in our analyses. This is contrary to the conclusions in the draft report.

The draft report concluded that the invalid water quality and water level data identified by the OIG was not used by the EPA in assessing the protectiveness of the remedy. In addition, the draft report indicated that the invalid data does not have adverse implications concerning the determination of whether or not the remedy protects humans and the environment. The only finding in the draft report concerning the invalid data was the EPA did not address the invalid data in any correspondence related to the site.

*Proposed Revision:* To make this sentence consistent with the conclusions of the draft report the phrase “and included that invalid data in its analyses” should be deleted from the 2nd sentence.

**OIG Response 3:** The OIG does not agree with this comment and no change was made. The OIG did not conclude that the invalid data were not used in the protectiveness determination. The OIG concluded that the water quality data from the two problem wells were not needed to determine protectiveness, as “ground water flows past the two problem wells and then under the part of the site where soil and wastes were treated, consolidated, and capped.”

Region 6 did not provide the OIG with any documentation that shows the invalid water quality data was excluded from its analyses. We did observe that Region 6 included invalid water quality data in the data table and discussion in the 2007 Five-Year Review. Region 6 did not include water level data in the Five-Year Review report. As discussed in the report, the monitoring reports submitted to Region 6 by the responsible parties’ contractor included invalid water level data, which sometimes led to interpretations of the direction of ground water flow that differed from the conceptual model that ground water flow was uniformly to the northwest. Region 6 has provided no evidence that it conducted its own analyses of the ground water flow direction that excluded the invalid water level data. As such, the monitoring reports stand as the analyses of record for water level information and ground water flow direction for the site.

While the OIG recognizes that the inclusion of invalid water quality data did not have negative implications for Region 6’s 2007 decision on site protectiveness, this cannot be guaranteed in the future. The OIG must disclose that invalid data were included and recommend improvements in Region 6’s oversight so that this does not happen in the future. The OIG believes Region 6 would want to be aware of weaknesses in its oversight and address those weaknesses so that human health and the environment remain protected.

### **Chapter 1, Introduction, Background: Page 1, Paragraph 3**

*Narrative Response:* This section uses the term “Reviews” without a specific explanation. It is clear to us that you mean Five Year Reviews, but someone unfamiliar with EPA activities might not understand the context of this term.

*Proposed Revision:* While redundant, it is suggested that you use the full term, “Five Year Review” instead of the term “Reviews”.

**OIG Response 4:** The OIG agrees and has made this change throughout the final report.

### **Chapter 1, Introduction, Noteworthy Achievements: Page 2, Paragraph 2**

*Narrative Response:* This section uses the term “Reviews” without a specific explanation. It is clear to us that you mean Five Year Reviews, but someone unfamiliar with EPA activities might not understand the context of this term.

*Proposed Revision:* While redundant, it is suggested that you use the full term, “Five Year Review” instead of the term “Reviews”.

**OIG Response 5:** The OIG agrees and has made this change throughout the final report.

### **Chapter 1, Introduction, Scope and Methodology: Page 2, Paragraph 1**

*Narrative Response:* It is our understanding that the OIG initiated the performance evaluation for the PAB Oil site on May 29, 2007.

**OIG Response 6:** The OIG does not agree with this comment. Although EPA was notified in May 2007 and sites were selected in August 2007, we did not begin our field work at PAB until January 2008, which is when we sent our technical directive to the OIG contractor in preparation for our sampling.

### **Chapter 2, Region 6 Included Invalid Data in Groundwater Analyses, Page 3**

*Narrative Response:* The title of this section does not reflect the conclusions indicated in the draft report.

The draft report concluded that the invalid water quality and water level data identified by the OIG was not used by the EPA in assessing the protectiveness of the remedy. In addition, the draft report indicated that the invalid data does not have adverse implications concerning the determination of whether or not the remedy protects humans and the environment. The only

finding in the draft report concerning the invalid data was the EPA did not address the invalid data in any correspondence related to the site.

Proposed Revision: To make the title consistent with the conclusions of the draft report it should be changed to “*Region 6 should clarify the use of various data in Groundwater Analyses*” .

**OIG Response 7:** The OIG does not agree with this comment and no change was made to the chapter title. See OIG Response 3.

**Chapter 2, Region 6 Included Invalid Data in Groundwater Analyses: Page 3, Paragraph 1, 1<sup>st</sup> sentence**

Narrative Response: The first sentence in this section states that the EPA included the invalid data in its analyses. This is contrary to the conclusions in the draft report.

The draft report concluded that the invalid water quality and water level data identified by the OIG was not used by the EPA in assessing the protectiveness of the remedy. In addition, the draft report indicated that the invalid data does not have adverse implications concerning the determination of whether or not the remedy protects humans and the environment. The only finding in the draft report concerning the invalid data was the EPA did not address the invalid data in any correspondence related to the site.

Proposed Revision: To make this sentence consistent with the conclusions of the draft report the phrase “*and included that invalid data in its analyses*” should be deleted from the 1<sup>st</sup> sentence.

**OIG Response 8:** Phrase was not deleted. See OIG Response 3.

**OIG Response 9:** Region 6 did not provide specific concurrence to Recommendation 2-1 in this August 2010 response. In response to an earlier draft in April 2010, Region 6 stated it “will identify the invalid data in an addendum to the 2007 Five Year Review Report.” In the exit conference held between the OIG and Region 6 personnel on August 30, 2010, the Remedial Project Manager reaffirmed Region 6’s commitment to issuing an addendum to the 2007 Five-Year Review Report.

This recommendation is designated as “undecided” in the final OIG report. In its 90-day response to this report, Region 6 should provide an actual or estimated milestone date for completion of Recommendation 2-1 or state its nonconcurrence if it does not agree.

## Chapter 2, Region 6 Included Invalid Data in Groundwater Analyses Recommendations, Page 5, Paragraph 2-2

*Narrative Response:* This recommendation indicates that the long-term monitoring plan for the site should be modified to ensure the responsible parties collect and report valid information on site groundwater level and groundwater quality conditions.

Pursuant to our response to the OIG on May 19, 2009, EPA had the responsible party update the groundwater monitoring procedures in the Operations and Maintenance Plan. The updated Operations and Maintenance Plan was completed on August 17, 2009. A copy of the updated Operations and Maintenance Plan was provided to the OIG on September 1, 2009. A copy of the updated Operations and Maintenance Plan is attached to these comments to facilitate your review.

*Proposed Revision:* Since the Operations and Maintenance Plan has been updated as recommended in the draft report, we suggest that this recommendation be designated as “closed”.

**OIG Response 10:** The OIG does not agree with this comment and did not change the status of Recommendation 2-2 to closed. The OIG acknowledges that the operation and maintenance plan was updated on August 17, 2009, and Region 6 provided the plan to us on September 1, 2009. The updated plan mentions the problem with the water level being too low for two wells and that the responsible parties’ contractor was conducting quarterly monitoring to “provide an optimum timeframe to gauge these specific wells (i.e., when the water table is above the screened intervals).” We recognize that this is a reasonable first step that would help the responsible parties and their contractor better understand the problem. However, the action does not completely address OIG Recommendation 2-2, which calls for “procedures that ensure the Region and the responsible parties collect and report valid information on site ground water level and ground water quality conditions.”

The water level was below the bottom of well MW-4’s screen opening all four times it was measured in 2009 and three of the four times for MW-3, according to the monitoring report submitted to Region 6 on March 10, 2010. We agree with the monitoring report conclusion that “the existing network of wells on the site is sufficient to establish groundwater gradient without the use of these two wells,” as long as flow conditions remain uniformly to the northwest. However, to fully meet the intent of OIG Recommendation 2-2, procedures should be established and followed for identifying when the water level is too low and for how this will be documented. These procedures are especially important because another monitoring well, MW-2, has a screen set high enough that it too is in danger of being unusable if water levels were to drop further.



**OIG Response 10, continued:**

In the exit conference held between the OIG and Region 6 personnel on August 30, 2010, we discussed the nature of these needed procedures. The Region 6 remedial project manager committed to meeting the intent of OIG Recommendation 2-2 by updating the 2009 operation and maintenance plan.

Recommendation 2-2 is designated in the final OIG report as “undecided with resolution efforts in progress.” In its 90-day response, the Region should provide an acceptable corrective actions plan or state the reasons for maintaining its current proposed actions.

**Status of Recommendations and Potential Monetary Benefits, Page 6, Recommendation 2-2**

*Narrative Response:* This recommendation indicates that the long-term monitoring plan for the site should be modified to ensure the responsible parties collect and report valid information on site groundwater level and groundwater quality conditions.

Pursuant to our response to the OIG on May 19, 2009, EPA had the responsible party update the groundwater monitoring procedures in the Operations and Maintenance Plan. The updated Operations and Maintenance Plan was completed on August 17, 2009. . A copy of the updated Operations and Maintenance Plan was provided to the OIG on September 1, 2009. A copy of the updated Operations and Maintenance Plan is attached to these comments to facilitate your review.

*Proposed Revision:* Since the Operations and Maintenance Plan has been updated as recommended in the draft report, we suggest that this recommendation be designated as “closed”.

**OIG Response 11:** The OIG does not agree with this comment. See OIG Response 10 for our reasons for considering the August 2009 revision of the operation and maintenance plan to be inadequate for meeting OIG Recommendation 2-2. Based on the discussion held in the August 30, 2010, exit conference, we expect Region 6 to include plans to update the 2009 operation and maintenance plan in its response to this final report. The recommendation resolution is designated as “undecided with resolution efforts in progress.”

**Appendix B, Details on Invalid Groundwater Level Data, Page 9, Paragraph 3, Last sentence**

*Narrative Response:* This sentence indicates that the EPA should have questioned the validity of a February 2009 map generated by the responsible parties and by not doing so, demonstrated a problem in its oversight of the PAB monitoring activities.

As indicated in EPA's response to the OIG on May 19, 2009, EPA's oversight was not flawed since EPA did not use invalid data in determining the ground water flow direction based upon the February 2009 water level data. However, the only issue was EPA did not have the responsible party revise the February 2009 map to not utilize the invalid data.

*Proposed Revision:* Delete the sentence "*Region 6 should have questioned the validity of the map; by not doing so, Region 6 demonstrated a problem in its oversight of the PAB monitoring activities*" and replace it with the following sentence - "While Region 6 determined that the groundwater flow direction based upon the February 2009 water levels was consistent with the historical northwest direction, Region 6 should have required the responsible party to revise the map to not include the invalid water level data."

**OIG Response 12:** The OIG does not agree with these suggested changes. The OIG has no evidence that Region 6 questioned or was aware that there was a problem with the validity of the map. Region 6's acknowledgement that it did not have the responsible party revise the map does not address the OIG's finding that the cause for this was lack of the Region's awareness or oversight.

**Appendix D**

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