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SAFE Drinking Water act.
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Confidential Records Management, Inc. New Bern, NC 1-888-622-4425 9/08 SAFE Drinking Water Act

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UNITED STATES MARINE CORPS MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA 28542

MAIN/DDS/th 6240 1 7 AUG 1981

From: Commanding General To: Distribution List

Subj: Hazardous Material Disposal Program

Ref:

(a) CG MCB msg 192111Z Nov 1980

(b) BO 11090.1B

(c) CG MCB 1tr MAIN/DDS/th 6240 of 29 Jul 1980

(d) Resources Conservation and Recovery Act (RCRA)

(e) 49 CFR Parts 1, 71-173, 178 and 179

(f) 40 CFR Parts 260-265

Encl: (1) Hazardous Waste Label; instructions for use

1. The purpose of this letter is to provide additional guidance related to the implementation of the subject program initially established by reference (a). Reference (b) provides current installation policy related to prevention, containment, cleanup and reporting of accidental and zero spills or discharges of hazardous material.

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3. The Defense Property Disposal Officer (DPDO) has declared several chemicals listed in reference (d), which are commonly used as solvents, degreasers, thinners and paint strippers in local shops, to be hazardous waste immediately upon generation. Also, because DPDO has been unable to find a source for reuse or sale of used electrolyte, they have recently declared all used battery acid to be a hazardous waste immediately upon generation. It is expected that other substances will be similarly categorized in the future. Items described above must be managed, as hazardous waste in the following manner:

Subj: Hazardous Material Disposal Program

- a. Collect and store in suitable containers (to which have been affixed properly executed hazardous waste labels, see enclosure (1)) until transported to long term storage or disposal site by Assistant Chief of Staff, Logistics, Marine Corps Base.
- b. Do not store for over 90 days aboard the installation except at an Environmental Protection Agency and State authorized site currently operated by Assistant Chief of Staff, Logistics, Marine Corps Base.
- c. Do not transport on public highways except as authorized by Assistant Chief of Staff, Logistics, Marine Corps Base. Transportation must be accompanied by a properly executed North Carolina Hazardous Waste Manifest signed by Assistant Chief of Staff, Logistics, Marine Corps Base or his designated representative.
- d. Transport only in containers and vehicles meeting specifications, labeling and placarding requirements of references (e) and (f).
- 4. Supervisors and cognizant officers in charge of shops and other functions handling, storing and using hazardous material can normally ensure they have satisfied their responsibilities with regard to the subject program by complying with the following:
- a. Inform personnel of the nature of and special handling requirements of the various types of hazardous material routinely used.
- b. Ensure that adequate supplies of containers and safety and handling equipment are readily available for use by all personnel.
- c. Ensure that required hazardous waste labels (enclosure (1)) are filled out, dated and affixed to each container before it is used to store hazardous waste and that only containers having this label are used to store hazardous waste.
- d. Ensure that forms DD-1348-1 are properly executed for all hazardous waste; and turned in to DPDO within 60 calendar days after accumulation start date on hazardous waste label; and
- e. Routinely inspect all shops and locations where hazardous material and waste are stored, handled or used and take action to repair leaking containers and to correct any condition which may result in a discharge of waste to the environment.
- 5. In many cases DPDO will accept accountability for a hazardous material or waste, but not physical custody. When this occurs, the organization turning in the item(s) becomes a custodian for property belonging to DPDO. The organization has the responsibility for properly storing the items. Should any of the containers deteriorate so as to create a threat to the environment or personnel safety, the holding organization should immediately notify DPDO. Repacking of any items for which DPDO has accepted accountability is the responsibility of DPDO.



UNITED STATES MARINE CORPS MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA 28542

MAIN/DDS/th 6240 1 7 AUG 1981

From: Commanding General To: Distribution List

Subj: Hazardous Material Disposal Program

Ref:

(a) CG MCB msg 192111Z Nov 1980

(b) BO 11090.1B

(c) CG MCB ltr MAIN/DDS/th 6240 of 29 Jul 1980 (d) Resources Conservation and Recovery Act (RCRA)

(e) 49 CFR Parts 1, 71-173, 178 and 179

(f) 40 CFR Parts 260-265

Encl: (1) Hazardous Waste Label; instructions for use

- 1. The purpose of this letter is to provide additional guidance related to the implementation of the subject program initially established by reference (a). Reference (b) provides current installation policy related to prevention, containment, cleanup and reporting of accidental and other unauthorized spills or discharges of hazardous material and hazardous waste.
- 2. Monitoring of the subject program over the past eight months has identified the following Command concerns, which if not addressed immediately may result in violations of state and federal regulations:
- a. Hazardous waste (particularly used solvents, degreasers, paint stripper and battery acid) is being generated in volumes much lower than indicated by data provided by addressees during a previous survey conducted, as requested by reference (c).
- b. Many shops routinely generating regulated material have not been provided adequate storage containers nor handling equipment.
- c. Many first line supervisory personnel are not aware of either the legal liabilities associated with or the procedures for disposal of regulated items. Addresses are reminded that both military and civilian personnel are subject to prosecution in federal and state court for violation of federal and state regulations implementing reference (d).
- 3. The Defense Property Disposal Officer (DPDO) has declared several chemicals listed in reference (d), which are commonly used as solvents, degreasers, thinners and paint strippers in local shops, to be hazardous waste immediately upon generation. Also, because DPDO has been unable to find a source for reuse or sale of used electrolyte, they have recently declared all used battery acid to be a hazardous waste immediately upon generation. It is expected that other substances will be similarly categorized in the future. Items described above must be managed, as hazardous waste in the following manner:

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- b. Do not store for over 90 days aboard the installation except at an Environmental Protection Agency and State authorized site currently operated by Assistant Chief of Staff, Logistics, Marine Corps Base.
- c. Do not transport on public highways except as authorized by Assistant Chief of Staff, Logistics, Marine Corps Base. Transportation must be accompanied by a properly executed North Carolina Hazardous Waste Manifest signed by Assistant Chief of Staff, Logistics, Marine Corps Base or his designated representative.
- d. Transport only in containers and vehicles meeting specifications, labeling and placarding requirements of references (e) and (f).
- 4. Supervisors and cognizant officers in charge of shops and other functions handling, storing and using hazardous material can normally ensure they have satisfied their responsibilities with regard to the subject program by complying with the following:
- a. Inform personnel of the nature of and special handling requirements of the various types of hazardous material routinely used.
- b. Ensure that adequate supplies of containers and safety and handling equipment are readily available for use by all personnel.
- c. Ensure that required hazardous waste labels (enclosure (1)) are filled out, dated and affixed to each container before it is used to store hazardous waste and that only containers having this label are used to store hazardous waste.
- d. Ensure that forms DD-1348-1 are properly executed for all hazardous waste; and turned in to DPDO within 60 calendar days after accumulation start date on hazardous waste label; and
- e. Routinely inspect all shops and locations where hazardous material and waste are stored, handled or used and take action to repair leaking containers and to correct any condition which may result in a discharge of waste to the environment.
- 5. In many cases DPDO will accept accountability for a hazardous material or waste, but not physical custody. When this occurs, the organization turning in the item(s) becomes a custodian for property belonging to DPDO. The organization has the responsibility for properly storing the items. Should any of the containers deteriorate so as to create a threat to the environment or personnel safety, the holding organization should immediately notify DPDO. Repacking of any items for which DPDO has accepted accountability is the responsibility of DPDO.

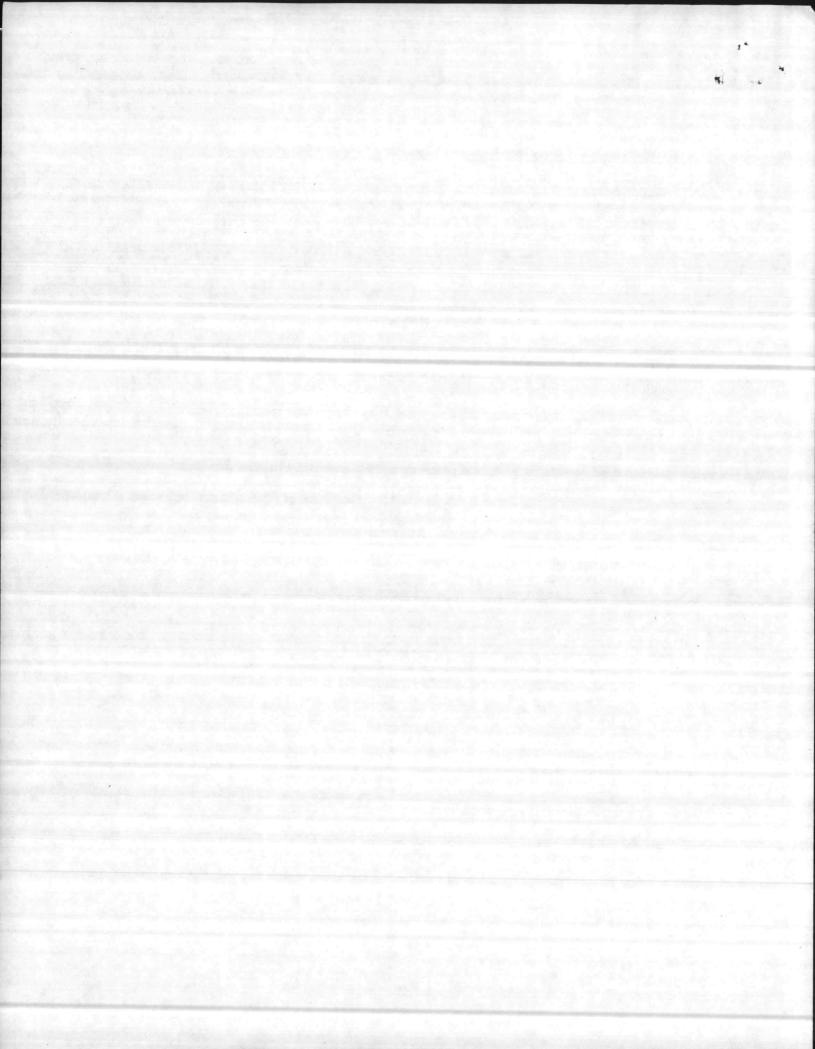
Subj: Hazardous Material Disposal Program

6. Addressees are requested to inform personnel within their Commands of current procedures regarding the implementation of the subject program. Point of contact for questions is Mr. Danny Sharpe, Natural Resources and Environmental Affairs Branch, Base Maintenance Division, extensions 2083/5003.

7 + wdll 3. R. FRIGELL Chief of Staff

DISTRIBUTION: CG 2dMARDIV CG 2dFSSG CO, NRMC CO, NRDC

AC/S LOG AC/S FAC DPSO TRAFMGTO PMU CO, MCAS(H) OIC, PP&P BSAFETYO BFIRCHIEF



FEDERAL LAW PROHIBITS IMPROPER DISPOSAL IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY PROPER D.O.T. SHIPPING NAME Note 1 UN OR NA# Note 1 GENERATOR INFORMATION: NAME Note 2 . ADDRESS ____ CITY Camp Lejeune STATE N.C. EPA WASTE NO Note 4 ID NO. NG6170022580 **ACCUMULATION** MANIFEST START DATE _ DOCUMENT NO.

O LABELMASTER, CHICAGO, IL 60626

These instructions are for use only by organizations located on board Marine Corps Base, Camp Lejeune. Shops, organizations, etc. located aboard Marine Corps Air Station (Helcopter), New River will follow guidance provided by Air Station S-4 Officer. This form must be completed and affixed to any container prior to use for hazardous waste storage. This form should only be used on items which Defense Property Disposal Officer has declared to be hazardous waste.

PROPER D.O.T SHIPPING NAME HAZARDOUS WASTE, LIQUID N.O.S. NA9189

ORM-E

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL

IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERATOR INFORMATION:

NAME Marine Corps Base (2d FSSG, Building

ADDRESS 1601, Telephone No. - - - -

CITY ___ Camp Le jeune

STATEN_C ZIP 2854

EPA

ID NO_NC6170022580

WASTE NO. ___

ACCUMULATION START DATE ___

1 June 1981

MANIFEST DOCUMENT NO.

HANDLE WITH CAREL. CONTAINS HAZARDOUS OR TOXIC WASTES

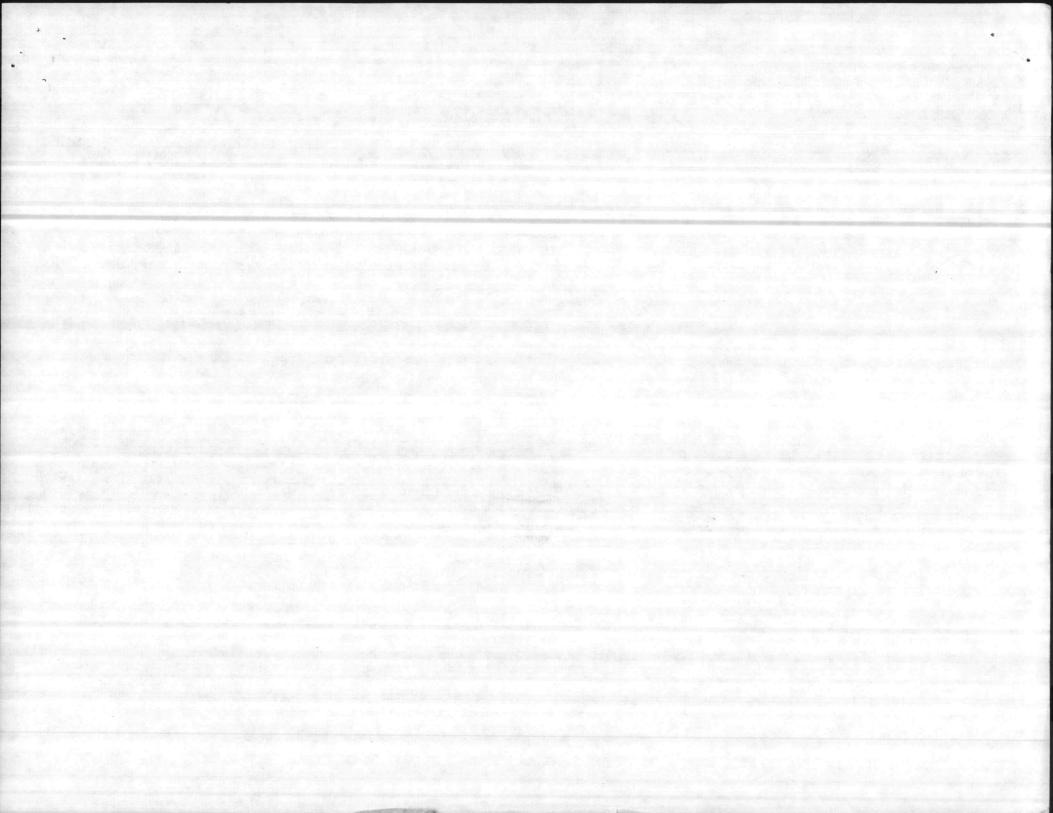
STYLE WM-10

- Note 1: Insert DOT shipping name and UN or NA# listed in 49 CFR Part 172 on Hazardous Waste Label, Style WM-6. If the item is not listed in 49 CFR Part 172, enter the name of the item preceded by the word "Waste". If the item is a mixture of various chemicals not readily identifiable by name, use Hazardous Waste Label Style WM-10, above.
- Note 2: Insert "Marine Corps Base" followed in parenthesis by the Name of the generating Command, if different, and the building number or location on board installation where waste is stored and the telephone number of responsible official (See example above).
- Note 3: Insert the date that container initially used to store waste. This date must be entered prior to use of container.
- Note 4: Leave blank. Will be completed by representative of PP&P after action to dispose of waste is initiated.
- Note 5: Hazardous Material Disposal Coordinator may obtain initial supply of labels from Base Maintenance Officer, telephone 5003. A locally produced label will be furnished at a future date by Marine Corps Base.

Note #2: Hazardous material disposal coordinator will review MCO 45/0.24 (Paragraph 4). Disposal or hazardous wastes such as radioactive materials; toxicological, biological and chemical warfare material; industrial sludges; cryptographic equipment and other unique wastes should be attempted through existing procedures before initiating procedures outlined on this flow chart. AC/S Facilities, Marine Corps Base, will coordinate the development of disposal procedures for these materials when existing procedures have not been previously established.

Note#3: If an item to be transported is a hazardous waste subject to RCRA and must be transported on the public highway, a North Carolina Hazardous Waste Shipping Manifest will be prepared prior to transporting, will be attached to

DD-1348-1, and will be carried by driver of vehicle used to transport wastes (See Appendix B).



INSTRUCTIONS FOR COMPLETING DD FORM 1348-1 by Marine Corps Base and Marine Corps Base Tennants (Note 1)

The following modifications/changes are to be incorporated into all disposal turn-in documents for hazardous materials or hazardous waste.

Block A - Name of Organization (telephone number) - NC 61700 22580

Block B - MCB, Camp Lejeune, NC (451-1634) - NC 61700 22580

Block C - Mark for (normally left blank): Insert HM (if turn-in is hazardous material) or HW (if turn-in is hazardous waste) (See Note 2)

Block U - Freight Classification nomenclature: Add characters (two alpha, four numeric) identification number as shown in 49 CFR, Part 172. If unable to identify materials or wastes, leave this block blank (See Note 3).

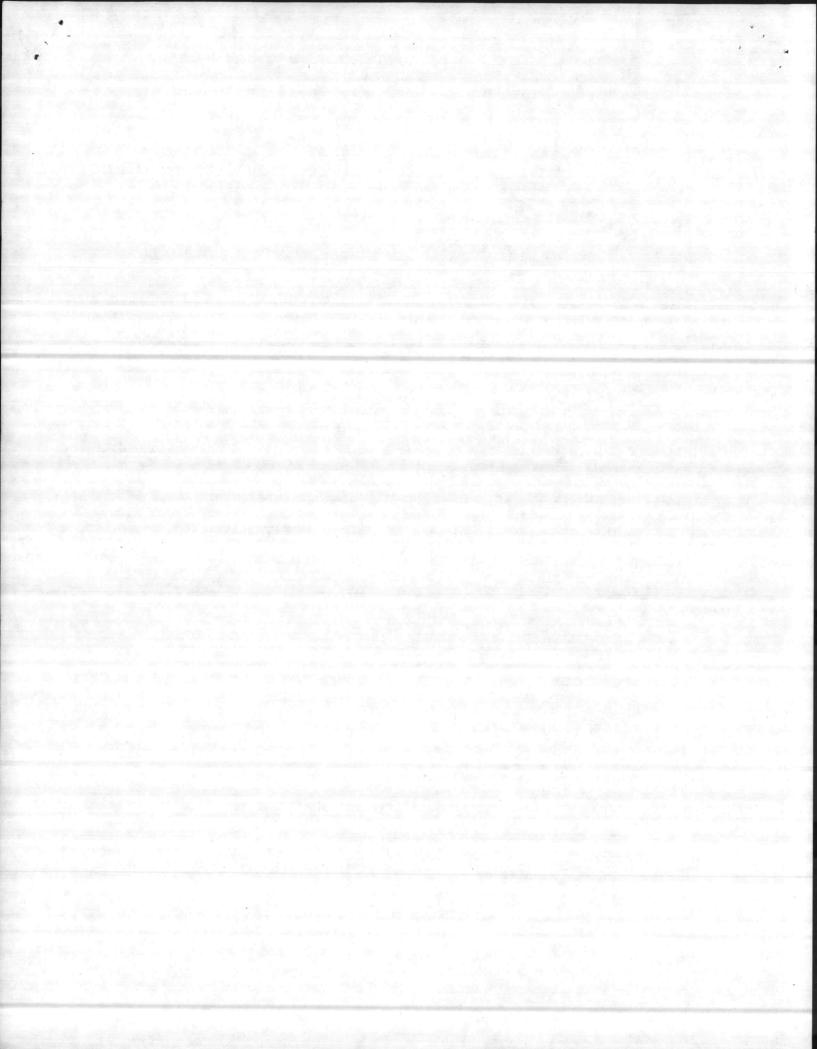
Block Y - Use this block (in lieu of Blocks AA through EE) for the Deposit Account Number

Block AA and BB: MCB, Camp Lejeune, NC - NC 61700 22580

Block CC: Have transporter (identified in Blocks AA and BB)sign and date for shipment received)

Blocks DD, EE, FF and FF: Insert the following statement in these blocks (Note: Rubber stamp, typewritten or machine produced copy required): "This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of DOT and EPA."

- Note 1: Marine Corps Air Station (H), New River and tenants shall complete DD Form 1348-1 in accordance with Air Station Order 6280.1.
- Note 2: Concurrence of generating organization's Hazardous Material Disposal Coordinator will be obtained prior to entering "HW" in this block.
- Note 3: Hazardous Material Disposal Coordinator will request Base Maintenance Officer representative (telephone 5977) to accomplish sampling and analysis of item(s), as required, to complete Block U.



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SUBJ: AUTOMOTIVE BATTERIES

1. REFERENCE: DPDS-H 4160.3 VOL. 1.

2. IN ACCORDANCE WITH REFERENCE THIS OFFICE WILL ACCEPT UNDRAINED BATTERIES UNDER THE FOLLOWING CONDITIONS:

A. CARE MUST BE EXERCISED IN HANDLING AND STORAGE IN ORDER TO PREVENT DAMAGE TO CASES.

BATTERIES WILL BE BANDED TO PALLETS. ONE LAYER HIGH. (ONLY FULL PALLETS WILL BE ACCEPTED)

ALL CAPS MUST BE INTACT?

D. BROKEN CASES/LEAKERS ARE REQUIRED TO BE DRAINED PRIOR TO

PAGE Ø2 RUEBDOA 8 136 UNCLAS. TURN-IN.

3. BATTERIES NOT MEETING THE ABOVE TURN-IN CRITERIA WILL BE RETURNED TO THE GENERATING ACTIVITY. BT

#8136

27E/ . 18 das 20029 : COL REL: M. J. KING, GS-13 DPDO

ACT: LOG

INFO: DSSC, FSMAO-1, DOSET, GEN & SPEC STAFF

DPDO, NRMC, NRDC /LLL

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UNITED STATES MARINE CORPS

MARINE CORPS BASE

CAMP LEJEUNE, NORTH CAROLINA 28542

BO 11090.1B MAIN/DDS/th 28 May 1981

BASE ORDER 11090.1B

From: Commanding General To: Distribution List

Subj: Oil Pollution Prevention and Abatement and Oil and Other Hazardous Substances Spill Contingency Plan

Ref:

(a) MCO P11000.8A

(b) Resource Conservation and Recovery Act (RCRA) of 1976 (NOTAL)

(c) Clean Water Act (NOTAL)

(d) Oil Spill Prevention Control and Countermeasure Plan of 10 June 1978, Camp Lejeune, NC (NOTAL)

Encl: (1) Oil and Hazardous Material Spill Prevention, Containment, Cleanup and Disposal Guidelines
(2) Oil and Other Hazardous Material Spill Contingency Plan

1. <u>Purpose</u>. To revise existing oil and other hazardous material related pollution abatement and prevention procedures for Marine Corps Base, Camp Lejeune and Marine Corps Air Station (Helicopter) (MCAS(H)), New River and to assist the Commanding General in the implementation of reference (a) with respect to pollution abatement.

2. Cancellation. BO 11090.1A.

3. Policy. It is the continuing policy of the Commanding General to actively participate in environmental pollution abatement, to take positive planning and programming action to abate and correct oil and other hazardous materials, related pollution problems and to incorporate appropriate pollution control and prevention facilities in all new construction aboard this installation. The intent of this policy is to carry out the applicable measures of references (a), (b), (c) and (d) and to prohibit the discharge of oil, oily mixtures and other hazardous substances except in designated areas by authorized personnel.

4. Responsibilities

- a. Base Maintenance Officer has overall responsibility for:
- (1) Maintenance of water pollution abatement facilities and the central storage and related collection and transportation of waste petroleum products.
- (2) Providing personnel required for routine monitoring, surveillance, upchannel reporting and enforcement of unauthorized discharges of oil and other hazardous materials and related significant environmental problems of an ongoing nature involving the handling and disposal of petroleum products and other hazardous materials regulated by references (a), (b) and (c).
- b. Commanding Officers/Area Commanders are charged with the responsibility of preventing spillage and other unauthorized discharge of oil and other hazardous materials within their own areas and will develop and implement plans and procedures which are consistent with applicable regulations and enclosures (1) and (2) for preventing, reporting, containing and cleaning up such spillage or unauthorized discharge.
- c. Director, Natural Resources and Environmental Affairs Division, Base Maintenance Department or his representative will assume responsibility of On-Scene Coordinator (OSC) upon arrival at the scene of an oil or other hazardous material spill in accordance with procedures outlined in references (a) and (b) and enclosure (2).
- d. Base Fire Chief or his senior representative will provide initial response and other assistance with any spill of oil or other hazardous material as outlined in enclosure (2), until a verification is made that the reported spill has occurred in an aircraft operating area aboard MCAS(H), New River. If the latter situation exists, the Base Fire Chief will provide a standby crew to assist, if the crash crew MCAS(H), New River is unable to contain the spill within the aircraft operating area.
- e. Crash Crew, MCAS(H), New River will develop and implement a written procedure for the initial response to and containment and cleanup of oil and other hazardous materials spills in aircraft operating areas aboard MCAS(H), New River. Procedures will be consistent with applicable regulations and enclosure (2).
- 5. <u>Action</u>. Discharge of oils or other hazardous materials on or into the grounds and streams of this installation is prohibited. Cognizant officers will take necessary action to assure compliance. Commanding Officers/Area Commanders shall conform to the standards and criteria set forth in enclosures (1) and (2).

BO 11090.1B

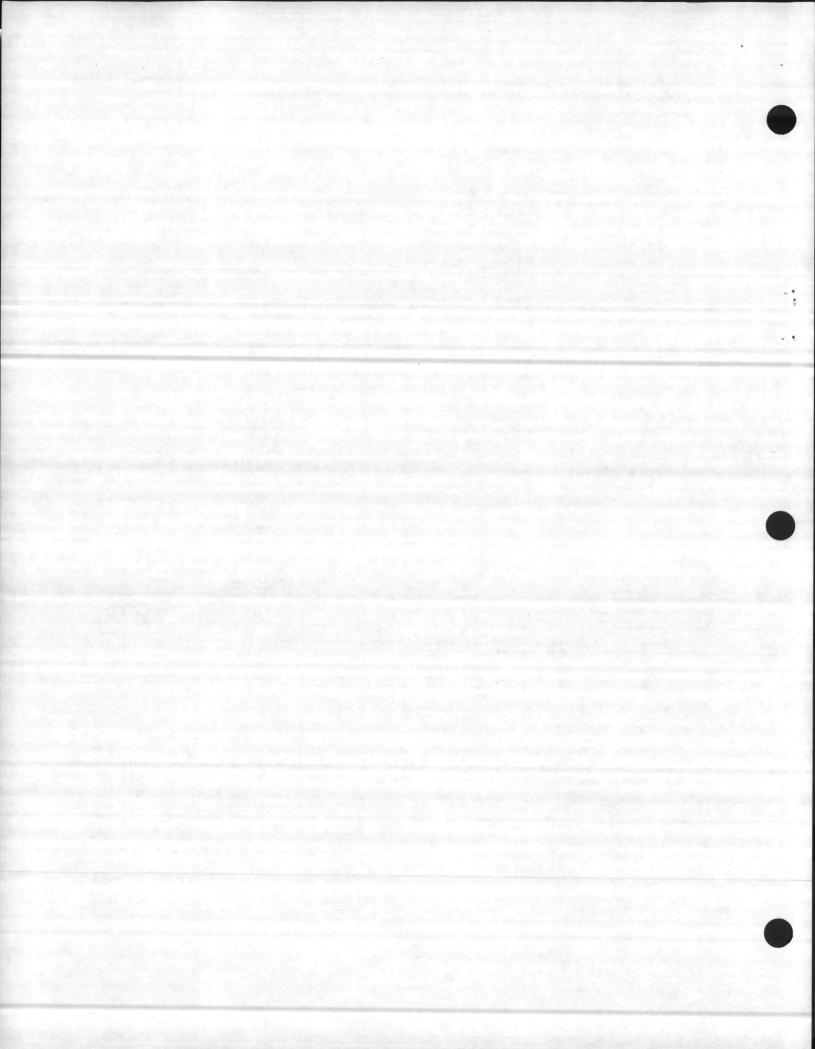
28 MAY 1981

6. Applicability. Having received the concurrence of the Commanding Generals, 2d Marine Division, FMF; 2d Force Service Support Group, (Rein), FMFLANT; and the Commanding Officers of the Marine Corps Air Station (Helicopter), New River and tenant units; Naval Regional Medical Center; and Naval Regional Dental Center, this Order is applicable to those Commands.

DISTRIBUTION: A BMAINO (100)

OIL AND HAZARDOUS MATERIAL SPILL PREVENTION, CONTAINMENT, CLEANUP, AND DISPOSAL GUIDELINES

- 1. The prevention of oil and hazardous-material spills and the resultant environmental damage is the responsibility of all Commanders.
- 2. All Commanders and Department Heads will publish and prominently post directives setting forth detailed policies and procedures for the control and prevention of oil and hazardous-substance pollution specifically applicable to their organization.
- 3. All Commanders and Department Heads will take the following actions:
- a. Take positive measures to prevent spills of oil and hazardous substances to include a review of the Command's maintenance and operational procedures.
 - b. Conduct frequent inspections of areas and facilities assigned to ensure compliance with published procedures.
- c. Establish immediate action procedures for the amelioration of pollution which may result from oil and hazardous-substance spills, to include the stocking of materials required to carry out the procedures.
- d. Ensure that all personnel within their Command are thoroughly indoctrinated regarding the environmental impact of oil and hazardous substance spills and proper disposition of oil and hazardous substances.
 - e. Encourage maximum reuse of technically contaminated fuels by multifuel-engine powered tactical vehicles.
- 4. The following guidelines are generally applicable to garrison operations:
- a. Contaminated fuels which cannot be burned in tactical vehicles and other used petroleum products, except gasoline, will be collected in a tank of at least 250-gallon capacity equipped with a funnel, strainer and cover to prevent entrance into the tank of trash, water and other foreign matter. When the container requires emptying, the Officer in Charge (OIC) will notify the Base Maintenance Department (Telephone 5909). The Base Maintenance Department will dispatch a vehicle to remove the waste oil. In the event of an emergency 55-gallon drums may be used as a temporary expedient storage container for waste oil.
- b. Waste lubrication grease will be collected, stored in suitable containers and disposed of in accordance with instructions provided by Base Maintenance Department representative. Send request via Chain of Command to the Base Maintenance Officer.
- c. Oil-saturated soil in the vicinity of oil and petroleum storage areas should be removed to the sanitary landfill and replaced with fresh earth.
 - d. To dispose of contaminated gasoline contact the Base Fire Department (Telephone 3004).
- e. Disposal of hazardous waste and other hazardous substances such as acids, poisons and solvents through any drainage system to include sinks, wash racks, storm drains and natural drainage systems is specifically prohibited. These products will be segregated and stored in suitable containers and will be disposed of in accordance with instructions provided by Commanding General, Marine Corps Base, Camp Lejeune.
- f. Petroleum products containers will be disposed of at the sanitary landfill, or recycled, if appropriate, with the exception of 55-gallon drums and durable metal containers which will be disposed of through the Defense Property Disposal Officer, Building 906.
- g. Personnel changing private owned vehicle (POV) oil on Base will use established Base Special Service facilities and deposit waste oil in one of the authorized collection tanks on Base and the Air Station.
- h. Oil and gasoline storage containers larger than 550-gallon capacity will be diked to include a drainage line and valve which will be locked. The latter will be operated only by personnel authorized by the Unit Commander.
- 5. Field operations will comply with the guidance enumerated in the following subparagraphs:
 - a. All tactical refueling systems installed on Base must first be approved by the Base Maintenance Officer.
- b. Fuel stored in tactical refueling systems will be properly diked, as required by current regulations. As a general rule, the dike must be capable of containing at least the volume of the container stored within it.
 - c. When using fuel tanker vehicles:
 - (1) Hoses, nozzles and connections will be checked frequently for serviceability to avoid leakage of fuel.
 - (2) Refueler operators will stay with the vehicle during refueling operations.
- (3) Tanker vehicles containing fuel will be parked in such a manner as to avoid the possibility of spilled fuel entering natural or man-made drainage systems.
 - (4) During recirculation operations, nozzles will be secured to the vehicle.
- (5) All waste petroleum products generated during field exercises will be stored (55-gallon drums, etc.) and disposal instructions obtained from the Director, Natural Resources Division, Base Maintenance Department (451-5003).



OIL AND OTHER HAZARDOUS MATERIAL SPILL CONTINGENCY PLAN

FOR

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

MARINE CORPS AIR STATION (HELICOPTER), NEW RIVER, JACKSONVILLE, NORTH CAROLINA

MARINE CORPS HELICOPTER OUTLYING FIELD, OAK GROVE, JONES COUNTY, NORTH CAROLINA

PREPARED

OCTOBER 1980

BO 11090.1B

28 MAY 1981

1. Reporting Spills of Oil and Other Hazardous Substances

a. Materials Classification - The following products are examples of oil compounds or hazardous substances which must be reported if spilled on the ground or water in any amount:

Lube Oils JP-4 & JP-5 Fuels Paint Thinner No. 6 Fuel Oil Gasoline Hydraulic Fluid Organic Solvents Kerosene Acids Cleaning Solutions Lube Grease No. 2 Fuel Oil Poisonous Chemicals

- b. Reporting Procedures All spills of oil or hazardous materials shall be reported immediately to the Base Fire Department Phone 3333 (on base) or 451-3333 (off base). The report shall include location (Building Number) of spill, substance spilled and the approximate amount. All spills occurring at Marine Corps Air Station (Helicopter), New River will also be reported to the Station S-4 (455-6068 455-6518) during normal working hours and to the Station Officer of the Day after normal working hours (455-6111).
- c. Posting of Oil Spill Procedure Signs shall be posted in every building, tank location and field service location where oil or hazardous materials are used. The sign shall have a yellow background with black lettering indicating the following information:

IN CASE OF AN OIL OR HAZARDOUS MATERIAL SPILL
CALL BASE FIRE DEPARTMENT
ON BASE 3333/OFF BASE 451-3333
NOTIFY YOUR COMMANDER/SUPERVISOR IMMEDIATELY

d. Initial Containment Procedure - Remain in area - - - Do Not Wash Down With Water - - - Keep Personnel Out of the Area - - - Block Runoff with Earth Materials to Prevent Spreading, when possible.

2. Response to Spill

- a. Fire Department Fire Department shall dispatch a regular fire fighting unit to the scene of a reported spill. The Base Fire Chief or his senior representative shall report to the scene as soon as possible. Dispatcher will immediately notify the Base Fire Chief or his senior representative who will perform the following duties:
 - (1) Assume the role of On-Scene Coordinator (OSC).
- (2) Take all necessary immediate steps to contain the spill, eliminate any fire hazards and protect all personnel from exposure and request the assistance of the Base Safety Officer, if required (See page 4, Enclosure (2)).
- (3) Notify the Natural Resources and Environmental Affairs Director (Telephone 5003) of the spill location and the nature and quantity of spilled materials.
- (4) Evaluate the spill situation and request necessary logistical support from the Base Maintenance Officer to contain the spill and facilitate the cleanup and recovery of the spilled materials.
- (5) OSC duties shall transfer to the Director, Natural Resources and Environmental Affairs upon his arrival at the scene. (See page 4, Enclosure (2) for Personnel and Public Safety Coordination).
 - b. Base Maintenance Officer
- (1) Base Maintenance Officer shall maintain the inventory of materials and equipment as established in Appendix A of enclosure (2).
- (2) Base Maintenance personnel shall respond immediately to the request of the OSC with men and equipment requested.
 - (a) Direct supervision shall be from the OSC.
 - (b) Maintenance personnel shall remain at the spill scene until authorized to depart by the OSC.
 - c. Natural Resources and Environmental Affairs Division
- (1) The Director or his authorized representative shall proceed to the scene and assume the duties of the OSC. The duties shall include the following categories:
 - (a) Direct all containment and cleanup activities.
- (b) Report oil spills that discharge into the inland waters or coastal waters to the following: Base Maintenance Officer; Assistant Chief of Staff, Facilities, Marine Corps Base; Marine Safety Officer, U. S. Coast Guard, Wilmington, North Carolina and the Environmental Regulatory Agencies, as required.
- (c) Request U. S. Coast Guard assistance for spills into waters that cannot be contained promptly by joint efforts of the Fire Department and Base Maintenance crews.

- (2) The Natural Resources and Environmental Affairs Division Director or his representative shall remain at the scene of the spill until all contaminant is properly contained and the danger of oil contamination of waterways is eliminated.
- (3) At the conclusion of all cleanup operations, the official report submitted to the Environmental Protection Agency (EPA), Region IV, shall be prepared in accordance with requirements of Federal Water Pollution Control Act and EPA regulations in effect at the time. The report shall be transmitted to EPA through the directives of the Commanding General.

3. Spill Containment and Cleanup

- a. Small Spills (less than one gallon)
- (1) Cause: Gasoline or fuel oil spills at fueling locations occur by overfilling or blow back from the tank receiving the fuel.
- (2) Reporting: This type of spill requires reporting to the Office of Natural Resources and Environmental Affairs (Phone 1-919-451-5003). The fuel spill must be promptly cleaned up by the person at the scene.
 - (3) Containment Procedures:
 - (a) DO NOT FLUSH INTO STORM SEWER OR DRAINAGE DITCH.
- (b) Cover entire spill with sand or absorbent material from storage bin or container. Add material as liquid appears in the surface of the sand or absorbent material.
- (c) Cleanup contaminated sand or absorbent material with broom and shovel placing it in a container (metal) for disposal or possible reuse. The container shall be labeled "Waste Oil Refuse".
- (d) If storage bin of sand or absorbent material is less than one-half full after using, call Base Maintenance Department (3001) to inform them of the location needing additional material.
- (e) Reapply a second coat of sand or absorbent material in a very light layer to assure all gasoline or fuel oils have been blotted up. Brush material back and forth over the area and then sweep up completely. This material can be replaced in the fresh storage bin rather than depositing it in the "Waste Oil Refuse" container.
 - b. Spills on Concrete Aprons (more than one gallon)
 - (1) Reporting: Call Base Fire Department
 - (2) Containment Procedures:
 - (a) DO NOT FLUSH INTO STORM SEWER OR DRAINAGE DITCH.
- (b) The person on-site shall erect a two-to-three inch high sand or earth dam on the concrete or at the edge of the concrete below (downstream) the direction that the spill is flowing. This is the first step in
- (c) Apply sand or absorbent materials that are available around the perimeter of the spill until the Fire Department arrives. Keep other personnel away from the area.
- (d) Fire Department shall continue abatement methods using equipment available until the Director of Natural Resources and Environmental Affairs Division or his representative arrives to determine further containment and cleanup requirements.
- (e) Base Maintenance personnel shall install dams, straw barriers, pumping equipment and other abatement or cleanup equipment as directed by the OSC.
 - c. Spills on Ground (more than one gallon)
 - (1) Reporting: Call Base Fire Department
 - (2) Containment Procedures:
 - (a) DO NOT FLUSH INTO STORM SEWER OR DRAINAGE DITCH.
- (b) The person on-site shall erect a minimum three-inch high sand or earth dam below (downstream) the direction that the spill is flowing. The dam should be made higher if the liquid pool behind the temporary dam rises to within two inches of the top. A trench or sump may be used in lieu of a dam. This is the first step in containment that must be taken promptly to prevent spreading into surface waters.
- (c) Apply sand or absorbent materials that are available around the perimeter of the spill until the Fire Department arrives. Keep other personnel away from the area.
- (d) Fire Department shall continue abatement methods using equipment available until the Director of Natural Resources and Environmental Affairs Division or his representative arrives to determine further containment and cleanup requirements.

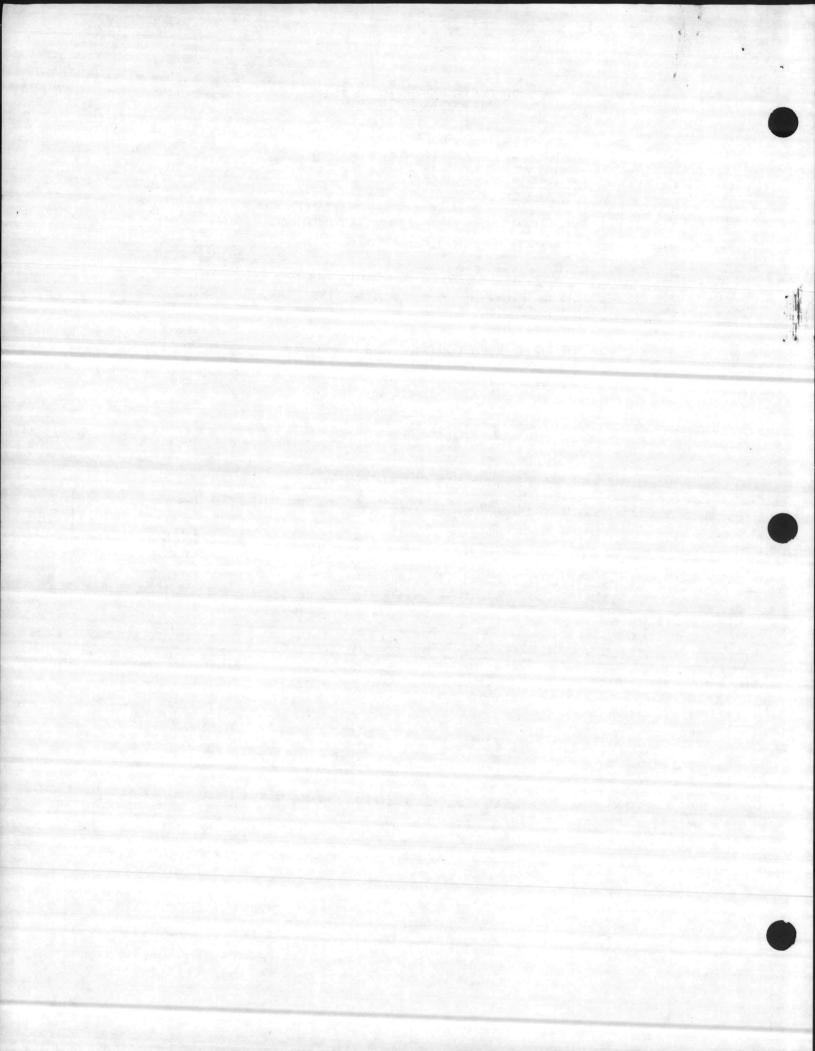
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28 MAY 1981

- (e) Base Maintenance personnel shall install dams, straw barriers, absorbents, pumping equipment and other abatement or cleanup equipment as directed by the OSC.
 - d. Spills Entering Storm Drainage System
- (1) Reporting: Call Base Fire Department and emphasize that the liquid has entered a catch basin, manhole, drainage ditch, or any structure (pit) below ground.
 - (2) Containment Procedures:
 - (a) DO NOT ADD WATER TO FLUSH OUT STORM SEWER OR STRUCTURE.
- (b) The person on-site shall attempt to erect a sand or earth dam around or cover with polyethylene or other plastic materials the manhole or catch basin to prevent further entrance of liquid into the structure. This is the first step in containment that must be taken promptly to minimize the quantity of liquid that will be discharged into surface waters.
- (c) The person on-site shall apply sand or absorbent materials that may be available around the perimeter of the spill and at the manhole or catch basin until the Fire Department arrives.
- (d) Base Maintenance personnel shall place oil booms across storm drains to prevent further discharge. Public Works Department will develop maps of drainage systems required for siting booms. After spill is contained, cleanup will be initiated. Action may include the following:
- 1 . Inspect downstream manholes for evidence of oil progression toward discharge. If storm system has a very low flow, install straw barrier or absorption dam inside manhole.
 - 2 Where practical, install plug in upstream side of manhole, to contain in the pipe system.
- $\frac{3}{2}$ If the drainage system has an open ditch, install straw bale dams or aborption dam to collect spilled materials.
 - 4 Isolate streets with contaminated manhole to prevent fires or explosions.
- (e) The Director, Natural Resources and Environmental Affairs Division, or his representative shall determine further containment and cleanup requirements after arriving on the scene.
- (f) Base Maintenance personnel shall install dams, straw barriers, aborbents, pumping equipment and other abatement and cleanup equipment as directed by the OSC.
 - e. Spills Entering Surface Waters
- (1) Reporting: Call Base Fire Department and emphasize that the liquid was discharged directly into the surface waters.
 - (2) Containment Procedure:
- (a) Person at the site should check the source of discharge to be assured that no further discharge can occur. Close valves, remove hose, or isolate the source from causing any further release of materials.
- (b) Do not allow boats or equipment to enter the surface waters where the spill has occurred. If surface type oil absorbents are available, begin spreading this material wherever an oil skim is observed. Do not enter the water to apply this material until the Fire Department arrives.
- (c) Fire Department shall continue abatement methods using equipment available until the Director of Natural Resources and Environmental Affairs Division, or his representative arrives to determine further containment and cleanup requirements.
- (d) Base Maintenance personnel shall install booms, skimmers, pumps and other abatement or cleanup equipment as directed by the OSC.
- 4. Responsibilities for Ensuring Personnel and Public Safety
- a. Overall responsibility for ensuring the safety of personnel involved in the containment and cleanup of hazardous material spill is assigned to the Base Fire Chief or his senior representative. The Base Fire Chief representative shall continue to monitor the situation and will provide required standby personnel and equipment. The Base Fire Chief representative will request the assistance of the Base Safety Officer as needed. The Base Fire Chief representative shall keep the OSC informed of any safety considerations affecting the containment and cleanup of the spill. In the event of imminent hazard to personnel involved in the spill cleanup or to the public, Base Fire Chief representative shall take appropriate action. The OSC shall assist the Base Fire Chief representative implement safety procedures required.
- b. Base Safety shall dispatch a safety representative to the spill scene upon request from the Base Fire Chief representative. The Base Safety representative will remain at the scene until advised by the Base Fire Chief representative that assistance is no longer required. Base Safety representative will monitor all activity at or near the spill and make appropriate recommendations to the Base Fire Chief representative.

MATERIALS AND EQUIPMENT FOR OIL SPILL CONTAINMENT AND COUNTERMEASURE

Item No.	Description	Quantity
1.	Gasoline engine driven (portable) trailer mounted diaphragm pump with sectional suction and discharge hose - minimum capacity 25 gallons per minute.	2
2.	Sectional aluminum oil boom	
3.	Inflatable oil barrier, Whittaker Expandi self-inflating	300 L. F.
4.	Collapsible bag for field filling of collected oil-250 gallon capacity	2
5.	Oil skimmer (portable)type for water floating oil pick-up	1
6.	Baled hay or straw with wire or nylon baling (located at strategic areas)	200 Bales
7.	Steel fence stakes (6 feet long)	50 each
8.	Woven wire mesh (chicken wire) 3ft. width 4ft. width	200 L.F. 100 L.F.
9.	Sledge hammer - 10 lb.	3 5 5
10.	Shovels - Long handle round point Long handle flat blade Short handle round point Short handle flat point	5 5 5 5
11.	Oil Absorbent Compound - for water spill clean up	2000 1bs.
12.	Oil Absorbent Compound for ground spill clean up - Randustrial P-218 Oil Absorbent (55-gallon drum)	25 drums
13.	Nylon rope - ¼" diameter ½" diameter 3/4" diameter	200 L.F. 400 L.F. 400 L.F.
14.	Oil Sorbent Material - 3M, Conwed or Grefco	500 lb.





DEPARTMENT OF THE NAVY ATLANTIC DIVISION NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA 23511

TELEPHONE NO.

6240

444-7313 AUTOVON 690-7313

23 FEB 1978

Mr. Charles E. Rundgren Water Supply Branch Sanitary Engineering Section Division of Health Services P. O. Box 2091 Raleigh, NC 27602

Dear Mr. Rundgren:

This letter has two purposes regarding the State of North Carolina implementation of the Safe Drinking Water Act (PL 93-523). First, to confirm the 7 February 1978 telephone discussion with Mr hite of this Command. Second, to provide points of contents of co

It is understood, from the Safe Drinking Water state is con-

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The Atlantic L professional elements. In Command represents the two Marine Corps activities. In castern North Carolina. Enclosure (1) provides official addresses and points of contact for the activities and this Command. It is requested that all pertinent correspondence be directed to each appropriate activity with a copy for this Command. This action will serve to promote an exchange of information and to facilitate compliance by federal activities with the requirements of the Safe Drinking Water Act.

THE SECOND NO.

DEPARTMENT OF THE NAVY AVERTHE DIVISION WAYNE FACILITIES ENGINEERING COMMAND HOREOUN VIRGINIA 2120

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DEPARTMENT OF THE NAVY ATLANTIC DIVISION NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA 23511

TELEPHONE NO.

444-7313 AUTOVON 690-7313 IN TELY SER 6240

23 FEB 1978

Mr. Charles E. Rundgren Water Supply Branch Sanitary Engineering Section Division of Health Services P. O. Box 2091 Raleigh, NG 27602

Dear Mr. Rundgren:

This letter has two purposes regarding the State of North Carolina implementation of the Safe Drinking Water Act (PL 93-523). First, to confirm the 7 February 1978 telephone discussion with Mr. M. B. White of this Command. Second, to provide points of contact regarding this matter.

It is understood, from the telephone discussion, that all aspects of the Safe Drinking Water Act implementation program to be administered by the electronic contingent upon a memorandum of understanding between EPA Region IV and the State. The memo indicates that all monitoring data, operating logs, requests for either laboratory certification or special analysis will be submitted to the State. State laboratories would perform analysis for both organic and inorganic chemicals, and radioactivity. Also, the State would perform some bacteriological testing. The number of bacteriological tests to be performed by the State is a function of the total number of tests performed at the activity. All laboratory tests must be performed in either State laboratories or laboratories that are certified by the State. Dr. R. J. Drye, Head, Environmental Services Branch, Laboratory Section, Division Health Sciences, P. O. Box 28047, Raleigh, NC 27641, is able to provide information relating to laboratory certification.

The Atlantic Division, Naval Facilities Engineering Command, provides professional engineering service to a number of Naval and Marine Corps activities. In this regard, this Command represents the two Marine Corps activities located in eastern North Carolina. Enclosure (1) provides official addresses and points of contact for the activities and this Command. It is requested that all pertinent correspondence be directed to each appropriate activity with a copy for this Command. This action will serve to promote an exchange of information and to facilitate compliance by federal activities with the requirements of the Safe Drinking Water Act.

THE REPORT NO.

DEPARTMENT OF THE NAVY, ATLANTIC DIVISION WAYAL FAUGLIFIES ENGINEERING COMMAND TO NORFULK VIRGINIA 2234

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In order to initiate progress towards compliance, it is requested that all relevant rules, regulations, newsletters, forms, etc., be provided to the two Marine Corps activities and to this Command. Upon receipt of this information, the activities will contact appropriate State officials to discuss specific requirements and to develop adequate monitoring and reporting procedures.

This Command appreciates your attention and assistance in this matter and looks forward to a professional relationship to insure a clean, safe drinking water supply for both military and civilian personnel at these Marine Corps activities.

Sincerely yours,

Copy to:

Commanding General
Marine Corps Base
Camp Lejeune, NC 28542

Commanding General Narine Corps Air Station Cherry Point, NC 28533

and the state of the

MARINE CORPS ACTIVITIES IN NORTH CAROLINA SAFE DRINKING WATER ACT

Activity	Official Address	Point of Contact
Camp Lejeune	Commanding General Marine Corps Base Camp Lejeune, NC 28542	Mr. Julian Wooten Department of Natural Resources
		Base Maintenance Division Telephone 587-2304
Cherry Point	Commanding General Marine Corps Air Station Cherry Point, NC 28533	Mr. G. J. Creech Director, Utilities Division Telephone 466-2112 or 466-5239
		Mr. J. N. Gaskins Utilities Foreman Telephone 466-2112 or 466-5239
Technical Advisor	Atlantic Division Naval Facilities Engineering Command Norfolk, VA 23511	LCDR J. G. Leech, CEC, USN Head, Environmental Engineering Branch Utilities Division Telephone 804-444-7313
		Mr. M. B. White Sanitary Engineer Utilities Division

Telephone 804-444-7313

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I PRIMACY OF SDWA AND N.C. POTABLE WATER LAWS

- A. It appears that North Carolina will assume primacy of the Safe Drinking Water Actathis year. Both EPA and the State Legislature have to approve the transfer of primacy to the state.
- B. In addition to administrating the SDWA, the state will administer all state laws pertaining to potable water. In short, Camp Lejeune will be subject to all state laws governing potable water systems. For example, all water treatment plant operaters will have to be certified by the state in order to operate a water treatment plant.
- C. The Quality Control laboratory will have to be certified by the State in order to have "certified" data to be submitted to the state. The lab may have interim certification from EPA. (See letter of June 28, 1977 from EPA.)

IIE EFFECTS OF PRIMACY ON CAMP LEJEUNE

- A. Quality Control Laboratory
 - 1. The laboratory will seek certification for:

a- metals

b- chlorine

c- bacteria

d- turbidity

- e- general inorganic chemical test (other potable water test)
- 2. The laboratory will need certification in order to have legally recognized data. I have not seen the criteria for certification. I think our lab should pass the test.
- 3. It appears that daily water treatment tests for bacteria and chemicals may have to be conducted by the laboratory or water treatment plant. .1102 of the State law states daily adequate bacteriological and chemical tests should be made. If daily tests of this nature are to be conducted by the lab, the personnel requirements will be increased for both the lab and the Utilities Division.

B. NREA DIVISION

1. All data generated at Camp Lejeune will most likely be channeled through Mr. Wooten; much like the present NPDES Program. This data will consist of

the vocation occurs flip of blooms date days at the he take ordered the to remove the branefer of . effect of the energy in addition to administrating the 200 , the state willing all state willing a state all state will a short, dumn length will be subject to all above as lows governing post water sy temes. For example, the capety oreginess. Them open averages in and the street of the second G. The Euclist Corosel laboratory will involve to the certain intensity the tate in ordereto have contilled dital to be committed to the stree. The itab cap have it ering certi ication from Era. (se latter of June 25. 1947. The Lagor tory will meed certification in Lider in have legally recognized date. I have not centure or the criterie for certain action. I think now lab should the laporate. On the rest ent clant. . Illo the adagt viisb 115 .obs .od | looks the trape bro ada forf on Ad medemones on or elemented sing for 111 be demonstrated in the fett we will contilled by

laboratory data and water treatment plant operation- al data. What kind of form will be used? will it be put an computer

- 2. Mr. Wooten will coordinate the approval of of the water treatment plants. Each plant and distribution system will have to be approved by the state. Plans and specifications will be submitted to the state. These regulations are spelled out in GUIDE FOR OBTAINING APPROVAL OF PUBLIC WATER SUPPLY SYSTEMS. The Utilities Division and Public Works Department should furnish this information through Mr. Wooten.
- 3. I assume all the flow of information concerning the potable water system will come through Mr. Wooten— the point of contact.
- 4. When violations of the SDWA or state laws are discovered, Mr. Wooten will be notified. The notification proceedure is quite involved and needs futher study due to its' great public impact on the community.

C Utilities Division

- 1. The Utilities Division, water treatment section, will have to follow the N.C. State Rules for Public Waters (see .0600 through .2200). All records of chemical additions and treatment will be furnished to the state. I think a copy of the Water Treatment Plant log sheet may contain the necessary information.
- 2. The state laws cover Water Treatment Plant design, operation, softening, etc.
- 3. Section .1102 of the State Laws require an operator to be on duty at the treatment plant whenever the treatment facility is in operation. This will have a big impact on the utilities division. Some plants like Onslow Beach are not manned at all but are checked several times each shift.
- 4. The utilities people need to review the state laws and operating proceedures. It appears that many changes are in store for the Water Treatment Plant Personnel.
- 5. All water treatment plant operators will have to be certified by the state. When the operator passes a state test, a certificate will be issued to the operator.

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- 2. The state laws cover water Treatment land dealers.
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- 5. il mater tre imente contents will have to be be contiled by the tale. Then the operator passes on the tale of an and the to the operator.

D Public Works

- 1. Public Works should get together all the engineering drawings for the water treatment plants and the
 distribution system. These are to be submitted to
 the state as specified in the low.
- 2. Mr. Wooten should be the point of contact to coord-inate this proceedure.

III QUALITY CONTROL LAB PROPOSED SCHEDULE FOR SWDA

- A. It is estimated that the AA unit will be in operation by June 1978 (possibly sooner).
- B The metals specified in the SDWA will be analized starting in July 1978 and should be completed by November 1978. The low specifies that they should be completed by June 1979.
- C The bacteriological test program will continue as scheduled. We are in compliance.
- D The turbidity will continue as scheduled. Somy White sap no
- E Additional tests that may be required will be initiated as the laboratory becomes aware of the requirements.
- F PH meters and amperometric titrators need to be ordered for the water treatment plants.
- G Application for laboratory approval or certification needs to be submitted to Raleigh.
- H Representatives from Camp Lejeune including personnel from NREAD, the lab, and utilities need to discuss with N.C. state representatives all state requirements.

We may be able to use the "DPD" mutted to determine the

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- Public Works should got together all bly engineering chemings for the hauss treatment clambs and the distribution system. These or to be abmitted to the et to as specified in the low.
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Memorandum

DATE: March 28, 1978

FROM Quality Control Laboratory

TO N.C. State Certification Board Via: NREAD

mr. anten

SUBJ Laboratory Certification

- 1. It is requested that the Quality Control Laboratory, NREA Division, Base Maintenance Department, Camp Lejeune, N.C., be evaluated for certification for potable water testing as specified by the Safe Drinking Water Act.
- 2. The laboratory has interim approval from region IV of the Environmental Protection Agency until an on site evaluation can be made.
- 3. The laboratory will conduct the inorganic, turbidity and bacteria tests as specified by the SWDA as well as the regular general tests such as the chlorine, PH, and the alkalinities etc. The laboratory does not plan to test for the organics and radio nucleides.
- 4. We look forward to your response and visit.

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- 1. It is we nested that when wality Control Laboratory,

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- 2. The laboratory has interim a roy of the Envi quental rotection and a can be made.
 - The Dispresery will conduct the increase, turnidity and bacteri, test as a waified by the anth as well as the regular general test, such as the calcains, H, and the alkalinities atc. The laboratory uses not plan to test for the organica and such as an electric second.
 - . de Look forward to your response and visit.

The Safe Drinking Water Act — what it means to you

By A. J. Freedman, Marketing Manager, Water Clarification & Pollution Control

Since June 1977, when the Safe Drinking Water Act went into effect, all water used for drinking purposes in the United States has been required to meet minimum federal standards.

The regulations in the act provide for two sets of standards: one for community systems, which furnish drinking water for their patrons, and less stringent standards for non-community systems, which include sources of water used mostly by hotels and motels, camp grounds, service stations, etc. Factories and industrial plants are included in non-community systems.

The non-community system standards are based on the theory that certain contaminants are not harmful when taken occasionally in small quantities.

However, industrial plants, hotels and the like must still meet standards. Coliform bacteria, nitrate, and turbidity in the water must be below certain limits. These three contaminants, according to the Environmental Protection Agency (EPA), are the most likely to endanger public health on a short-term basis. Turbidity is used as a warning of possible non-coliform bacterial contamination.

Compulsory sampling

Eventually, you will be required to take samples of your drinking water on a regular schedule and have them analyzed by laboratories that have been approved and certified by your state. This provision of the act, however, will not go into effect until June 1979. But that does not mean that you should delay all testing until then. It is up to the individual states to maintain standards, and any state can step in and insist that you comply with the analytical procedures immediately. They are likely to do this if given any reason to doubt the safety of your water supply.

The best advice is to start thinking about meeting the standards immediately. The first step is to start monitoring your water and analyzing it regularly as a guide to what must be done so that you will be able to meet the regulations with the least trouble and expense. While a certified analytical laboratory can perform the tests and tell you whether or not you meet the federal standards, you will need a water-treatment consultant who can point out the measures that must be taken to correct the situation.

The present standards are only interim regulations. Final primary regulations will be based on government-sponsored research studies covering health effects of contaminants, analytical methods, and so on. These are scheduled to go into effect in April 1979, after hearings to permit various interests to be heard.

Secondary regulations

In addition to the primary regulations, which are designed to protect public health, PL93-523 requires the EPA to recommend secondary regulations covering aesthetic qualities of drinking water to the states. These regulations cover contaminants such as taste, odor, color, pH, dissolved solids, and various metals that, while not directly harmful to your health, may make the water unpleasant or objectionable for drinking. Proposed secondary regulations were issued in March 1977, and public comments received in April and May. Final regulations will take effect when issued.

The best plan for you can be determined only after a careful economic feasibility study by an expert consultant on water treatment. You must find out the current quality of your potable water, and what must be done in the way of treatment facilities to bring it to a quality that will meet both the interim standards and eventually the final regulations. This must be compared with the cost of obtaining water from a community system.

In estimating costs for the latter, y cannot assume that the current wa rates being charged by your put system will stay at the same level. So water systems, especially those smaller communities, do not meet estoday's interim standards. To com with these standards, they will adoubtedly have to make major ad tions to their treatment facilities, a the cost will be reflected in the rates y pay for water, taxes, or both.

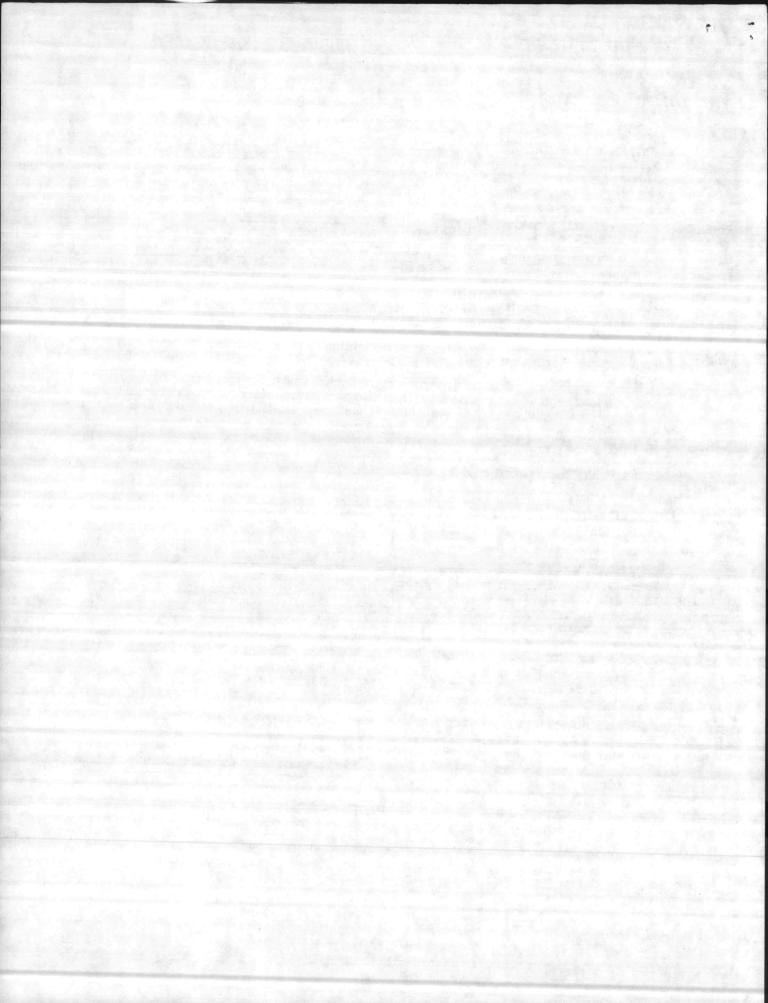
Deep-well disposal

There is one provision of the S Drinking Water Act that may aff more industries than the provisions have been talking about. This provis is concerned with the disposal wastewater and other concentra wastes by deep-well injection.

This regulation recognizes that maccommunities and other water users swells to tap aquifers (water-bear rock, sand, or gravel) for their supple Contaminated material released und ground can travel long distances, a may complicate the water treatment other users.

In brief, every owner or user of deep-well injection system must obta new or revised permit after Decem 1977. In special cases, the governmay extend the date to Septem 1978. To obtain this permit, the ow or user will have to satisfy both the stand the federal government that well will not endanger anybody elewater supply. Of course, such a perwill be required for sinking a new w

Excerpted from "Are you ready to m the standards set by the Safe Drink Water Act?" which appeared PAPER TRADE JOURNAL. For reprint of the complete article, circle on postcard.

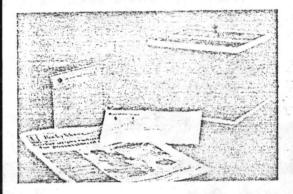


SSN 0149-8029

A monthly publication for members of the American Water Works Association

SDWA, IPRs, and MCLs Simplified -

Public Notification





Nitrate in Water Exceeds Limits

The Golden Oak Water District reports that the maximum contaminant level for nitrate in drinking water was exceeded during its most recent reporting period.

The State Board of Health has set the limit at 10 milligrams of nitrate per litre of water. Samples from Golden Oak well contained 24 milligrams per litre.

Adults and most children need not be concerned; however, parents should find other, safe sources of drinking water for infants less than six months old. An excess of nitrate in an infant can reduce its available oxygen supply and possibly produce "blue baby" symptoms of suffocation.

All doctors and hospitals in the area have been notified of the

situation by the water district. The health department cautions against boiling water because boiling only increases the concentration of nitrate

Nitrate is extremely difficult to remove from water and the water district has applied to the state for a temporary variance from the requirement of no more than 10 mg. L of nitrate in drinking water. The district is searching for alternate sources of water.

Lamm to fund bridge project

Gov. Dick Lamm made available \$50,000 Thursday from his special emergency fund to help in an effort

This is a continuing series on the Safe Drinking Water Act (SDWA) in which an aspect of it, such as one of the IPRs (interim primary regulations) or MCLs (maximum contaminant levels), is simplified into easily understood language. This month features the requirement of public notification.

OpFlow would like to thank Jack Hoffbuhr, Chief of Water Supply, USEPA, Region VIII, for preparing these features.

A key part of the Safe Drinking Water Act (SDWA) requires that water supliers notify their consumers of any violations of the Interim Primary Regulations IPRs). Although the requirements may differ a bit from state to state, the purpose remains the same — to keep the public informed of the quality of its drinking water.

Public notification also gives the water supplier the opportunity to describe problems facing the water system and hopefully gain consumer support for making improvements. It is very important that water system operators

have a good working knowledge of the public notification requirements in order to prepare or assist in the preparation of effective public notices.

Why Notify the Public

The public needs to know how its water system is performing. Many water utilities have been doing this for years by including a newsletter with water bills and, as a result, have gained a great deal of public support during bond elections or rate increases. If customers are kept informed, they will be better able and more willing to understand the problems that face the water system and what must be done to correct them.

It is essential that a good public education effort be more than notices of problems. Most consumers are also interested in such things as

- Where their drinking water comes from,
- · How the water is treated,
- How the water rates are determined

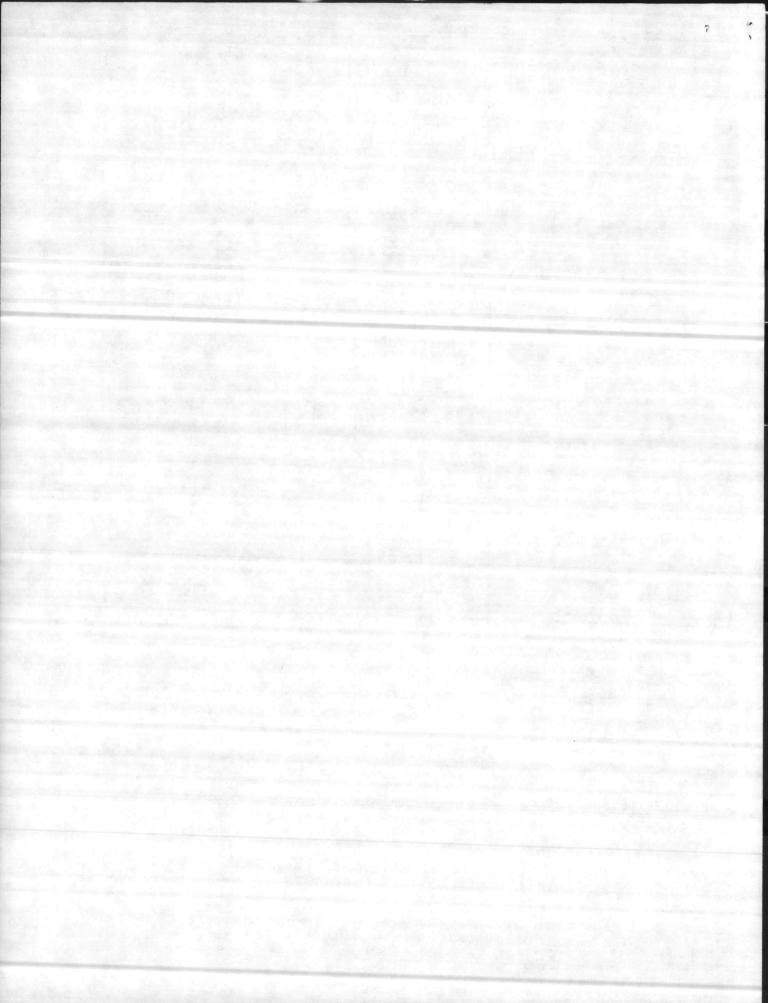
- and how they compare with others,
- Water conservation steps that the water utility uses and recommends.

Periodic discussion of topics such as these will help to establish lines of communication so that any required public notice will be viewed in a more constructive manner.

When is Public Notification Reguired

Generally, a water system will be required to notify the public if it

- Fails to meet a maximum contaminant level (MCL).
- · Has a variance or an exemption,
- Fails to meet the provisions of a compliance schedule issued as part of a variance or an exemption.
- Fails to perform any required monitoring, or
 - (continued on page 6)



SDWA Simplified (continued from page 1)

 Fails to use approved testing procedures for those contaminants covered by the IPRs or fails to use a laboratory approved by the state or EPA.

These requirements may differ from state to state, especially if the state has assumed primary enforcement responsibility for the Safe Drinking Water Act.

How is the Public Notified

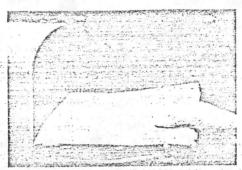
There are three basic methods for providing public notification. The method or methods used will depend on the type of violation as shown in Table 1 and discussed in this article. Keep in mind that for a violation of an MCL, all three methods must be used.

Mail notice (ail types of violations). Consumers must be notified of a violation through the mail with the first regular water bill, or with a special mailing, within three months of the violation. The notification must be repeated every three months as long as the violation continues. The same applies if a system has received a variance or an exemption.

Newspaper notice (MCL violation only). The notice must be published in a local daily newspaper on three consecutive days. The publication must be completed within 14 days of the violation. If there is no daily newspaper, then

TABLE 1
Public Notification Requirements

	Required Notification			
Situation	Mail	News- paper	Broad- cast	
MCL violation	Yes	Yes	Yes	
Variance or exemption	Yes	No	No	
Compliance sched- ule violation	Yes	No	No	
Failure to monitor	Yes	No	No	
Failure to use approved testing procedures	Yes	No	No	



Public notification of an MCL violation can accompany the water bill.

the notice must be published in three consecutive issues of a weekly newspaper serving the area. If the newspaper refuses to publish the notice as a news article, then the water system must pay for the notice to be published. If there are no daily or weekly newspapers serving the area, then the notice must be posted in the local post office.

Broadcast notice (MCL violation only). Radio and television stations serving the area must be furnished with a copy of the notice with seven days of the violation.

What Should the Public Notice Include

The details included in a public notice will be different for each case. An effective notice should discuss the following items:

Who — the name of the water system.

What — the reason that the notice is

When — the date when the violation occurred or when the variance or exemption was received.

Agency — the name of the agency (state health department or EPA, for example) who is responsible for the Safe Drinking Water Act in the state.

Regulation involved — a description of the regulation (turbidity MCL, for example) which was violated or for which the variance or exemption was granted.

Health significance — a discuss the possible effects that the vic could possibly have on public he

Precautions — a description of actions that the public should take as boiling its water.

What is being done — a discuss why the violation occurred and why water system is doing to correproblem.

How Should Public Notices be Written

Obviously, it would be imposs spell out exactly how to write a since each situation will be diff. The following suggestions should useful for preparing an effective results.

Make positive statements. The sumer will appreciate a straightfor explanation of the problem and we water system is doing about it. But the violation on government regular or ignoring the problem will not any useful purpose.

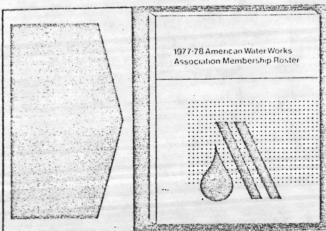
Use everyday language. K mind that the people who will renotice are not accustomed to the cal language of water supply pra

Keep the notice factual and point. A notice that evades the is a lengthy report that glosses of problem will do more harm than Consumers may get the idea thare trying to hide something.

The notice should be consp and easy to read. Burying the no the newspaper or using tiny pr only discourage readers and eroc confidence in you.

Public notification should be and used in a positive manner to the public about its water system. properly, notification can be a public relations tool and result i sumer support for future need provements.

NOTE: Additional assistance public notification procedures available shortly when AWWA pulling Operator's Handbook on the Drinking Water Act.



MEMBERS ONLY

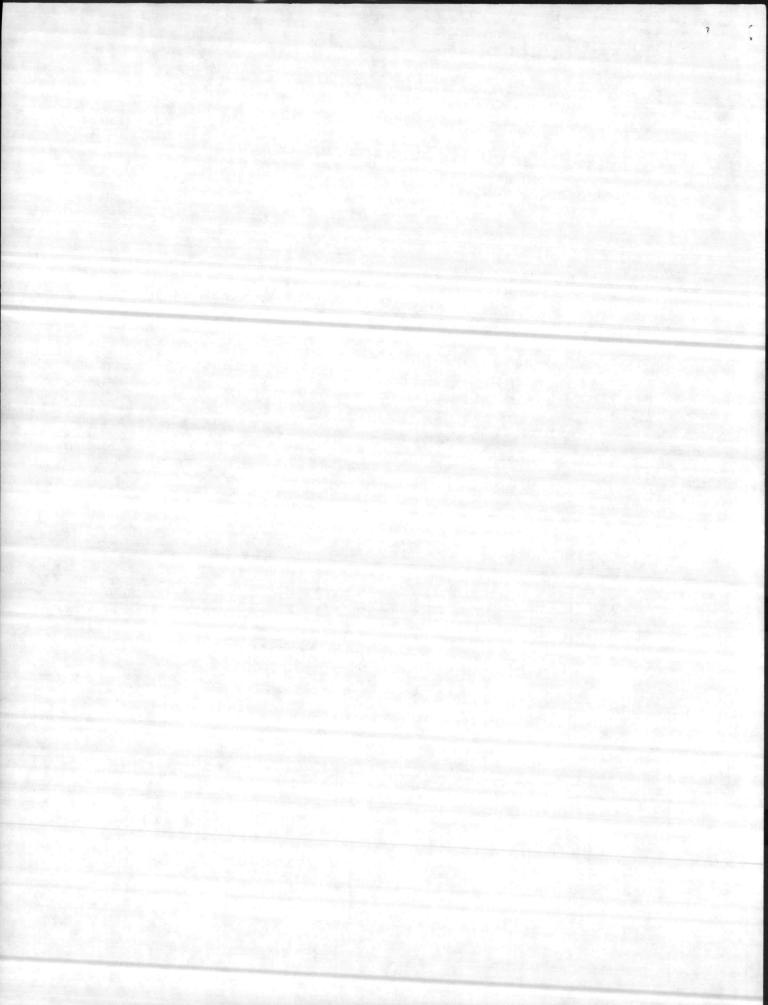
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Controlling cross-connections keeps plant drinking-water pure

A cross-connection is any physical link between a potable-water supply and a potentially contaminating system. Failure to recognize and properly control cross-connections within industrial facilities has caused catastrophe. Here are reliable methods to prevent reverse flow through cross-connections.

George R. Kinsley, Jr., Scott Paper Co.

Many chemical plants have cross-connections. They are the links through which the potable-water supply can come in contact with contaminating material. A reversal of the normal hydraulic gradient across the cross-connection will let contaminants backflow into the potable-water system, unless the connection is properly controlled. The best method is to separate the potable system from the contaminating material by an air gap; otherwise, installation of a control device is required.

Insufficient control of cross-connections has caused death and serious illness to plant personnel and the general public. Intestinal disorders incapacitated 40% of the employees of an aircraft plant, causing production shutdown, after a peak demand period placed a too-small water main under partial vacuum. The vacuum induced backsiphonage of waste into the potable-water system.

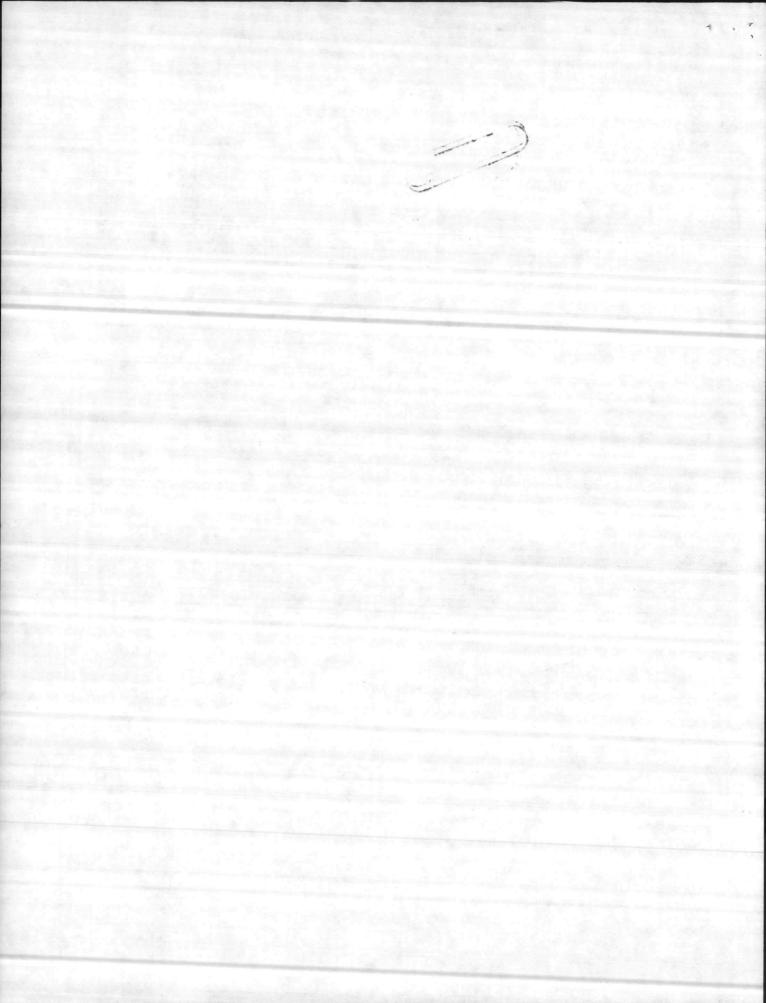
A homeowner reported to authorities that his house water tasted bitter and looked reddish. Tests showed that the water supply contained 1.5 to 2.0% ethylene glycol. Approximately 100 gal of glycol had gotten into the water main when pumped from a storage tank to an antifreeze distribution center cross-connected with water supply lines.

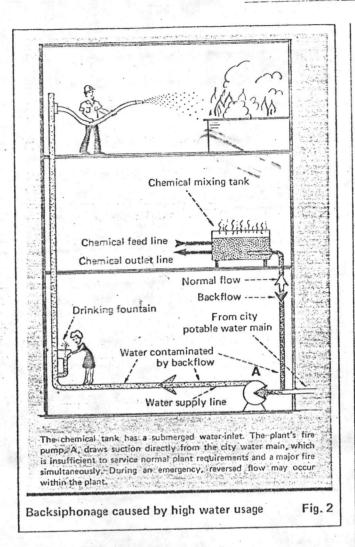
The records are replete with similar occurrences, and some 100,000 cross-connections are made every day in the U.S. alone, many by maintenance men and technicians unaware of the dangers inherent in cross-connections. They make connections as a simple matter of convenience without regard to the hazard created, relying upon inadequate protection such as a lone check

valve or other too-simple mechanical arrangement to prevent backflow.

Individuals responsible for putting in and inspecting water systems should set up and implement sound inplant cross-connection control programs. A good starting point is a survey of existing conditions (Fig. 1). Some situations will require imagination because

Place:	- contrast and manual and a contract
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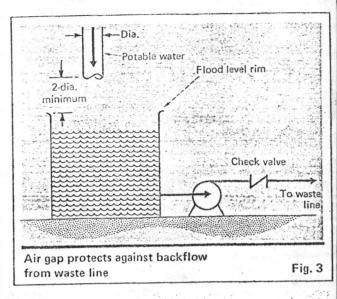
cross-connections appear in many subtle forms and unsuspected places, while reversal of water pressure can be freakish and totally unpredictable.

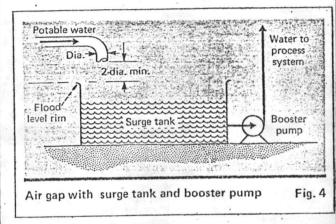
Backflow

Understanding backflow is essential for controlling cross-connections. Backflow is defined as the entering of water (or other substances) into the potable-water system from any but the normal source. It can result from backsiphonage or backpressure, or a combination of the two.

Backsiphonage occurs when negative pressure develops in the potable-water system. Examples of these suction situations are: breaks in the water lines, high water velocity in undersized piping, and peak demand at low elevations in the water system. Water demand during large fires can reduce pressure in remote parts of the system to the point of vacuum. Fig. 2 shows inplant backsiphonage, where the capacity of the water main is insufficient to serve both normal plant needs and a major plant fire.

Backpressure occurs when the contaminant-stream pressure exceeds that in the potable-water system, both pressures being above atmospheric. A pump or boiler under pressure can bring about this situation. Backpressure is of major concern when potable-water and river-water piping systems are interconnected through





boilers and fire hoses and sprinklers. However, not all cross-connections are subject to backpressure.

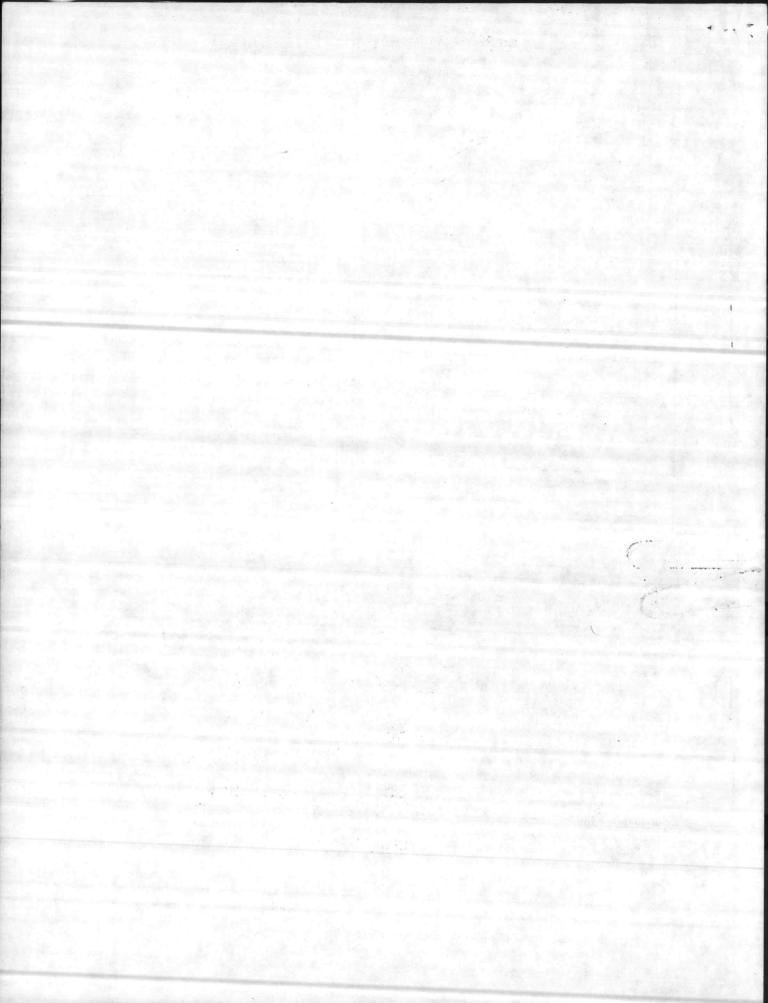
Air gap

Preventing backflow requires either complete removal of the cross-connection or installation of a crossconnection control device. Complete removal is preferred, as there is no chance of mechanical failure.

An air gap provides the only absolute means of removing the physical link. It is an unobstructed vertical space through free atmosphere, separating the lowest point of the water delivery system from the overflow edge (flood level rim) of a receptacle in the contaminant system. The height of an air gap should be at least twice the diameter of the supply pipe, but never less than one inch* (Fig. 3). Air gaps should be made wherever possible and never bypassed.

Whenever potable water serves as an alternate to a nonpotable system, the potable water should, if possible, be delivered through an air gap to a surge tank and pumped from there to the nonpotable system. In high buildings, where booster pumps are required to maintain adequate liquid heads, a surge tank before the booster pump will protect the potable-water system from contamination (Fig. 4).

*Installations near walls or obstructions require larger minimum air gaps Check your local code.



Dear Mr. Andersen,	Date
We are interested in more information about the please have a MARCO repress the please have a marked urgent we are now specifying the please of the please of the please that please the please of the pl	entative call soon. ing equipment.
Our interest relates to: Surface Oil Skimming or Remo Oil-in-Water Separation and Re Both	
The application or system that we are integrated in the API Pond Effluent Chemically Emulsified Oil Oily Stormwater Runoff	erested in is: Bilge, Ballast Treatment Surface Oil Recovery Oily Water in Sanitary System
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Marine Construction & Design Co.
2300 W. Commodore Way
Seattle, Washington 98199

- G.S. 130-157. SANITARY ENGINEERING AND SANITATION UNITS. For the purpose of promoting a safe and healthful environment, and developing such corrective measures as may be required to minimize environmental health hazards, the Department of Human Resources shall maintain appropriate units of sanitary engineering and sanitation. The Secretary of Human Resources shall employ such sanitary engineers, sanitarians, and other scientific personnel as are necessary to carry out the provisions of this Article and to make such other sanitary engineering and sanitation investigations and inspections as are required of the Department of Human Resources by law, or by regulations of the Commission for Health Services. (1957, c.1357, s. 1; 1973, c.476, s.128.)
- G.S. 130-158. SUPPLIERS OF WATER TO COMPLY WITH RULES OF COMMISSION FOR HEALTH SERVICES. In the interest of the public health, every person or unit of local government supplying
 water to the public for drinking and household purposes shall comply with the rules
 and regulations of the Commission for Health Services in the location, construction
 and operation of a water supply system. Any provisions in any charters heretofore
 granted to such persons or units of local government in conflict with the provisions
 of this Article are hereby repealed. (1899, c.670, s.1; 1903, c. 159, s. 1; Rev., s.
 3058; 1911, c. 62, s.24; C.S., s.7116; 1957, c.1357, s.1; 1975, c.959.)
- G.S. 130-159. DEPARTMENT OF HUMAN RESOURCES TO CONTROL AND EXAMINE WATERS: COMMISSION FOR HEALTH SERVICES TO MAKE RULES. The Department of Human Resources shall have the general oversight and care of all inland waters to cause examination of said waters and their sources and surroundings to be made for the purpose of ascertaining whether the same are adapted for use as water supplies for drinking and other domestic purposes, or are in a condition likely to imperil the public health. The Commission for Health Services shall make reasonable rules and regulations governing the location, construction, and operation of water supply systems. (1911, c.62, s.24; C.S., s.7117; 1957, c. 1357, s.1; 1959, c.779, s.9; 1973, c. 476, s.128; 1975, c. 751.)
- G.S. 130-160. SANITARY SEWAGE DISPOSAL; RULES.(a) Any person owning or controlling any single or multiple family residence, place of business or place of public assembly shall provide a sanitary system of sewage disposal consisting of an approved privy, an approved septic tank system, or a connection to a public or community sewerage system. Any such sanitary sewage disposal system with 3,000 gallons or less design capacity serving a single or multiple family residence, place of business, or place of public assembly, the effluent from which is not discharged to the surface waters, shall be approved under rules and regulations promulgated by the Commission for Health Services. All other such sanitary sewage disposal systems with more than 3,000 gallons design capacity shall be approved under rules and regulations promulgated by the Environmental Management Commission pursuant to the applicable provisions of Article 21 of Chapter 143. (1957, c. 1357, s.1;1973, c. 471, s. 1; c. 476, s.128.)
 - (b) Notwithstanding the provisions of subsection (a) of this section and the provisions of G. S. 130-17(b), any sanitary sewage disposal system subject to approval under rules and regulations of the Commission for Health Services shall be reviewed and approved under rules and regulations of a local board of health in the following circumstances:
 - (1) The local board of health, on its own motion, has requested the Commission for Health Services to review its proposed regulations concerning sanitary sewage disposal systems.
 - (2) The Commission for Health Services has found that the regulations of the local board of health concerning sanitary sewage disposal systems are substantially equivalent to the commission's regulations, and are sufficient to safeguard the public health.

- (c) The Commission for Health Services from time to time, upon its own motion or upon the request of a local board of health or upon the request of a citizen of an affected county, may review its findings under subsection (b) of this section. Subject to such review, the commission's finding that local regulations meet the requirements of subsection (b) of this section shall be binding and conclusive.
- (d) The relationship between State and local regulations concerning sanitary sewage disposal systems shall continue to be governed by G. S. 130-17 (b) except in those cases where local regulations have been reviewed and approved pursuant to subsection (b) of this section. (1977, c. 857, s. 1.)
- G.S. 130-161. SUBMISSION AND APPROVAL OF WATER SUPPLY SYSTEM PLANS, DEPARTMENT TO PROVIDE ADVICE. The Department of Human Resources shall advise all persons and units of local government locating, constructing, altering or operating or intending to locate, construct, alter, or operate a water supply system of the most appropriate source of water supply and the best practical method of assuring the purity thereof, having regard to the present and prospective needs and interests of other persons and units of local government which may be affected thereby. The Department shall also advise concerning accepted engineering practices in the location, construction, alteration, and operation of water supply systems.

All persons and units of local government constructing or altering a water supply system shall give prior notice thereof and submit plans, specifications, and other information therefore to the Department of Human Resources. The Commission for Health Services shall promulgate rules and regulations providing for the amount of prior notice required to be given and the nature and detail of the plans, specifications, and other information required to be submitted. The commission shall take into consideration the complexity of the construction or alteration which may be involved and the resources of the department to review the plans, specifications, and other information. The department shall review the plans, specifications, and other information and notify the person or unit of local government of compliance or lack thereof with applicable law and rules and regulations of the Commission for Health Services.

No person or unit of local government shall construct or alter a water supply system until plans therefor have been approved by the Department of Human Resources. (1911, c. 62, s. 24; C.S., s. 7118; 1957, c. 1357, s.1; 1959, c. 779, s.9; 1967, c. 892, s. 3; 1973, c. 471, s.2; c. 476, s. 128; 1975, c.751.)

- G.S. 130-161.1. PUBLIC WATER SYSTEMS: REQUIREMENTS. (a) The Legislative Research Commission was directed by Senate Resolution 875 of the 1969 General Assembly to study and report to the 1971 General Assembly on the need for legislation "Concerning local and regional water supplies (including sources of water, and organization and administration of water systems)." Pursuant to said resolution a report was prepared and adopted by the Legislative Research Commission in 1970 concerning local and regional water supplies. In this report the Legislative Research Commission made the following findings concerning problems arising from the rapid growth in the number of small public water supply systems, of which the General Assembly hereby takes cognizance:
 - (1) In recent years small privately owned public water supplies have been increasing rapidly, at a rate in excess of 20 new supplies per month. As of June 1, 1970, there were 1,782 public water supplies of record in North Carolina, of which over eighty percent (80%) served less than 1,000 persons each. The rapid increase in small water supplies is making it exceedingly difficult for State regulating agencies to maintain proper surveillance over service, and over the quality and safety of the water provided.
 - (2) Small public supply systems are generally inferior to systems serving large communities as regards adequacy of source, facilities and quality. Few provide treatment, and some can be considered as potentially hazardous. Most are installed primarily for domestic use without thought of adequate fire protection or further extension into surrounding areas. Small systems

cannot be easily expanded to meet the demands of population growth, nor can they be interconnected with expanding municipal, county, or regional systems. Lack of ample source and storage facilities make small supplies particularly vulnerable to drought. Ownership of many small systems is in the hands of real estate developers whose interest terminates with the sale of lots served by the system. Thus, no assured responsibility exists for continued operation, service, and maintenance.

(3) The proliferation of small public water supplies poses a growing threat of inadequate, unreliable, and potentially hazardous water service to areas not served by large municipal or county systems. Better coordination and management of water supply systems in North Carolina is essential to protect

the public health and in the public interest.

(b) In order to enable the Department of Human Resources to coordinate and strengthen public water supply systems in the public interest, and to insure that all public water supplies are adequate and safe for drinking and domestic purposes, the Department of Human Resources is hereby authorized:

(1) To edont standards and criteria for the desi

(1) To adopt standards and criteria for the design and construction of public water supply systems constructed or modified on or after January 1, 1972, including but not limited to, waterworks facilities, appurtenances and pipe size of distribution lines; provided, however, this provision shall not limit the authority of the Utilities Commission under Chapter 62 of the General Statutes, or of the Commission for Health Services under Chapter 130 of the General Statutes, to require, when found necessary, improvements to public water supply systems in order to provide adequate and safe service.

(2) To require disinfection by a method approved by the Commission for Health Services of all public water supplies introduced on or after January 1, 1972, and of all existing public water supplies whenever the number of water samples from a public water supply system examined by the Department of Human Resources is found to exceed the limits for coliform bacteria established in the drinking water standards of the U. S. Public Health Service, or when conditions are found to exist which make the continued use of the

water potentially hazardous to health.

(3) To require that all proposed public water supply systems be designed in such manner as will permit the provision of an adequate, reliable and safe supply of water to all service areas anticipated or projected by the owner, owners or developer of the system, and as will further permit interconnection of the system, at an appropriate time, with an expanding municipal, county or regional system.

(4) To require that detailed plans and specifications for all public water supply systems be prepared by an engineer licensed to practice in the State of North Carolina, and approved by the Commission for Health Services prior to construction of any part of the proposed system, or prior to the award of a contract (if any) for construction of any part of the proposed system, whichever may be sooner.

(5) To require developers or owners of proposed privately owned public water supplies to submit with their plans such evidence as may be required by the Commission for Health Services concerning arrangements made for continued operation, service and maintenance of the proposed water supply system.

(c) All public water supply systems for which plans must be approved by the Commission for Health Services, and all plans for such systems to be hereafter introduced or altered, shall comply with applicable requirements and standards adopted pursuant to this section.

- (d) This section shall be construed as providing supplemental authority in addition to the powers of the Commission for Health Services under G.S. 130-161 and any other provisions of this Chapter, and in addition to the powers of the North Carolina Utilities Commission under General Statutes Chapter 62 concerning water supply systems, and in addition to the powers of the Environmental Management Commission under General Statutes Chapters 87 and 143.
- (e) As used in this section, the terms "public water supply system" and "public water supply" mean a "public water supply system" as defined in G.S. 130-31. (1971, c.343, s. 1; 1973, c. 476, s. 128.)
- G.S. 130-162. CONDEMNATION OF LANDS FOR WATER SUPPLY. All municipalities operating water systems and sewerage systems, and all water companies operating under charter from the State or license from municipalities, which may maintain public water supplies, may acquire by condemnation such lands and rights in lands and water as are necessary for the successful operation and protection of their plants. Condemnation proceedings under this section shall be the same as prescribed by law under Chapter 40 of the General Statutes of North Carolina. (1903, c. 159, s.16; 1905, c.287, s.2; c.544; Rev., s. 3060; 1911, c.62, s.25; C.S., s.7119; 1957, c. 1357, s. 1.)
- G.S. 130-163. SANITATION OF WATERSHEDS: RULES. The Commission for Health Services is hereby authorized, empowered and directed to adopt rules and regulations governing the sanitation of watersheds from which public domestic or drinking water supplies are obtained. In promulgating such regulations the Commission is authorized to consider the different classes of watersheds, taking into account general topography, nature of watershed development, density of population, need for frequency of sampling of raw water, and particular needs for public health protection. The regulations shall govern the keeping of livestock, operation of recreational areas, maintenance of residences and places of business, disposal of sewage, establishment of cemeteries of burying grounds, and any other factors which would endanger the public water supply, provided, that regulations concerning the disposal of sewage shall not conflict with G.S. 130-161.

Any municipality or person furnishing water for domestic uses and human consumption, which secures its water from unfiltered surface supplies, shall have inspections made of the watershed area at least quarterly, and more often when, in the opinion of the Department of Human Resources, such inspections are necessary. (1899, c.670; 1903, c.159, s.2; Rev., ss. 3045, 3046; 1911, c.62, s.28; 1919, c.71, s.14; C. S., s. 7121; Ex. Sess. 1921, c. 49, s.1; 1957, c. 1357, s.1; 1959, c. 779, s.9; 1973, c. 476, s. 128.)

- G.S. 130-164. DEFILING PUBLIC WATER SUPPLY. No person shall willfully defile, corrupt, or make impure any public or private water supply. No person shall willfully destroy or injure any pipe, conductor of water, or other property pertaining to an adqueduct. (1850, c. 104; R.C., c.34, s. 97; Code, s. 1114; 1893, c. 214; 1903, c. 159, s. 12; Rev., ss. 3457, 3857, 1911, c. 62, s. 32; C.S., s. 7124; 1957, c. 1357, s.1.)
- G.S. 130-165. DISCHARGE OF SEWAGE OR INDUSTRIAL WASTE. No person or municipality shall flow or discharge sewage or industrial waste above the intake into any source from which a public drinking water supply is taken, unless said sewage or industrial waste shall have been passed through some system of purification approved by the Commission for Health Services and Environmental Management Commission; and the continued flow and discharge of such sewage may be enjoined. (1903, c. 159, s. 13; Rev., ss. 3051, 3858; 1911, c. 62, ss. 33, 34; C.S., s. 7125; 1957, c. 1357, s. 1; 1959, c.779, s.9; 1967, c. 892, s.3; 1973, c. 476, s.128.)

G.S. 130-166. SEWAGE DISPOSAL ON WATERSHEDS. - All schools, hamlets, villages, towns, or industrial settlements which are not provided with a sewer system, and which are now located or may be hereafter located on the watershed of any public water supply shall maintain and provide a reasonable system approved by the Department of Human Resources for collecting and disposing of all accumulations of human excrement within their respective jurisdiction or control. (1903, c. 159, s. 14; Rev. ss. 3052, 3860; 1907, c. 585; 1911, c.62, s. 35; C.S., s. 7127; 1957, c. 1357, s.1; 1973, c.476, s.128.)

DEPARTMENT OF HUMAN RESOURCES DIVISION OF HEALTH SERVICES SANITARY ENGINEERING SECTION July, 1977 TOTALISE STREET STREET

reflected from the consistent range of the constant of the con

1emorandum

DATE 28 Sept. 1978

Quality Control Laboratory FROM:

Mr. Wooten; NREAD TO:

Potable Water, BB-7, Violation of SDWA (Bacteriological) SUBI:

- Tuesday's sample from BB-7 (mess hall) showed a count of coliform per 100mls.
- 2. Wednesday's check sample showed NO bacteria and I expect Thursday's sample to show the same.
- The count of 55 will be used to average the system bacteria count. This high count will cause the monthly average to exceed one, thereby violating the SDWA.
- Public notification will be required as soon as the sample is completed and confirmed.

Monthly Lornage is more than I The test should be completed by Monday. Wallace Eakes Supervisory Chemist

Wed afternoon

48 hr - notify state Milipare filter

3 day - du paper

4 Sample Pts = 16 samples/month

733-2321 Krudgren

Crelty Control Laboratory

Mr. wooten; Maku

Totable Water, 32-7, violation of the Cantalogological)

- 1. The day's sand to from SP-7 trees had) showed a round of 55 callform nor 10 mls.
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Troopyiery whomist

Memorandum

DATE: 28 Sept. 1978

FROM: Quality Control Laboratory

TO: Mr. Wooten; NREAD

SUBJ: Gas Cost, TOC and AA

Ref: Information you requested

1. I estimate the following gases will be used per month for the TOC.

a.	Helium:	1 1/2 cylinders	\$58.55 per	cylinder
b.	Air:	1 cylinder	\$22.57 per	
C.	Hydrogen:	1/2 cylinder	\$33.62 per	cylinder

2. The AA unit will probably use the following per year.

a.	Acetylene:	2	cylinders	\$36.45	per	cylinder
b.	Nitrogen Oxide:	2	cylinders	\$104.0	per	cylinder
C.	Argon:	1	cylinder	\$58.11	per	cylinder
	Hydrogen:	1	cylinder	\$11.25	per	cylinder

Wallace Eakes

Supervisory Chemist

Omelity Control Laboratory

Mr. Youten; Mish

Gas Cost, TLD and AA

kef: Information you requested a

Tel footheate the following gases will be used for month for the Too.

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acked Chemist

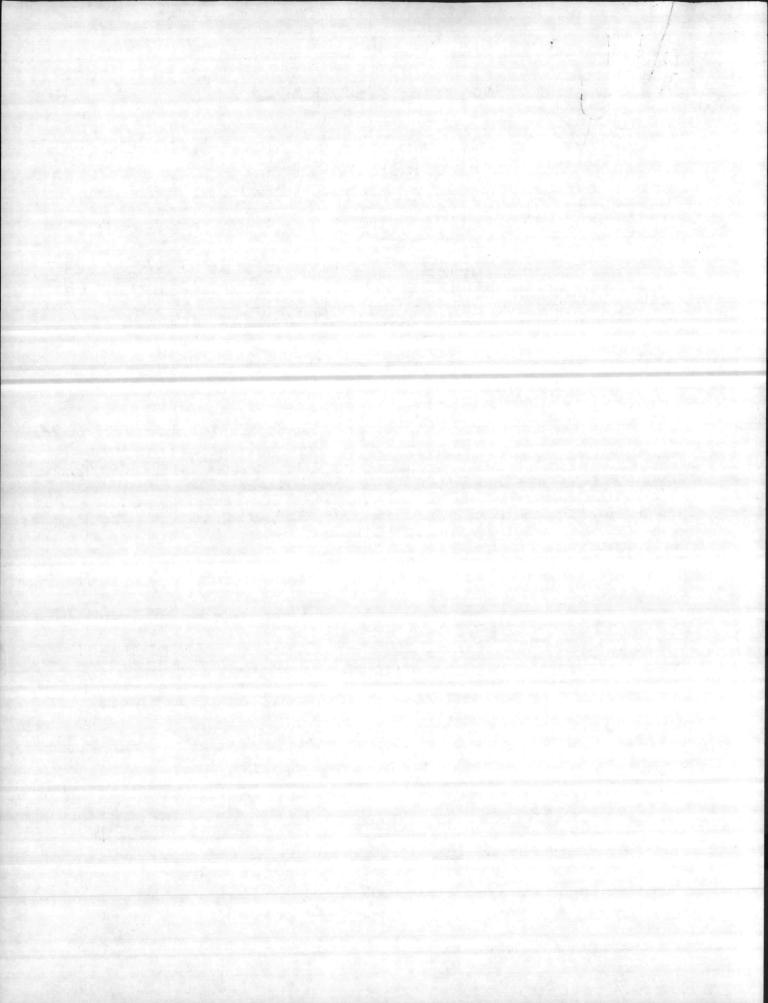
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NOTICE OF WATER QUALITY READING

The Base Maintenance Department of the Marine Corps Base, Camp Lejeune, operates seven separate water systems to supply the water needs of the entire Camp Lejeune/New River complex. During routine testing of the system serving the Courthouse Bay area, one water sample showed a coliform bacteria concentration above the norm for that system. Subsequent water samples for coliform within that system indicated that no bacteria were present and Lougharm there is therefore no cause for concern.

The Base Maintenance Department is continuing to search for the cause of this one abnormal reading as well as to monitor all the water systems aboard the Base to ensure compliance with water quality standards and the reporting requirements set by the Public Health Service Act as amended.

backeria is a non-disease producing backeria whose presence may indicate that other disease producing backeria may be present. Since The subsequent tests of indicated no coliform to be present, There is no reason to be concerned about Mequality of the water.



OPNAV 5216/144 (REV. 6-70) S/N 0107-LF-778-8097 DEPARTMENT OF THE NAVY

Memorandum

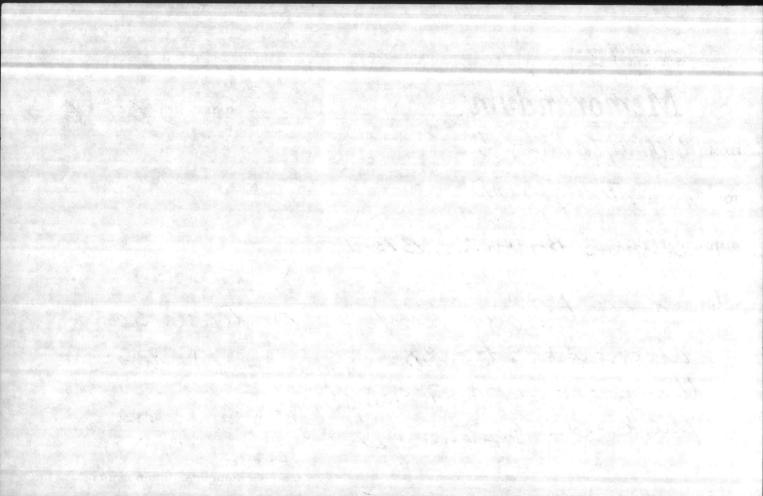
FROM: QUALITY Control Cab

TO: M. Wosten , NEOND

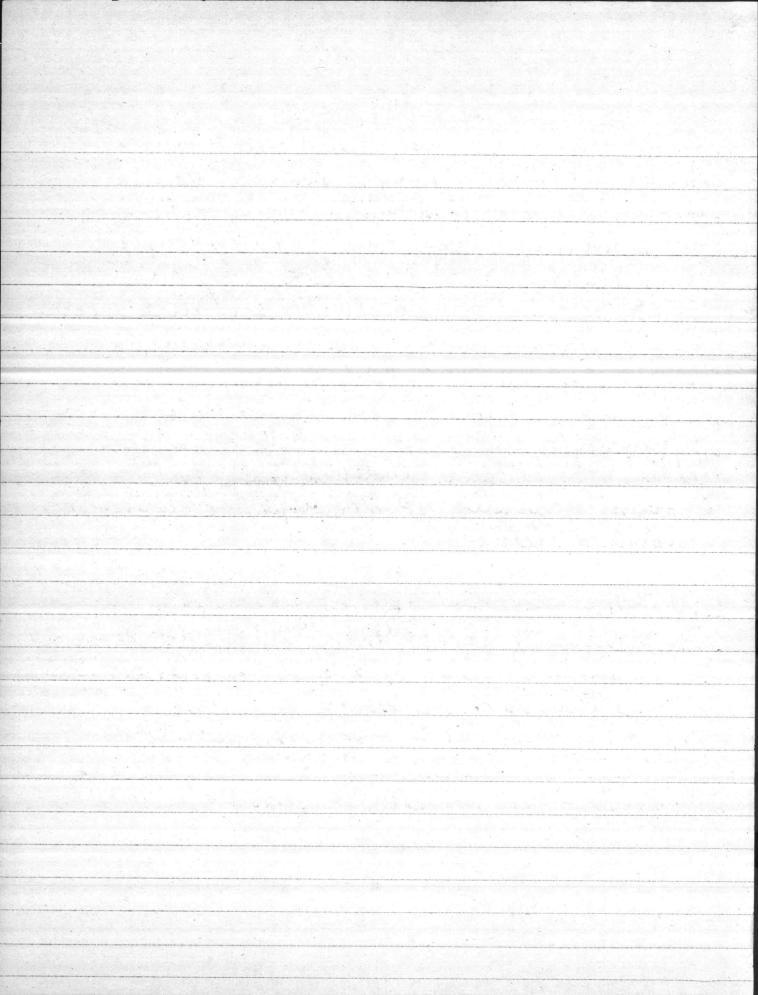
SUBJ: Celliform Borlina, BB-7

" a count of 16 coliforn British were discovered at BB-7 (Menstall) during the weekly BAC-T Sampling. This does NOT flink the System yet - USE-100/2167 Region No. 3-11

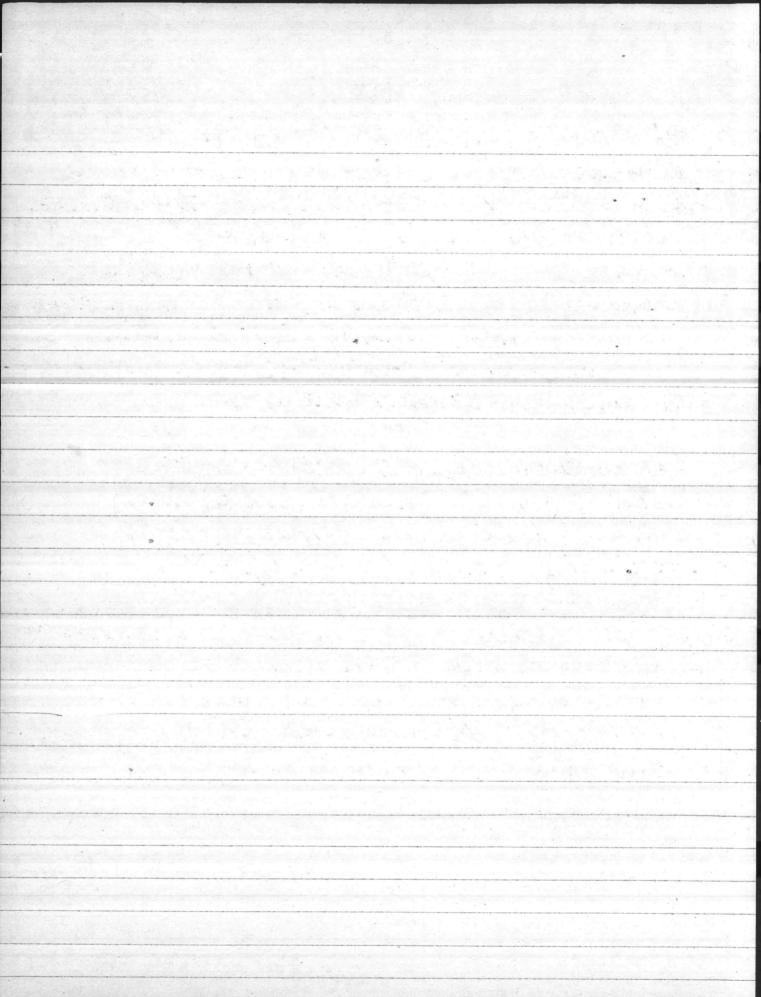
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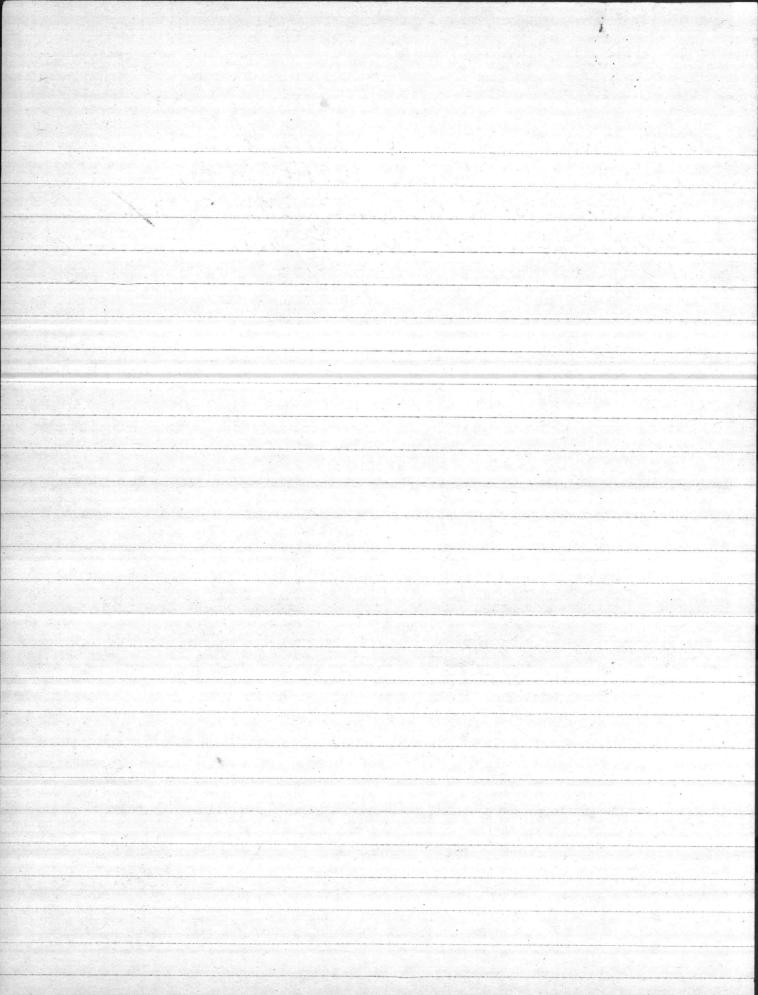
laboratory and laboratory personal, Natural Remen al anvironmental offairs Division, Base maintenance reportment, Camp Lycine, North Carolina be evaluated for Certification to conduct certain test Hoter potable water test required by the Sofe Drinking Water Act, this letter is submitted as instructed in reference (a) and (b) the steps leading to final certification for inorganic chemical, Bacteriologial, chlorine, and turbidity test. 2. The Worstong will conduct the regument inorganic clemical test plus toxo additional test inorganic test (from and manganese) the state has suggested to run, the fab will use EPA approved test methods as outlined in the Federal Code of the Federal Registeria.



3. The Bacteriological test for total Coliforn Boiteria will be conducted using the EPA approved membrance filter method. He laboratory will Complete the test on positive Colonies as outlined by on Drye, ref (b), - i.e. - Transfering colonies to gas tubes and completing the test as outlined by Standard mithols. 4. The laboratory request certification for chlorine residule and turbidity test though these test may not be routinely conducted or reported, 5. It is requested that the state laboratory conduct the organic chemical and Kodivactivity test as required, the Quality Control laboratory does NOT pours the equipment to Conduct blese test.



6. If you have any questions please what me plian wroten, Base acatog Ecologist, phone 451-5003 of 2083 or Wallow EAKES, Chemist, phone 451-5977,



DEPARTMENT OF HUMAN RESOURCES

DIVISION OF HEALTH SERVICES

RALEIGH

March 3, 1978

LCDR J. G. Leech, CEC, USN
Head, Environmental Engineering Branch
Utilities Division
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511

Dear CDR Leech:

Reference is made to your letter of February 23, 1978, relative to responsibilities concerning the Safe Drinking Water Act (P.L. 93-523), federal facilities, and the State of North Carolina. The comments contained in your letter are correct.

For your information and guidance, I am enclosing a copy of the Memorandum of Understanding between EPA Region IV and the State of North Carolina together with pertinent correspondence relating to the memorandum. Paragraph B. 8 on page 3 is the item with which we are concerned. You will note that our major responsibility is to receive and review monitoring data submitted by federal facilities and report any deficiencies to EPA Region IV. Upon request, and only upon request, our agency will provide technical assistance and on-site investigations and/or inspections relating to the public water supply system at a particular facility.

The monitoring data which should be submitted to this office would consist primarily of the results of bacteriological analysis of water samples from the distribution system. The chemical and radiological sample results can be submitted at a later date as they are done on an annual basis. For your information, I am enclosing a copy of our Newsletter No. 4 which was mailed to all the public water supplies in the State.

With regard to obtaining laboratory approval, I suggest that each facility write to Dr. R. J. Drye and request approval for whatever chemical analysis that can be performed in each laboratory. Approval of microbiological analytical procedures is necessary for bacteriological results to be valid. Laboratory testing must be in accordance with the procedures specified in the National

DEPARTMENT OF HUMAN RESOURCES

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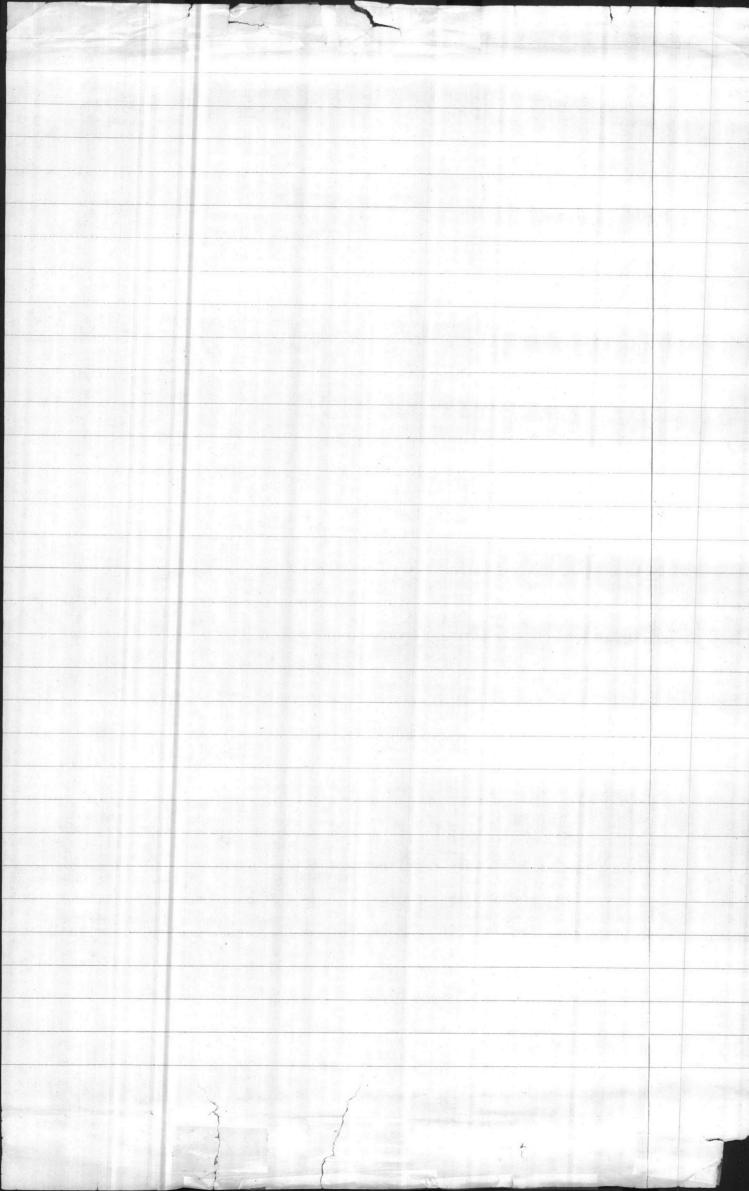
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LCDR J. G. Leech Page 2 March 3, 1978 Interim Primary Drinking Water Regulations. For your information, I am enclosing a copy of these regulations. For your information and files, I am enclosing copies of the following State documents relative to public water systems: 1. Extract of Chapter 130, Article 13 of the General Statutes of North Carolina - Water and Sewer Sanitation. Rules Governing Public Water Supplies Section .0600 through .2200. 3. Guide For Obtaining Approval Of Public Water Supply Systems. It should be understood that the above State laws and rules will not become effective for the federal facilities until after the State has been given primary enforcement responsibility by EPA. This will occur in 1979, possibly in early summer. EPA has not specified any particular form for submitting monitoring data. Therefore, the forms that are being used by the facilities would be satisfactory, provided they contain the necessary data. Copies of the above mentioned documents are also being sent to the Commands in North Carolina. This agency appreciates the Command's excellent cooperation in this endeavor, and we look forward to a mutually beneficial professional relationship in continuing to provide safe drinking water to the Marine Corps facilities. Very truly yours, Charles E. Rundgren, Head Water Supply Branch Sanitary Engineering Section Enclosures cc: Commanding General Marine Corps Base Camp Lejeune, N. C. Commanding General Marine Corps Air Station Cherry Point, N. C. EPA Region IV Mr. M. P. Bell

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Mr Charles E. Kendgren Water Supply Branch Santary Engineering Section Div of Health Strucker Dept. of Human Kesources P.OBOX 2091 Kaleigh, N.S. 27602 Dear Mon Kundgren: MCAS Chory A sponsored between you, Dr. Drye, and sersonnel from



ASSISTANT CHIEF OF STAFF, FACILITIES HEADQUARTERS, MARINE CORPS BASE

DATE 78100C

TO:

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1. Attached is forwarded for info/action.

2. Please initial, or comment, and return all papers to this office.

3. Your file copy.

OE A SEW BEASONS

"LET'S THINK OF A FEW REASONS
WHY IT CAN BE DONE"

UNITED STATES MARINE CORPS
Marine Corps Air Station
Cherry Point, North Carolina 28533

100-eet/070 11300 6PR 1 6 1978

Mr. Gharles L. Aundgren Mater Sapply Breach Schlamy Engligering Section Division of Palth Services Department of Homes Belouves P.O. Box 2091 Relaigh, North Carolina 87502

Dwar Mr. Duningrams

This Letter concerns the Safe Drinking Mater Act (Public Law 93-523) and is in reference to a letter to you from LODE 5. G. Leoch of the Allentic Division, Naval Facilities Englassing Community dates 30 Fourtary 1978.

According to LCDR Teach's letter, the State of North Carolina will perform the state of setting for organic chesicals, inergenic chemicals, raise asserted organic constant for respect facilities in North Carolina. To is, therefore, organization that arrangement to made for the little in North Carolina letteratories to perform the chore tests of the water supply sycholar at which performs the chore tests of the water supply sycholar at which performs the chore tests of the water supply sycholar at which performs the chore tests of the water supply sycholar at which performs the contract of this surmand tell performs in religious such as a supplied and received tests of the same of the contract of the contract

The addition, it is requested that the Cambing Comment Leadership at this Continue be cartilist to prefer a softential and impressive them and the testing required under the Cafe Lainting Water Acc. Maria example of testing can be performed in an emergency. To estate in this continue cartification, eachesed herewith is a copy of the Servey of testinets. Independent Laboratory Services recently completed for the Quality Control Laboratory. About the profession, please exchange here the Cartification, please testinets. C. of Casch, Throcker, Chilitian Division, or at the Casthon testine believes (919) Abo-7812/2/339, of this comment.

Your and sunce and cooperation in tide mother will be greatly approclabed.

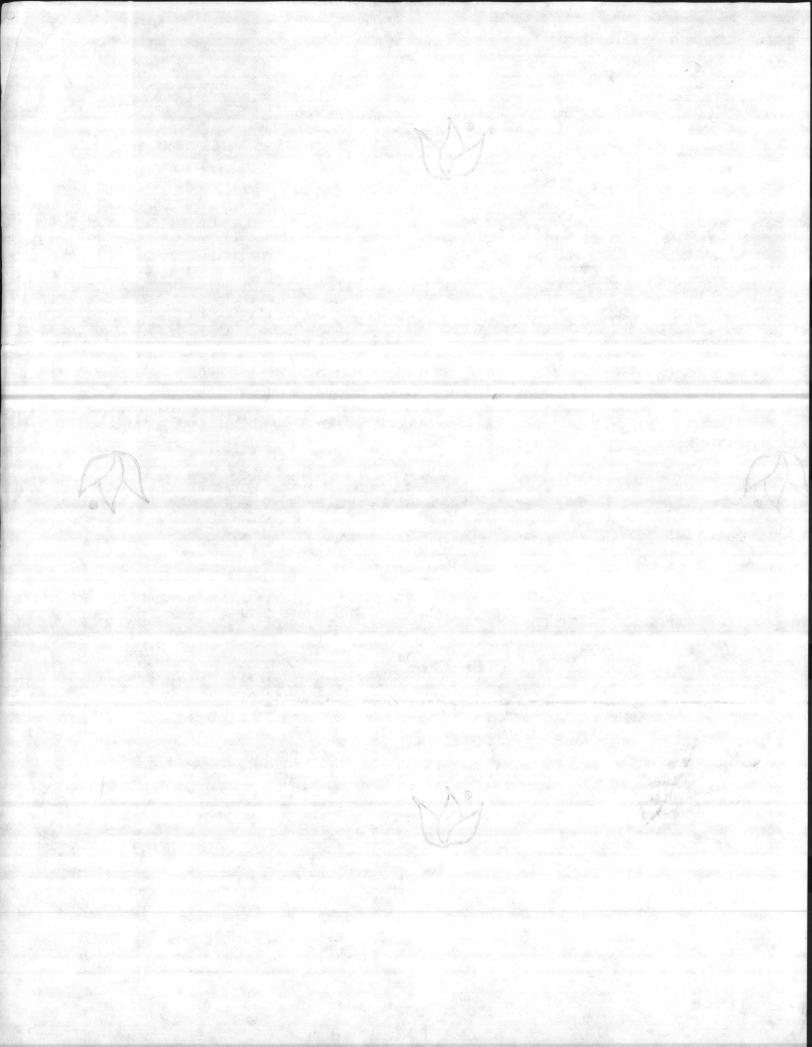
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actuality appropriate Company

FMD(UtilDiv/Daily/Base)

81. #2112 Prepared 18 Apr 1978



BASE MAINTENANCE DEPARTMENT Marine Corps Base Camp Lejeune, North Carolina 28542

MAIN/JIW/th 6240 10 Oct 1978

From: Base Maintenance Officer
To: Joint Public Affairs Officer

Via: Regional Preventive Medicine Officer

Subj: Safe Drinking Water Act; public notification of

Ref: (a) FoneCon btwn Sgt Proctor, JPAO, and Mr. Wooten, BMaintDept, on 2 Oct 78

(b) EPA Federal Register on National Interim Primary Drinking Water Regulations dtd 24 Dec 75

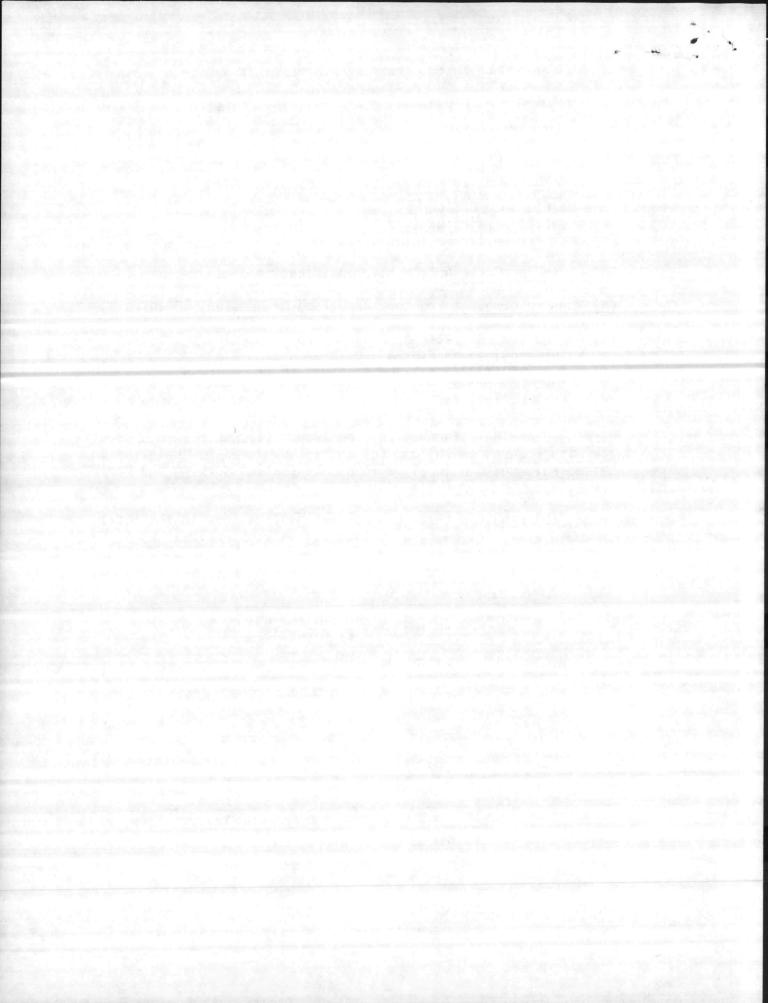
(c) SJA ltr SJA/JAJ/jms 11300 of 5 Oct 78

Encl: (1) Public Notification

- 1. As discussed during reference (a), enclosure (1) has been prepared in accordance with references (b) and (c) and is submitted for printing in the Globe and release to a local radio and TV station serving the Camp Lejeune area.
- 2. Reference (b) requires three consecutive publications in the local newspaper immediately following a violation. Only one release to a local radio and TV station is necessary.

B. W. ELSTON By direction

Copy to:
ACof S, Fac
SJA



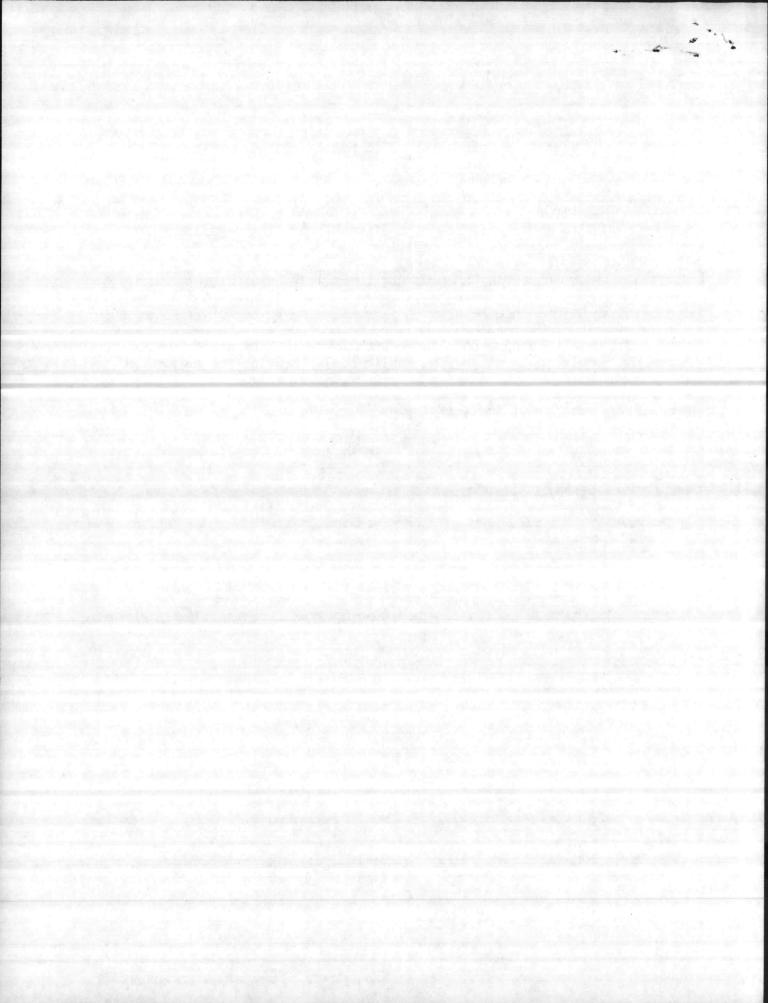
NOTICE OF WATER QUALITY READING

The Base Maintenance Department of the Marine Corps Base, Camp Lejeune, operates eightseparate water systems to supply the water needs of the entire Camp Lejeune/New River complex. During routine testing of the system serving the Courthouse Bay area, one water sample showed a coliform bacteria concentration above the norm for that system. Subsequent water samples for coliform within that system indicated that no bacteria were present. Coliform bacteria is not a disease producing organism. Its presence merely suggests that conditions may be appropriate for the growth of other disease carrying organisms. Since subsequent testing indicated that no coliform bacteria was present, there is no cause for concern.

The Base Maintenance Department is continuing to search for the cause of this one abnormal reading as well as to monitor all the water systems aboard the Base to ensure compliance with water quality standards and the reporting requirements set by the Public Health Service Act as amended.

If you have any questions about this notice, please contact Regional Preventive Medicine Officer, extension 451-5707.

= 76





STATE OF NORTH CAROLINA

DEPARTMENT OF HUMAN RESOURCES

325 NORTH SALISBURY STREET

JAMES B HUNT, JR.
GOVERNOR

RALEIGH 27611

SARAH T. MORROW, M.D., M.P.H.

TELEPHONE 919/733-4534

January 19, 1978

Mr. John C. White Regional Administrator U. S. Environmental Protection Agency Region IV 345 Courtland Street Atlanta, Georgia 30308

Dear Mr. White:

In response to your letter of January 9, 1978, to Governor Hunt returning an executed copy of the Memorandum of Understanding (MOU) and commenting on the omission of item B. 9 from the final version, I would like to state that the item was inadvertently omitted from the MOU. Our file copy of the draft MOU includes item B. 9 which was stated as follows:

B. 9 Notify water system operators of the need for public notification.

This letter will confirm your proposal to insert item B. 9 as written above into the MOU by means of your January 9, 1978, letter. This understanding and proposal is acceptable to me and my staff. My apologies for any inconvenience this omission may have caused you and your staff.

We look forward to a successful working relationship.

Sincerely,

Sarah T. Morrow, M.D., M.P.H.

Sarah J. Monow, m.D.

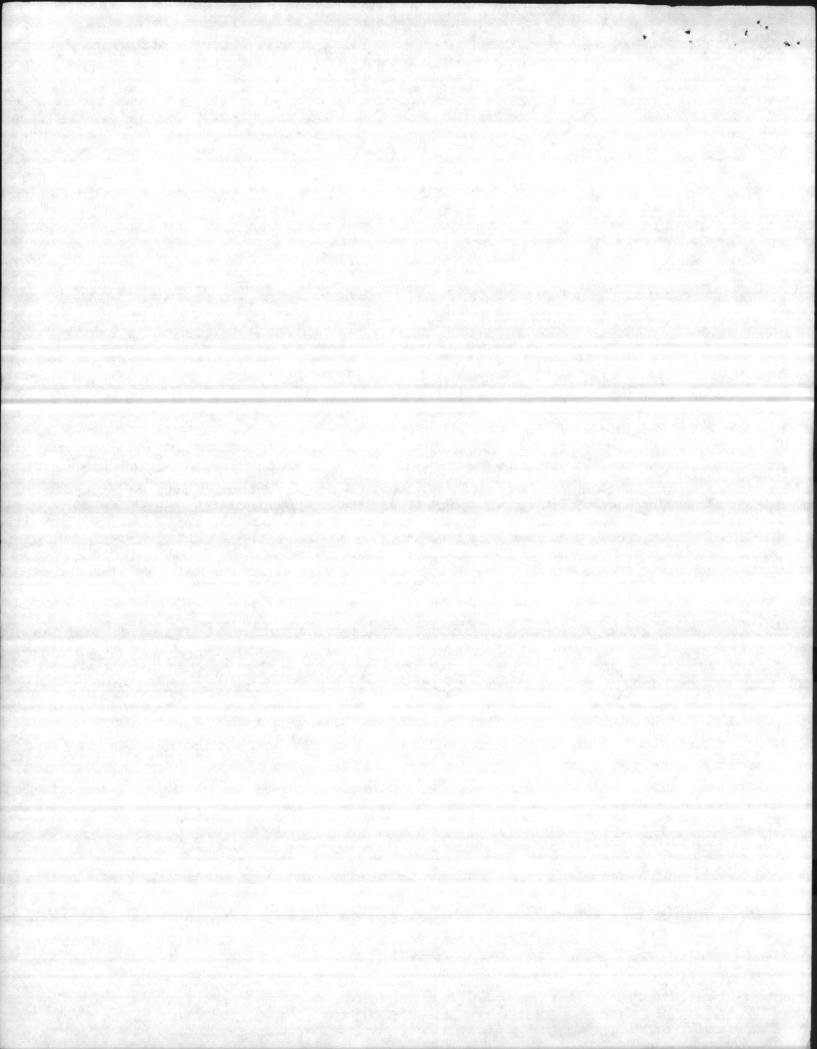
Secretary

Department of Human Resources

CER:rwl

cc: Governor Hunt
Dr. Jacob Koomen
Marshall Staton
W. J. Stevenson

bcc: C. E. Rundgren





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

Copies to Ox. Hornson

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notebook

345 COURTLAND STREET ATLANTA, GEORGIA 30308

January 9, 1978

Honorable James B. Hunt, Jr. Governor of North Carolina Office of the Governor Raleigh, North Carolina 27511

Dear Governor Hunt:

I certainly enjoyed meeting with you last month to discuss the implementation of the Safe Drinking Water Act in North Carolina. I believe that as a result of our discussions we can implement a joint program to give the citizens of North Carolina a better public water supply surveillance program.

I am pleased to return an executed copy of the Memorandum of Understanding (MOU) enclosed in your December 29, 1977, letter. It is my understanding that continued effectiveness of this agreement is conditional on compliance by both parties with the terms of the MOU. Also, it appears that in the final version of the MOU, item B.9. of the draft version sent to us was inadvertently omitted. propose by means of this letter that we reinsert that item, which requires the State to "Notify water system operators of the need for public notification." Unless I hear otherwise in the near future, I will assume that this understanding and proposal are acceptable to you and Dr. Morrow, and hereby become part of the agreement.

I commend you on your decision to work toward the assumption of primacy for North Carolina by July, 1979. We look forward to cooperating with you and the North Carolina Department of Human Resources in building your public water supply supervision program and preparing to assume primacy.

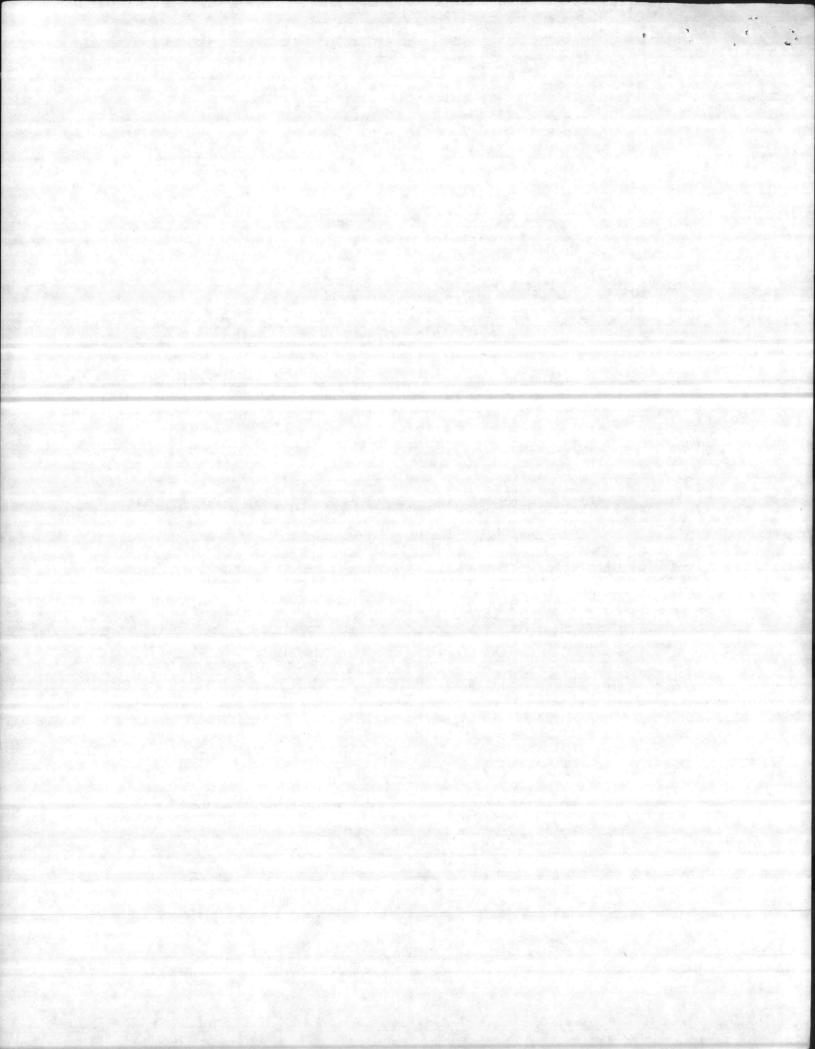
Warmest personal regards.

Sincerely,

Regional Administrator

JANE 2 1977

GOVERNOR'S OFFICE



MEMORANDUM OF UNDERSTANDING

Whereas the National Interim Primary Drinking Water Regulations (hereinafter "NIPDWR") went into effect June 24, 1977, and;

Whereas the United States Environmental Protection Agency (EPA) is entrusted with enforcing P.L. 93-523 (1974), the Safe Drinking Water Act (SDWA) and;

Whereas the State of North Carolina (hereinafter the "State") has not yet been granted Primary Enforcement Responsibility (Primacy) under Section 1413 of the SDWA, and;

Whereas there is a need for the State to continue to conduct a State Public Water Supply Program at least at the present resource commitment level;

Therefore EPA and State have agreed as follows;

- A. The State will to the extent possible with the commitment of no additional State funds:
 - Continue the development of water supply statutes, regulations, and policies that are needed to complete its application for primacy in accordance with 40 C.F.R. Section 142-11 for submission to the 1979 General Assembly.
 - 2. Review microbiological and chemical sampling data submitted by the owners or operators of the public water systems (as defined in N.C. General Statute 130-31) to determine compliance with applicable provision of the NIPDWR.
 - 3. Review and approve public water system (N.C.G.S. 130-161) plans and specifications under applicable State statutes and regulations submitted by owners or operators of public water supply systems and to the extent practical, see that the owner or operator avoids location of part or all of the new or expanded facility at a site which:

- (a) Is subject to a significant risk from earthquakes, floods, fires or other disasters which could cause a breakdown of the public water system or a portion thereof; or
- (b) Except for intake structures, is within the floodplain of a 100 year flood or is lower than any recorded high tide where appropriate records exist.
- 4. Enforce its laws and regulations covering public water systems (as defined in N.C.G.S. 130-31).
- Conduct a program of sanitary surveys of community supplies and non-community supplies where possible.
- B. In addition, to the extent which manpower and funding is available from the EPA Grant of 75% of \$708,800 the State will:
 - Provide EPA with monthly reports of the names (and other related known information) of any public water supplies (N.C.G.S. 130-31) which are not in compliance with any regulations in the NIPDWR when known. Also submit this data on deficiencies in other types of systems when the information becomes available.
 - 2. Maintain essential records on suitable forms as required by 40 C.F.R. Section 142.14. These records will relate primarily to public water supply systems as defined by N.C.G.S. 130-31.
 - 3. Inform EPA of all situations which may or do require emergency action under the SDWA Section 1431.
 - Refer with State recommendations all applications for variances, exemptions, and/or waivers to EPA for review and approval.
 - 5. Maintain a microbiological laboratory in which all samples from supplies serving fewer than 10,000 people will be analyzed.
 - 6. Maintain a laboratory certification program which will handle the inspection of bacteriology laboratories and make recommendations to EPA on final certification.

- 7. Work towards computerization of record keeping.
- 8. Receive monitoring data from federal facilities and report deficiencies to EPA. Provide technical assistance and on site investigations on request.

C. EPA will:

- 1. Provide grant funds which will enable North Carolina to perform duties as listed above under B, in addition to current state program.
- Exercise Federal authority over public water supply systems to supplement specific lack of State authority.
- Provide technical assistance to the State when requested by the State.
- 4. Provide limited laboratory assistance.
- Exercise emergency powers, where appropriate, in support of the State.
- 6. Accept and act on all requests for variances, exemptions, and/or waivers submitted by water utilities throughout the State. The State will be informed of the substance of the review and final EPA action. EPA will return application it has received, but for which action has not been taken as of the primacy date, and the State will assume responsibility for implementing and enforcing the terms of each variance, exemption, and/or waiver granted by EPA once primacy is obtained.
- Enforce public notification requirements as specified in 141.32
 of NIPDWR.
- 8. Retain authority to enforce NIPDWR on all violations for which an acceptable State enforcement action has not been taken.
- 9. Accept and act upon the State's laboratory certification recommendations and notify the State of the actions which are taken.

D. This agreement shall be in effect until September 30, 1978, with option to renew after this date as additional funding becomes available or until the State accepts primacy, whichever is earlier. Jahn C. White DPA, Region IV

State Agency Representative

Date: December 23, 1977

Date: Jan 9, 1978

INFORMATION Proposed Plan

Proposed

141.32 Public Notification

- (b) If a community water system has failed to comply with an applicable maximum contaminant level, the supplier of water shall notify the public of such failure, in addition to the notification required by paragraph (a) of this section as follows:
- (1) By telephone call to the affected area served by the system. Such notice shall be completed within two (2) days after the supplier (1) of water learns of the failure.
- (2) By mobile public address system to the affected area served by the system. Such notice shall be completed within four (4) (1) days after the supplier of water learns of the failure.
- (3) By personal contact by Preventive Medicine personnel with the area served by the system. Such notice shall be completed within seven (7) days after the supplier of water learns of the failure.
- (4) By written notification (memo) to the affected area served by the system. Such notice shall be completed within seven (7) days after the supplier of water learns of the failure.
- (5) By furnishing a copy of the notice to the radio and television stations serving the area served by the system. Such notice shall be furnished within seven (7) days after the supplier of water learns of the failure.

(1) Local Preventive Medicine unit".

NOTE: The local Preventive Medicine unit is responsible for notifying persons served by this Command.

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NAVAL CONSTRUCTION BATTALION CENTER

PORT HUENEME, CALIFORNIA 93043

N REPLY REFER TO 2522:NSS:dva Serial 2295 30 Mar 1978

From: Commanding Officer, Naval Construction Battalion Center

Port Hueneme, CA 93043

To: Distribution

Subj: Safe Drinking Water Act (SDWA); Monitoring Guidelines for

Ref: (a) PL 93-523, SDWA

Encl: (1) NEPSS SOP 1.14, Monitoring for the Safe Drinking Water Act,
Jan 1978

1. Guidelines for the Safe Drinking Water Act of 1974 (reference (a)) establish standards for public water systems. These standards apply to Navy and Marine Corps activities that own and/or operate water supply sources and potable water treatment systems. The Standard Operating Procedures (SOP) forwarded as enclosure (1) provides guidelines for the collection, preservation and analysis of potable water samples in compliance with the monitoring requirements of the Safe Drinking Water Act.

Thiliff. Winters
PHILIPPR. WINTERS
By direction

Distribution:

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C4F8 (Fallbrook only)

C4F9 (Annapolis, Port Hueneme and New London only)

C4F36

E3A (Washington and Barrow only)

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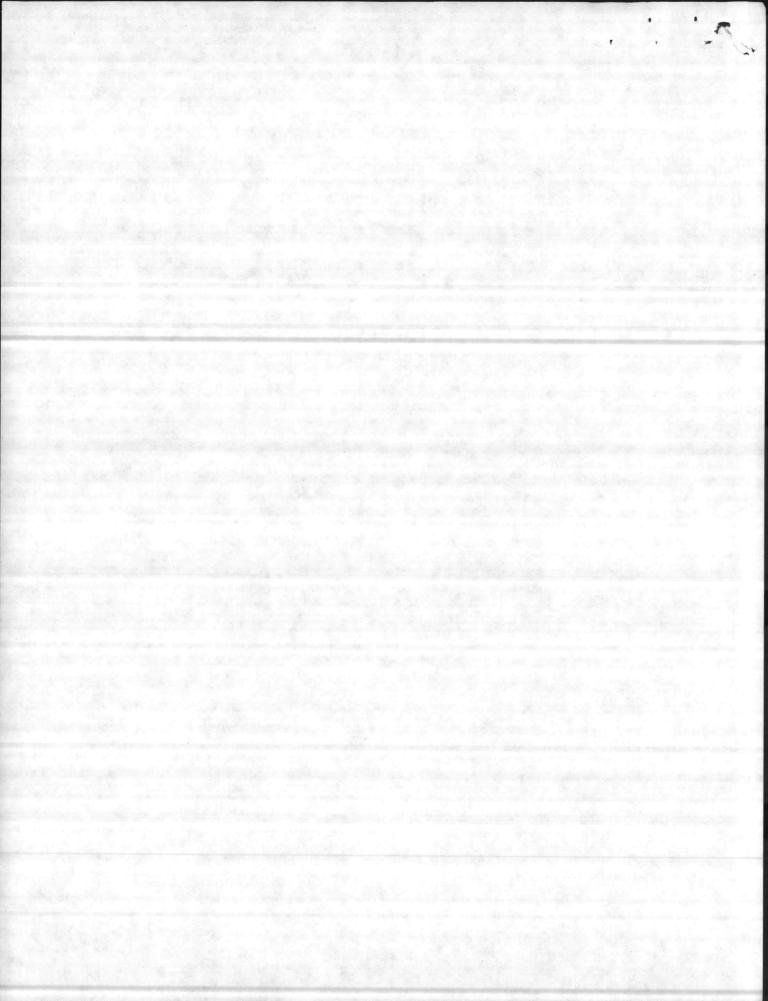
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      North Island, Moffett Field only)
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      (Adak and Midway only)
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       Great Lakes and Long Beach only)
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STANDARD OPERATING PROCEDURE

NAVAL ENVIRONMENTAL PROTECTION SUPPORT SERVICE



Issued by: NAVY ENVIRONMENTAL SUPPORT OFFICE

Naval Construction Battalion Center, Port Hueneme, California 93043

No.: 1.14 Date: Jan 1978

Name: MONITORING FOR THE SAFE DRINKING WATER ACT

PURPOSE:

To provide guidelines for field personnel conducting potable water monitoring in compliance with requirements of the Safe Drinking Water Act (SDWA).

REFERENCES:

(a) PL 93-523 Safe Drinking Water Act

(b) 40 CFR 141, National Interim Primary Drinking Water Regulations, Federal Register, Vol 40, No. 248, 1975, pp. 59566-74; Drinking Water Regulations, Radionuclides, Federal Register, Vol 41, No. 133, 1976, pp. 28402-5

(c) National Secondary Drinking Water Regulations (Proposed), Federal Register, Vol. 42, No. 62, 1977, pp. 17144-6

(d) DOD Directive 6230.1, 10 Aug 1977, Safe Drinking Water

(e) NEPSS SOP 1.08A, Water and Wastewater Sample Preservation, 15 Aug 1977

(f) Methods for Chemical Analysis of Water and Wastes. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Environmental Research Center, Cincinnati, Ohio 45268, 1976

(g) 1975 Annual Book of ASTM Standards, Part 31, Water, Atmospheric Analysis. ASTM, Philadelphia, PA 19103

(h) Standard Methods for the Examination of Water and Wastewater, 14th ed., APHA-AWWA-WPCF, Washington, D. C., 1976

(i) NEPSS SOP 1.13, Guidelines for Internal Quality Control Checks for Production of NPDES Data, September 1977

ADDENDA:

A. Definitions

B. Frequency of Sampling Required for SDWA

C. Summary of National Primary and Secondary Monitoring Regulations for Drinking Water

D. Procedures for Conducting Chlorine Residual Tests

E. Procedures for Conducting Turbidity Tests

F. Maximum Contaminant Levels

G. Reporting and Recordkeeping Procedures

I. GENERAL

Implementing guidelines to the Safe Drinking Water Act (SDWA) of 1974 (ref (a)) establish primary (ref (b)) and secondary (ref (c)) standards for public water systems. Primary standards and the attendant monitoring requirements apply to naval shore facilities, located within the United States and territories, that own and/or operate water supply sources and potable water treatment systems. Secondary standards, including appropriate monitoring, are advisory and are not required at this time. Reference (d) requires that all DOD components "comply with substantive and procedural drinking water regulations established by the Environmental Protection Agency (EPA) or the regulations and procedures of those states with primary enforcement responsibility for Federal facilities as granted by EPA."

This SOP provides guidelines for collection, preservation, and analysis of potable water samples in compliance with the SDWA. Definitions of terms used in this SOP can be found in Addendum A.

II. COLLECTION AND PRESERVATION OF POTABLE WATER SAMPLES

The result of any test is no better than the sample used; a poor sample will produce poor test results regardless of the quality of the test. Good sampling techniques are a key to a meaningful and useful monitoring program.

Sampling Points and Schedule

Using a map of the distribution system, mark points where representative samples should be collected, as follows:

- Turbidity samples at points where water enters the distribution system.
- Coliform, organic, inorganic, and radiological samples at the consumers' faucets from representative locations.

These may include sampling points already in use; also, one point may be used for several parameters. Use the following rules to obtain a representative sample:

- Use one or more points from which samples are currently collected.
 This will give a basis for comparison of past values.
- Sample points that will give a view of water quality at the far ends of the system.
- Obtain samples from all types of piping materials used.
- · Sample water from each storage reservoir in the system.
- Include heavy and special users, such as hospitals.

Establish a schedule so that all points are routinely sampled.

When more than one sample per month is required, as with coliform, select several points that are representative of the conditions of the distributing system; spread the sampling times over the month so that the sampling of parameters is representative of time, also. Required frequency of all sampling is listed in Addendum B.

Schedule sampling times so that analysis can be initiated as soon as possible. (See "Sample Preservation" below.) Schedule collection of those samples requiring immediate analysis near the end of the sampling route so they will not be delayed in transit.

The following precautions should help ensure a quality sampling program:

- Handle the sample so it does not deteriorate or become contaminated before it reaches the laboratory. Refer to "Standard Methods", 14th edition.
- When sampling at a faucet, flush the line. Run the cold water faucet for 2 to 3 minutes. Flame the tap to sterilize it. Run again and take sample.
- When sampling for coliform, do not touch the inside of the cap or the bottle lip. Do not overfill.
- Check with analytical laboratory on sampling for radiological samples.
- Keep accurate records of every sample collected. The record should show enough information for positive identification at a later date, including:
 - -- date sampled
 - -- time sampled
 - -- location sampled
 - -- name of sample collector
 - -- water temperature when sampled
 - -- bottle number
 - -- type of sample
 - -- type of analysis required
 - The shorter the time between collection and analysis, the more reliable the results.

At best, preservation techniques can only slow down the biological or chemical changes that always occur after the sample is removed from the source.

Sample Quantity

Total sample volume required for all chemical analyses to be performed should be determined prior to taking the sample. The sample volume should be large enough for all tests, plus some extra to provide a safety factor for laboratory errors or accidents and quality assurance testing. Recommended quantities and choice of sample containers are listed in reference (e).

Sample Preservation

The techniques for preservation of water samples for compliance with monitoring requirements of the SDWA are described in references (e) thru (h); a summary is provided in reference (e). The preservation method used must be compatible with the test procedure selected from Addendum C. In all cases, except where noted, samples should be chilled in an ice chest while in the field and in a refrigerator in the laboratory until analyzed.

III. FIELD MEASUREMENTS

Field measurement requirements for potable water quality are limited to chlorine residual and turbidity. Procedures for these tests are provided in Addenda D and E, respectively.

IV. LABORATORY ANALYSES

All parameter analyses, other than chlorine residual and turbidity, must be performed by a laboratory approved by EPA or the state in which the water system is located, if the state has such certification authority.

The choice of analytical method is limited to those accepted by EPA for use in monitoring in compliance with SDWA, as listed in Addendum C. The Navy activity and the laboratory responsible for analysis should select analytical methods from those listed in Addendum C unless otherwise authorized in accordance with references (b) and (c). Reported data should contain the maximum number of significant figures permitted by the analytical method selected.

Radiological analyses can be performed by the Radiological Affairs Support Office (RASO), Naval Nuclear Power Unit, Port Hueneme, California 93042, at no cost.

V. DOCUMENTATION

For routine sampling, results of analyses must be reported to the state monthly, within 10 days after the end of the month. Special reporting is required if maximum contaminant levels (MCLs) are exceeded (see Addenda F and G).

Records, describing analytical methods used for sampling and analysis, should be maintained by the Navy activity responsible for conducting the monitoring. Such documentation supports the quality of data and any analysis of the data that may be performed.

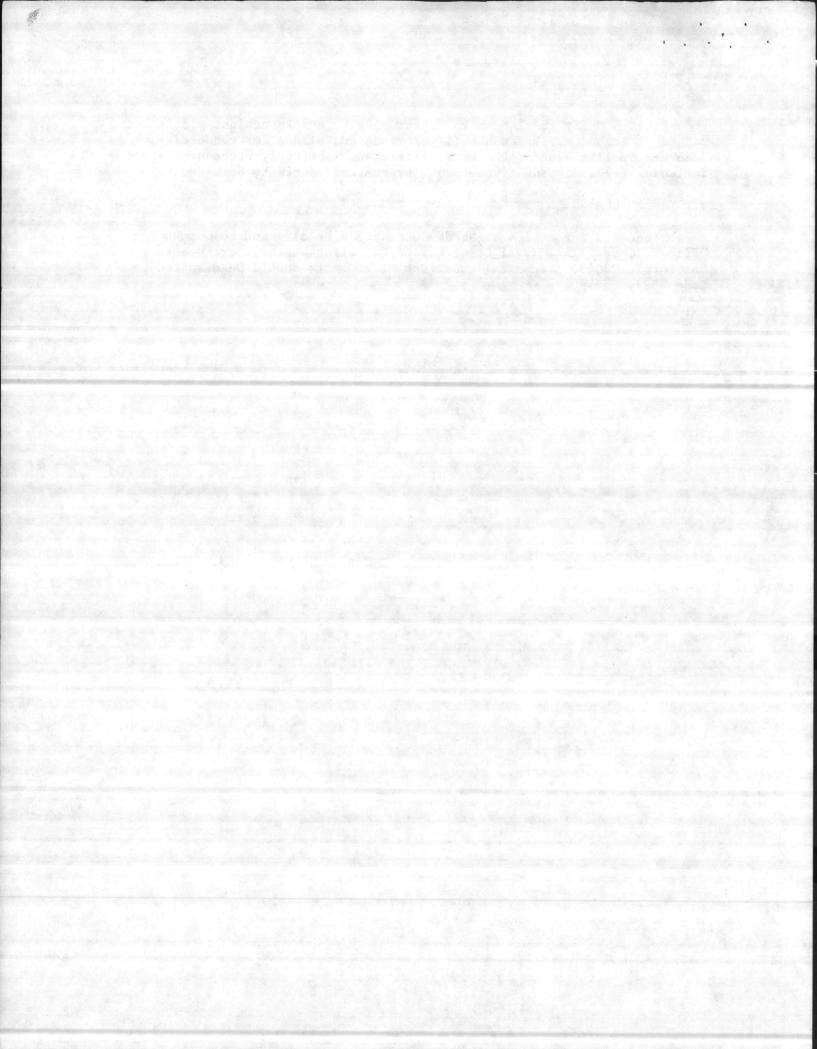
VII. QUALITY CONTROL OF DATA ACQUISITION PROCEDURES

Correct testing methods and reliable data can be maintained only through an adequate quality control program. Quality control provides documentation

to establish daily and long-term performance by checks against a standard method or solution. Reference (i) provides guidelines for conducting internal quality control checks for field and laboratory procedures, including frequency and type of quality control checks to be used.

VI. NESO CONTACT

Requests for copies of NEPSS SOPs should be directed to Commanding Officer (Code 251A), Naval Construction Battalion Center, Port Hueneme, California 93043. Technical questions or comments should be directed to Code 2522.



ADDENDUM A

Definitions

- PRIMARY REGULATIONS Regulations governing constituents that affect the health of consumers are applicable to all public water systems and are enforceable by EPA or states with primary enforcement authority.
- PUBLIC WATER SYSTEM A system for the provision to the public of piped water for human consumption. Such a system has at least 15 service connections or regularly serves an average of at least 25 individuals daily for at least 60 days out of the year. Includes (1) any collection, treatment, storage, and distribution facilities under the control of the operator of such a system and used primarily in connection with such a system; and (2) any collection or pretreatment storage facilities not under such control, which are used primarily in connection with such a system. A public water system is either a "community" or a "noncommunity water system."
- COMMUNITY WATER SYSTEM A public water system that serves at least 15 service connections, used by year-round residents, or regularly serves at least 25 year-round residents.
- NONCOMMUNITY WATER SYSTEM A public water system that is not a community water system.
- SECONDARY REGULATIONS Standards dealing with the aesthetic quality of drinking water, which are not federally enforceable and are intended as guidelines for the states.
- SECONDARY MAXIMUM CONTAMINANT LEVEL The advisable maximum level of a contaminant in water that is delivered to the free-flowing outlet of the ultimate user of a public water system. Contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality, are excluded from this definition.
- ACT Safe Drinking Water Act (Public Law 93-523).
- CONTAMINANT Any physical, chemical, biological, or radiological substance or matter in water.
- DOSE EQUIVALENT Product of the absorbed dose from ionizing radiation and such factors that account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU).

- GROSS ALPHA PARTICLE ACTIVITY The total radioactivity due to alpha particle emission, as inferred from measurements on a dry sample.
- GROSS BETA PARTICLE ACTIVITY The total radioactivity due to beta particle emission, as inferred from measurements on a dry sample.
- MANMADE BETA PARTICLE AND PHOTON EMITTERS All radionuclides emitting beta particles and/or photons listed in "Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure," (NBS Handbook 69) except the daughter products of thorium-232, uranium-235, and uranium-238.
- MAXIMUM CONTAMINANT LEVEL The maximum permissible level of a contaminant in water, which is delivered to the free-flowing outlet of the ultimate user of a public water system, except in the case of turbidity, where the maximum permissible level is measured at the point of entry to the distribution system. Contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality, are excluded from this definition.
- PICOCURIE (pCi) That quantity of radioactive material which produces 2.22 nuclear transformations per minute.
- REM The unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A millirem (mrem) is 1/100 of a rem.
- SANITARY SURVEY An on-site review of the water source, facilities, equipment, operation, and maintenance of a public water system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation, and maintenance for producing and distributing safe drinking water.
- STANDARD SAMPLE The aliquot of finished drinking water, examined for the presence of coliform bacteria.
- STATE The agency of the state government that has jurisdiction over public water systems. During any period, when a state does not have primary enforcement responsibility pursuant to Section 1413 of the Act, the term "state" means the Regional Administrator, U.S. Environmental Protection Agency.
- SUPPLIER OF WATER Any agency that owns or operates a public water system.
- UNITED STATES The 50 states, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Panama Canal Zone, and the Trust Territory of the Pacific Islands.

ADDENDUM B

Frequency of Sampling Required for SDWA

PRIMARY STANDARDS

• Inorganic Chemicals

Community

Surface Water - sample by 24 Jun 1978; repeat annually.

Groundwater only - sample by 24 Jun 1979; repeat triennially.

Noncommunity

<u>Surface or Groundwater</u> - sample by 24 Jun 1979 for nitrate only; frequency determined by state.

Organic Chemicals

Community

<u>Surface Water</u> - sample by 24 Jun 1978; repeat at least triennially; frequency determined by state. Time of sampling should be when contamination is most likely to occur.

Groundwater only - as specified by the state.

Noncommunity - not applicable.

• Turbidity

Community -

All or in part from surface water - begin sampling by 24 Jun 1977, once per day.

Noncommunity

All or in part from surface water - begin sampling by 24 Jun 1979, once per day.

Groundwater - not applicable.

PRIMARY STANDARDS (CONTINUED)

Microbiological

Community

Begin sampling by 24 Jun 1977, at regular intervals, in numbers proportionate to the population served, but in no case less than the frequency shown in Table B-1.

Noncommunity

Sample by 24 Jun 1979; repeat each calendar quarter during which the system provides water to the public; state may alter frequency based on sanitary survey.

Community and Noncommunity water systems may, with the approval of the state, and based on a sanitary survey, substitute chlorine residual monitoring for not more than 75% of the samples required for microbiological monitoring, provided:

- -- Chlorine residual samples are taken at representative sampling points
- -- at a frequency of at least 4 for each substituted microbiological sample,
- -- with at least daily determination of chlorine residual,
- -- and maintain no less than 0.2 mg/l free chlorine throughout the public water system.
- Radiological Gross Alpha Particle Activity, Radium-226 and Radium-228

Community

Surface and Groundwater - begin sampling by 24 Jun 1979; complete sampling by 24 Jun 1980; based on the analysis of an annual composite of 4 consecutive quarterly samples, or the average of analysis of 4 quarterly samples. Repeat once every 4 years.

Noncommunity - not applicable.

• Radiological - Manmade Radioactivity

Community

Surface Waters - more than 100,000 persons. or others if designated by the state - sample by 24 Jun 1979, complete by 24 Jun 1980; based on the analysis of a composite of 4 consecutive quarterly samples or analysis of 4 quarterly samples. Repeat once every 4 years.

Groundwater - monitoring at the discretion of the state.

PRIMARY STANDARDS (CONTINUED)

Radiological - Manmade Radioactivity (Continued)

Community (Continued)

Waters Contaminated by Effluents from Nuclear Facilities - sample by 24 Jun 1979, complete by June 1980:

-- Quarterly Monitoring

- Gross beta particle activity based on analysis of monthly samples or a composite of 3 monthly samples.
- Iodine-131, composite of 5 consecutive daily samples taken quarterly; more frequently if ordered by the state.

-- Annual Monitoring

- Strontium-90 and tritium, composite of 4 consecutive quarterly samples or analysis of 4 quarterly samples.

SECONDARY STANDARDS (PROPOSED)

Community

Surface Water - annually.

Groundwater only - triennially.

More frequent monitoring may be directed by the state.

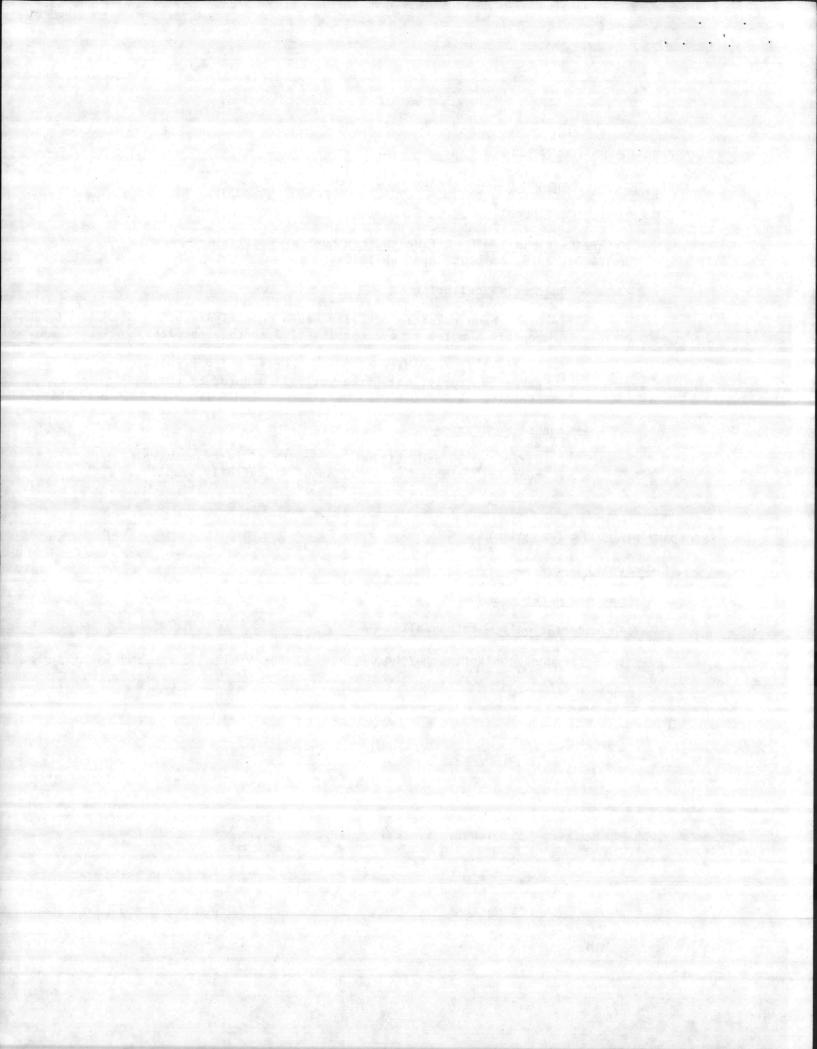
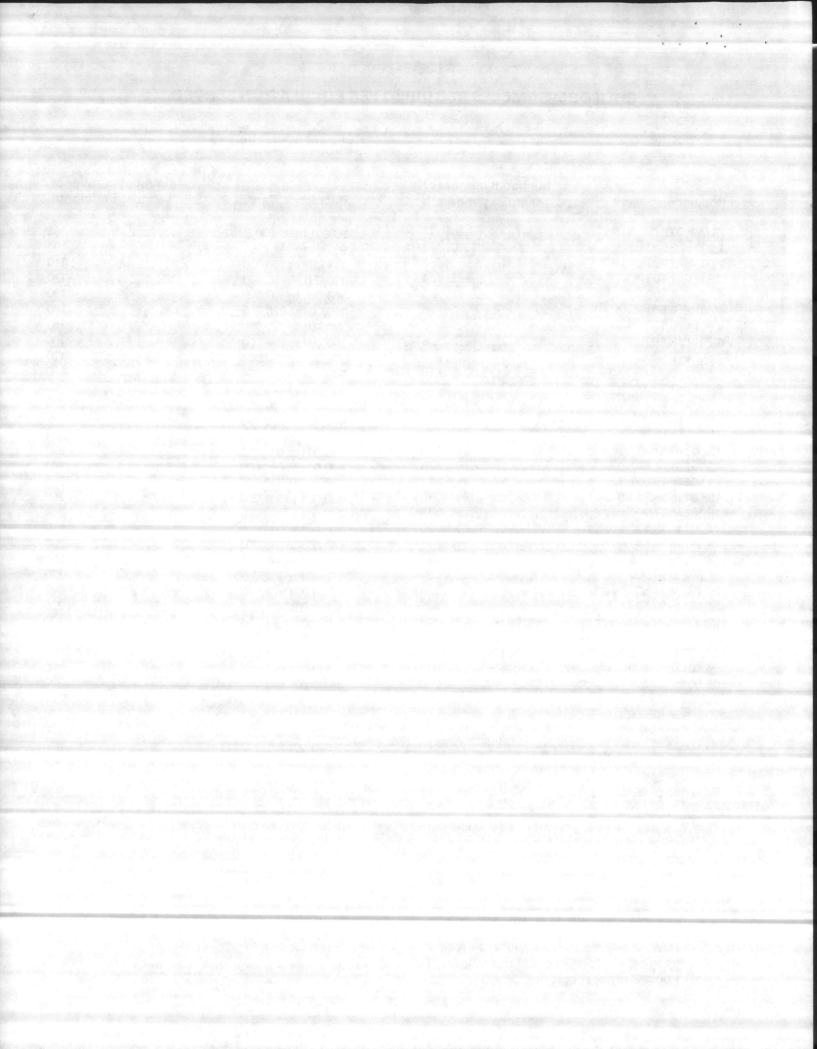


TABLE B-1

COLIFORM SAMPLES REQUIRED PER POPULATION SERVED

	Minimum number of		Minimum number of
Population Served	samples per month	Population Served	samples per month
25 to 1.000	1*	90 001 to 96 000	95
	2	96.001 to 111.000	100
"다른 등등에 하는 다음이 하는데, 하나보는 토니어의 모든 경험을 모든데 그는 그가 보면 하면 하면 하다면 하고 있다. 그는 그는	3		110
	4		
	5		130
	6		140
	7		
	8		160
아들은 그리고 있다면 하는 이 없는 것이 없는 것이었다면 없는 것이 없는 것이었다면 없는 것이 없는 것이 없는 것이었다면 없는 없었다면 없었다면 없었다면 없었다면 없었다면 없었다면 없었다면 없었다면	9		
	10	320,001 to 360,000	
	11	360 001 to 410 000	190
	12		
		450 001 to 500 000	210
12.001 to 12.900		500 001 to 550 000	
		550,001 to 600,000	
	16		240
	17		
**	18	720 001 to 780 000	
	19		
	20		
	23		
	24		310
			320
	26		330
	27	1 320 001 to 1 420 000	340
	28		350
		1 520 001 to 1 630 000	360
	30	1,520,001 to 1,000,000.	370
	35	1,730,001 to 1,750,000.	380
그 그들은 이 사람들은 현대를 가는 것이 되었다면 하는 것이 없는 것이 없는 것이 없다면 없다면 없다면 없다.	40	1,750,001 to 1,000,000	390
	45	1,930,001 to 2,060,000	400
	50	2.060.001 to 2.270.000	410
46,001 to 50,000			420
	60		430
	65	2,750,001 to 3,020,000	440
		3 020 001 to 3 320 000	
		3 320 001 to 3 620 000	
	80	3 620 001 to 3 960 000	
		3 960 001 to 4 310 000	
The state of the s		3 960 001 to 4 690 000	490
ALL SHARE SALES		4 690 000	
Administration of the Control of the	alice and the second	4,000,000.	

^{*}Based on a history of no coliform bacterial contamination and on a sanitary survey by the State showing the water system to be supplied solely by a protected ground water source and free of sanitary defects, a community water system serving 25 to 1,000 persons, with written permission from the state, may reduce this sampling frequency except that in no case shall it be reduced to less than one per quarter.



ADDENDUM C

SUMMARY OF NATIONAL PRIMARY AND SECONDARY MONITORING REGULATIONS FOR DRINKING WATER

		1974 EPA		METHODS	PART 31
PARAMETER	METHOD	METHODS, pp.	13TH ED., pp.	14TH ED., pp.	1975 ASTM,
IMARY ¹					
coliform bacteria	Membrane filter or MPN		662-688		
esidual Chlorine	DPD Ferrous titrimetric & colorimetric		129-132		
urbidity	Nephelometric	295-298	350-353		
morganics					
Arsenic	AA	95-96			
arium	AA	97-98	210-215		
Cadmium	AA	101-103	210-215		" HTTE
ead	AA	112-113	210-215		
ercury	Flameless AA	118-126			
Nitrate	Brucine colorimetric		461-464		
IIII .	Cadmium reduction	201-206			
Selenium	AA	145			
Silver	AA	146	210-215		
Pluoride	Electrode	65-67	172-174		
luoride	Colorimetric method with preliminary	59-60	171-172		
	distillation		174-176		
rganics					
Chlorinated Hydrocarbons	alian da 1994. Nebugaian da 1995 di mandali di mandali di mandali di mandali di mandali di mandali di mandali Mandali da 1995 di mandali di man	See 2, below			
(Endrin, Lindane, Methoxyo	hlor, Toxaphene)	2 balan	and Market V. T.		
Chlorophenoxys		See 3, below			
(2.4-D 2,4,5-TP Silvex)					
adioactivity4					
Gross alpha and beta	Gross alpha and gross beta radio-		598-604		Karaga II.
	activity in water				
Total radium	Radium in water by precipitation		611-616		
Radium 226	Radium 226 by radon in water		617-628		
Strontium 89, 90	Total radioactive strontium and				
Scroncram 65, 56	strontium 90 in water		604-611		
Tritium	Tritium in water		629-632		
Cesium 134	Gamma spectrometry of water				612-620
Uranium	Microquantities of uranium in				
Dianitum	waste by fluorometry				675-681
ECONDARY 5	the company of the property of 2002 to the Section of the section of the				
Chloride	Potentiometric			. 306	
Color	Platinum cobalt	. 36~38	160-162	64	
Copper	AA	108-109	210-215	144	
Foaming agents	Methylene blue	157-158	337-342	600	
Hydrogen sulfide	Titrimetric iodine	284	551-555	505	
Iron	AA	110-111	210-215	144	
Manganese	AA	116-117	210-215	144	
Manganese Odor	Consistent series	287-294	248-254	75	
MUI	Glass electrode	239-240	276-281	460-465	
				496	
pH	그 없는 그 그리고 1000 1000 1000 1000 1000 1000 1000 10	277-278	334-335	430	
pH Sulfate	Turbidimetric	277-278 270-271	288-290	91	
pH Sulfate Total dissolved solids Zinc	그 없는 그 그리고 1000 1000 1000 1000 1000 1000 1000 10	277-278 270-271 155-156			

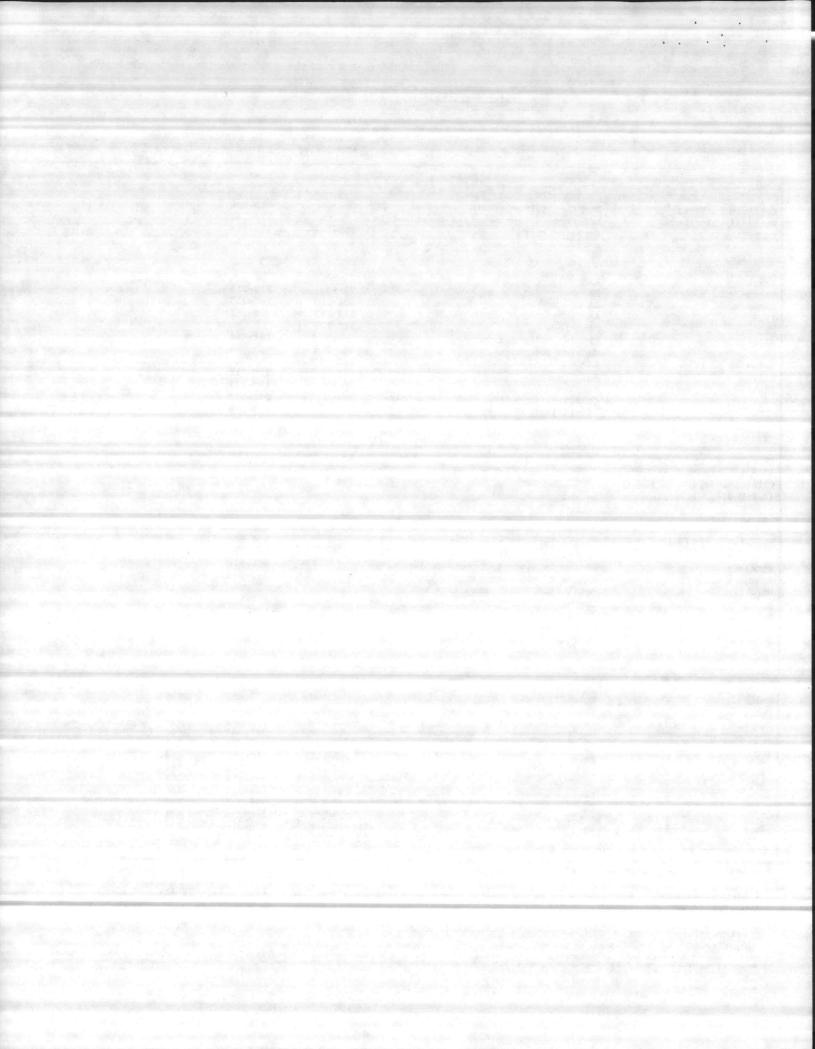
¹ Federal Register, Vol. 40, No. 248, Dec 24, 1975, pp. 59566-74.

Method of Organochlorine Pesticides in Industrial Effluents, MDQARL, Environmental Protection Agency, Cincinnati, OH, Nov 28, 1973.

Methods for Chlorinated Phenoxyl Acid Herbicides in Industrial Effluents, MDQARL, Environmental Protection Agency, Cincinnati, OH, Nov 28, 1973.

Federal Register, Vol. 41, No. 133, Jul 9, 1976, pp. 28402-5.

⁵ Federal Register, Vol. 42, No. 62, Mar 31, 1977, pp. 17144-6.



ADDENDUM D

Chlorine Residual (Free Residual DPD)

INTRODUCTION

The amount of chlorine remaining in a distribution system is important to water quality and serves as insurance against waterborne diseases that may enter the system.

The only two acceptable methods for measuring free chlorine residual in drinking water are DPD colorimetric and DPD titrametric procedures. Of these two methods, the simplest is the DPD colorimetric procedure.

Samples for chlorine residual can be collected with a glass or plastic container. These samples cannot be stored; they must be tested within 10 minutes of collection.

DPD COLORIMETRIC METHOD OF ANALYSIS

Equipment and Reagents. The DPD test kit can be obtained from various manufacturers. A partial list is shown as Table C-1.

General Instructions. All kits measure residual chlorine in the same manner - a premeasured chemical dosage is added to a measured volume of sample. The sample develops a red tint, and the color saturation is compared to one of several standards. The amount of residual chlorine present is the number associated with the matched standard color.

Because the DPD stains glass easily, the sample cells should be thoroughly rinsed after each use. DPD is unstable; discolored reagents should be discarded and new ones obtained.

Refer to the DPD kit instructions for exact procedures for using that kit.

DPD FERROUS TITRAMETRIC METHOD

Equipment and Reagents. Various laboratory glassware - reagents include a phosphate buffer solution, DPD indicator solution, and standard ferrous ammonium sulfate (FAS) titrant.

General Instructions. A measured quantity of buffer solution and DPD indicator solution are added to the 100-ml sample. The sample is then titrated rapidly with standard FAS titrant until the red color disappears. 1.00 ml FAS = 1.00 mg/l free residual chlorine.

For exact details of this procedure, refer to reference (h), pp. 329-332.

Table D-1

MANUFACTURERS OF DPD TEST KITS

Hach Chemical Co.
 P.O. Box 907
 Ames, IA 50010
 Phone: Toll Free (800) 247-3986

2. Hellige, Inc. 877 Sewart Avenue Garden City, NY 11530 Phone: (516) 741-3300

- 3. The LaMotte Chemical Products Company Chestertown, MD 21620 Phone: (301) 778-3100
- 4. Lovibond Comparator Test Kits by Tintometer Ltd. U.S. Representative:

Ake Laboratory, Inc. P.O. Box 46237 Bedford, OH 44146 Phone: (216) 232-0042

5. Chemetrics, Inc.
Mill Run Drive
Warrenton, VA 22186
Phone: (703) 347-7660

ADDENDUM E

Procedures for Conducting Turbidity Tests (Nephelometric Method)

INTRODUCTION

Turbidity is an expression of the optical properties of a water, which causes light to be scattered and absorbed rather than transmitted in a straight path. The measurement of light scattered at a 90-degree angle is performed with a nephelometer. As the turbidity increases, the amount of light scattered will increase.

This turbidity is usually caused by finely divided suspended matter such as clay, silt, plankton, and other organic and inorganic material.

Attempts to correlate turbidity to suspended solids is impractical due to the fact that turbidity is related to particle size, shape, and refractive index, as well as quantity.

EQUIPMENT

The following equipment has been approved by the EPA as usable for measuring turbidity in finished water (1977):

- a. Hach Laboratory Turbidimeter Model 1860A
- b. Hach Laboratory Turbidimeter Model 2100A
- c. Hach Low-Range Turbidimeter Model 1720
- d. HF Instrument Model DRT-1000
- e. HF Instrument Model DRT-1000 RU
- f. HF Instrument Model DRT-200
- g. HF Instrument Model DRT-150
- h. HF Instrument Model DRT-100
- i. HF Instrument Model DRT-15
- j. Turner Designs Nephelometer Model 40-002

REAGENTS

Due to the precision necessary for this instrument, it is recommended that standards be purchased rather than prepared. One standard must be on hand for each range used.

Preparation of standards is described in reference (h), pp. 132-134 and reference (f), pp. 295-299.

SAMPLE COLLECTION AND STORAGE

Samples for turbidity measurements can be taken with a glass or plastic container. The sample should be analyzed immediately; however, the sample may be kept up to 7 days if it is refrigerated at 4°C.

SAMPLE TUBES

Sample tubes must be kept very clean, both inside and out, and must be discarded when they become scratched or etched. Never handle them where the light strikes them. Use tubes with a protective case so they may be handled properly.

PROCEDURE

Turbidimeter Calibration. The manufacturer's operating instructions should be followed. Measure standards on the turbidimeter, covering the range of interest. If the instrument is already calibrated in standard turbidity units, this procedure will check the accuracy of the calibration scales. At least one standard should be run in each instrument range to be used. Some instruments permit adjustments of sensitivity so that scale values will correspond to turbidities. Reliance on a manufacturer's solid scattering standard for setting overall instrument sensitivity for all ranges is not an acceptable practice unless the turbidimeter has been shown to be free of drift on all ranges. If a precalibrated scale is not supplied, then calibration curves should be prepared for each range of the instrument.

<u>Turbidities Less than 40 Units</u>. Shake the sample to thoroughly disperse the solids. Wait until the air bubbles disappear, then pour the sample into the turbidimeter tube. Wipe the tube before inserting into instrument. Read the turbidity directly from the instrument scale or from the appropriate calibration curve as NTU (National Turbidity Units).

Turbidities More than 40 Units. Dilute the sample with one or more volumes of turbidity-free water until the turbidity falls below 40 units. The turbidity of the original sample is then computed from the turbidity of the diluted sample and the dilution factor. For example, if 5 volumes of

turbidity-free water were added to 1 volume of sample, and the diluted sample showed a turbidity of 30 units, then the turbidity of the original sample was 180 units (5 x 30 = 180).

Reporting. Report results as follows onto Table E-1:

NTU	Reco	rd to Nearest:
0.0 - 1.0		0.05
1 - 10		0.1
10 - 40		1
40 - 100		5
100 - 400		10
400 - 1000		50
>1000		100

^{*}NTU - National Turbidity Units are considered comparable but not equivalent to Formazin Turbidity Units (FTU) and Jackson Turbidity Units (JTU) which have been used in the past.

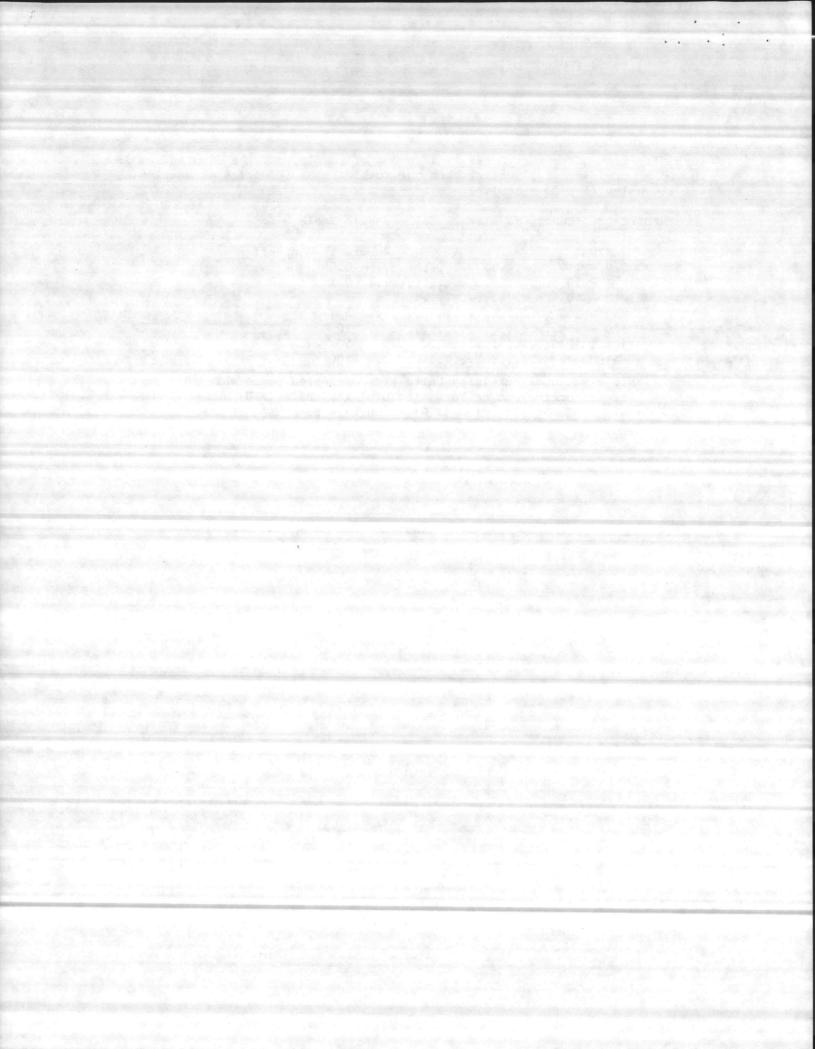


TABLE E-1 FINISHED WATER TURBIDITY

WATER	
SYSTEM	
ID No.	
MONTH	

	_		_
Name	of	Water	Supply

Location

					In Two-Day	2-Day Average of Turbidity			
Date Analyst Time Value (TUs)	ine dempire		Value (TUs)	Monthly	and Days	Average Value (TUs)			
	1		Average (1)		Sumi	Aver.			
1							1+2		
2							2+3		
3				1			3+4		
4							4+5		
5							5+6	,	
6							6+7	Lie Town	
7							7+8		
8	I WAR			10000			8+9	East Free	
9				No.			9+10	100	
10				-			10+11		
11		-	-	-			11+12		
12		-	-	-			12+13	7	
13				-		+	13+14		
14					+		14+15		
15	1			-	-		15+16		
16				-			16+17		
17							17+18	1	
18			- 9				18+19		
. 19				1			19+20	and a second	
20				2 8			20+21		
21			-	-	100 TH TANK		21+22		
22						7.4.7	22+23		
23							23+24	100	
24	-				E-H MARKE YOR		24+25		
25				-			25+20	100	
26							26+2		
27							27+2		
28							28+2		
29	3						29+3		
30							30+3		gional San
31					1 100		3043		

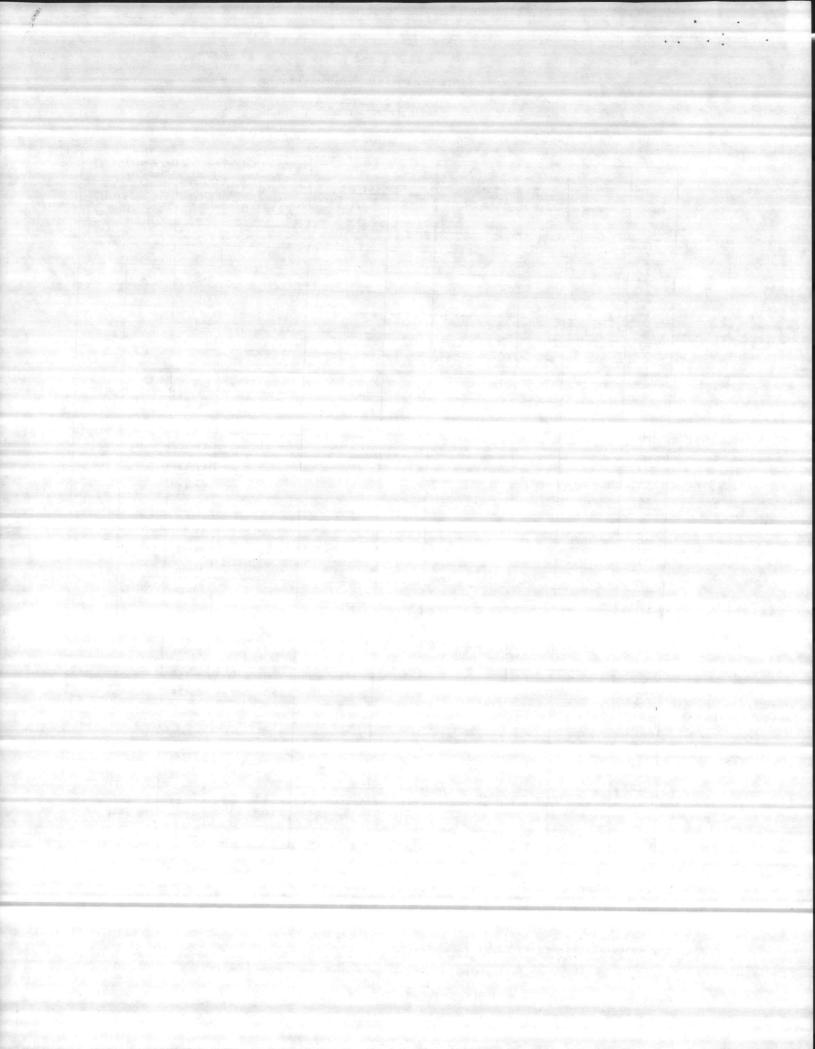
		TOTAL =	
Type of Instrument used	AVERAGE	No. Days in Month	
	ane hour.		

(a) If Value exceeds 1 TU, take check sample within one hour.

(b) To calculate: The two day average = DAY 1 TU + DAY 2 TU

If any of the two day averages are quester than \$TU, report to the state within 48 hours and notely the public

(c) If monthly average is more than 1 TU, report to state and to public.



CATEGORY	CONTAMINANT	(mg/l) ²	APPLI COMMUNITY WATER SYSTEM	ES TO: NON-COMMUNITY WATER SYSTEM	COMMENTS
			MILLIN DIDILA	THE STATE OF THE S	
RIMARY STANDARDS					
Inorganic	Arsenic	0.05	x		
Chemicals	Barium	1.	X		AND THE THE PARTY OF THE PARTY
	Cadmium	0.010	X		
	Chromium	0.05	X		
	Lead	0.05	X		
	Mercury	0.002	X		그 마이 경우 보는 가장에 가져왔다. 이 사람들이
	Nitrate (as N)	10.	X	X	
	Selenium	0.01	X		
	Silver ³ Fluoride (^O C)	0.05	X		
	12.0 and below	2.4	X		
	12.1 to 14.6	2.2			
	14.7 to 17.6	2.0			
	17.7 to 21.4	1.8			
	21.5 to 26.2	1.6 -			
	26.3 to 32.5	1.4			
Organic	(a) Chlorinated hydrocarbons:				
Chemicals	Endrin ⁴	0.0002	X		
	Lindane ⁵	0.004	X		
	Methoxychlor ⁶	0.1	X		
	Toxaphene ⁷	0.005	X		The control of the co
	(b) Chlorophenoxys:				
	2,4-D ⁸	0.1	X		
The state of the s	2,4,5-TP Silvex9	0.01	X		
Turbidity	Turbidity	1 T.U.10	х .	Χ.	Monthly average.
141224101		5 T.U.	X	X	Average of 2 consecutive days.
Microbiologica	Coliform	Varies	X	X	See written description following
Analytical Me	thod	4.	Level ¹¹		
			Number of col	iform bacteria	shall not exceed:
Membrane Ill	er with 100 ml standard sample				
			1 month an		c mean of all samples examined
					l comple when less than 20
					1 sample when less than 20 are
			examined/m		5% of complex when 20 as now
			c. 4 per 100 samples ar	ml in more than e examined/mont	
Fermentation	tubes with 10 ml standard		c. 4 per 100 samples ar	ml in more than e examined/mont teria shall not	h. be present in any of the following
	tubes with 10 ml standard ube MPN		c. 4 per 100 samples ar	ml in more than e examined/mont teria shall not	be present in any of the following
Fermentation portions; 5-t			c. 4 per 100 samples ar Coliform bact a. More than	mf in more than re examined/mont teria shall not n 10% of portion	
			c. 4 per 100 samples ar Coliform bact a. More than b. 3 or more	mf in more than re examined/mont teria shall not n 10% of portion	th. be present <u>in any</u> of the following the month and either ore than 1 sample when less than
			c. 4 per 100 samples ar Coliform bact a. More than b. 3 or more 20 sample c. 3 or more	ml in more than e examined/mont teria shall not in 10% of portion e portions in mo es are examined/	be present <u>in any</u> of the following ns/month and either ore than 1 sample when less than /month or ore than 5% of samples when 20 or
portions; 5-t	rube MPN		c. 4 per 100 samples ar Coliform bact a. More than b. 3 or more 20 sample c. 3 or more more samp	ml in more than e examined/mont teria shall not a 10% of portion e portions in mo es are examined, e portions in mo ples are examine	be present in any of the following as/month and either ore than 1 sample when less than /month or ore than 5% of samples when 20 or ed/month.
portions; 5-t	tube MPN		c. 4 per 100 samples ar Coliform bact a. More than b. 3 or more 20 sample c. 3 or more more samp Coliform bact	ml in more than e examined/mont teria shall not a low of portion e portions in mo es are examined, e portions in mo ples are examine coles are examine teria shall not	be present in any of the following as/month and either ore than 1 sample when less than /month or ore than 5% of samples when 20 or ed/month. be present in any of the following
portions; 5-t	tube MPN		c. 4 per 100 samples ar Coliform bact a. More than b. 3 or more 20 sample c. 3 or more more samp Coliform bact a. More than	ml in more than e examined/mont teria shall not 10% of portion e portions in me es are examined, e portions in me ples are examine teria shall not 160% of the por	be present in any of the following ins/month and either ore than 1 sample when less than /month or ore than 5% of samples when 20 or ed/month. be present in any of the following rtions/month.
portions; 5-t	tube MPN		c. 4 per 100 samples ar Coliform bact a. More than b. 3 or more 20 sample c. 3 or more more samp Coliform bact a. More than b. 5 portion are exami	ml in more than e examined/mont teria shall not in 10% of portion e portions in mo es are examined, e portions in mo ples are examined, teria shall not in 60% of the pon in more than ined/month or	be present in any of the following as/month and either ore than 1 sample when less than /month or ore than 5% of samples when 20 or ed/month. be present in any of the following rtions/month. one sample when less than 5 sample
portions; 5-t	tube MPN		c. 4 per 100 samples ar Coliform bact a. More than b. 3 or more 20 sample c. 3 or more more samp Coliform bact a. More than b. 5 portion are exami c. 5 portion	ml in more than e examined/mont teria shall not in 10% of portion e portions in mo es are examined, e portions in mo ples are examined, teria shall not in 60% of the pon in more than ined/month or	be present in any of the following as/month and either ore than 1 sample when less than /month or ore than 5% of samples when 20 or ed/month. be present in any of the following rtions/month. one sample when less than 5 sample 20% of the samples when 5 or more
portions; 5-t Fermentation portions; 5-t	tube MPN tube with 100 ml standard ube MPN		c. 4 per 100 samples ar Coliform bact a. More than b. 3 or more 20 sample c. 3 or more more samp Coliform bact a. More than b. 5 portion are exami c. 5 portion	ml in more than e examined/mont teria shall not in 10% of portion e portions in mo es are examined, e portions in mo ples are examined teria shall not in 60% of the pour ins in more than ined/month or ins in more than	be present in any of the following as/month and either ore than 1 sample when less than /month or ore than 5% of samples when 20 or ed/month. be present in any of the following rtions/month. one sample when less than 5 sample 20% of the samples when 5 or more
portions; 5-t	tube WPN tube with 100 ml standard ube MPN beta particle and photon radioactivity	4 millirem/	c. 4 per 100 samples ar Coliform bact a. More than b. 3 or more 20 sample c. 3 or more more samp Coliform bact a. More than b. 5 portion are exami c. 5 portion samples a	ml in more than e examined/mont teria shall not in 10% of portion e portions in mo es are examined, e portions in mo ples are examined teria shall not in 60% of the pour ins in more than ined/month or ins in more than	be present in any of the following as/month and either ore than 1 sample when less than /month or ore than 5% of samples when 20 or ed/month. be present in any of the following rtions/month. one sample when less than 5 sample 20% of the samples when 5 or more
portions; 5-t Fermentation portions; 5-t	tube MPN tube with 100 ml standard tube MPN beta particle and photon radioactivity Combined radium 226 and		c. 4 per 100 samples ar Coliform bact a. More than b. 3 or more 20 sample c. 3 or more more samp Coliform bact a. More than b. 5 portion are exami c. 5 portion samples a	ml in more than e examined/mont teria shall not in 10% of portion e portions in mo es are examined, e portions in mo ples are examined teria shall not in 60% of the pour ins in more than ined/month or ins in more than	be present in any of the following as/month and either ore than 1 sample when less than /month or ore than 5% of samples when 20 or ed/month. be present in any of the following tions/month. one sample when less than 5 sample 20% of the samples when 5 or more ath.
portions; 5-t Fermentation portions; 5-t	tube WPN tube with 100 ml standard ube MPN beta particle and photon radioactivity	4 millirem/y 5 pCi/l 15 pCi/l	c. 4 per 100 samples ar Coliform bact a. More than b. 3 or more 20 sample c. 3 or more more samp Coliform bact a. More than b. 5 portion are exami c. 5 portion samples a	ml in more than e examined/mont teria shall not in 10% of portion e portions in mo es are examined, e portions in mo ples are examined teria shall not in 60% of the pour ins in more than ined/month or ins in more than	be present in any of the following as/month and either ore than 1 sample when less than /month or ore than 5% of samples when 20 or ed/month. be present in any of the following tions/month. one sample when less than 5 sample 20% of the samples when 5 or more ath.

CATEGORY	CONTAMINANT	LEVEL	APPL	IES TO:	COMMENTS
		COMMUNITY WATER SYSTEM	NON-COMMUNITY WATER SYSTEM		
SECONDARY STANDARDS	(Proposed)				
	Chloride	250 mg/l	x	x	
	Color	15 Color Units	3 X	X	
	Copper	1 mg/l	X	X	
	Corrosivity	Non-corrosive	X	X	
	Foaming Agents	0.5 mg/l	X	X	
	Hydrogen Sulfide	0.05 mg/l	X	X	
	Iron	0.3 mg/l	X	х.	
	Manganese	0.05 mg/l	X	X	
	Odor	3 Threshold Odor Number	Х	X	
	pH	6.5-8.5	Х	X	
	Sulfate	250 mg/l	X	X	
	TDS	500 mg/l	x	X	
	Zinc	5 mg/l	X	X	

¹ References (b) and (c).

² Except where otherwise noted.

³ Temperature dependent.

^{4 1,2,3,4,10, 10-}Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo, endo-5,8-dimethano naphthalene.

^{5 1,2,3,4,5,6-}hexachlorocyclohexane, gamma isomer.

^{6 1,1,1-}Trichloro-2, 2-bis (p-methoxyphenyl)ethane.

⁷ C10H10Cl8-Technical chlorinated camphene, 67-69 percent chlorine.

^{8 2,4-}Dichlorophenoxyacetic acid

^{9 2,4,5-}Trichlorophenoxypropionic acid.

 $^{^{10}{}m TU}$ = turbidity units, 5 TU allowed if the higher turbidity does not; (1) Interfere with disinfection;

⁽²⁾ Prevent maintenance of an effective disinfectant agent throughout the distribution system; or

⁽³⁾ Interfere with microbiological determinations.

¹¹ When less than 4 samples/month are taken compliance with the above is based on sampling during a 3-month period unless the state determines compliance may be based on 1-month period.

ADDENDUM G

Reporting and Recordkeeping Procedures

REPORTING

For routine sampling, results of analyses must be reported to the state monthly, within 10 days after the end of the month.

If the results of the routine sampling exceed the maximum contaminant level (MCL) as listed in Addendum F, additional check samples and reporting are required, as shown in Figures G-1 thru G-8.

Community System

Public notification by mail, newspaper, or broadcast occurs only in the event of a violation of the MCLs, that is, when the original sample and additional check samples exceed the MCL.

Newspaper Notice.involves a 3-consecutive-day publication of notice of violation, completed within 14 days of learning of the violation. If no daily paper exists, a weekly paper must be advised and notice of violation published in 3 consecutive issues. If there are no dailies or weeklies, notice must be displayed in post offices serving the area.

Broadcast notice involves supplying a copy of the notice to radio and television stations serving the area, within 7 days after learning of the violation.

Mail notification must be made for any of the following violations:

- violation of an MCL.
- failure to comply with approved analytical testing procedure.
- variance or exemption has been granted to the system.
- failure to perform any required monitoring.
- compliance schedule is not followed.

The consumer must be notified in the next regular water bill or by special mailing within 3 months. This notification must be repeated at least once every 3 months as long as the system failure, variance, or exemption exists.

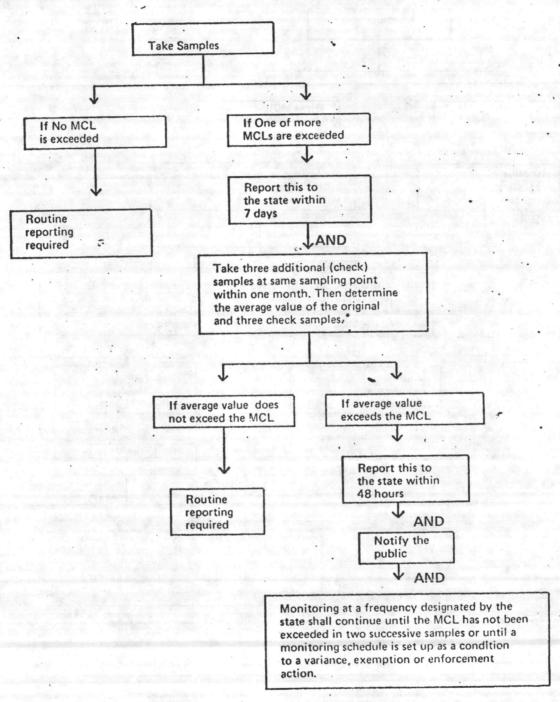
Noncommunity System

Notification must be given in a way that adequately informs the public using the water. The method of notification will be decided by the state.

RECORDKEEPING

Records	Minimum Time Length (yrs)
Bacteriological	5
Chemical analysis	10
Action to correct violations	3, after last corrective action
Written reports, summaries, or communications on sanitary surveys on the system	10
Variance or exemption granted	5, after expiration

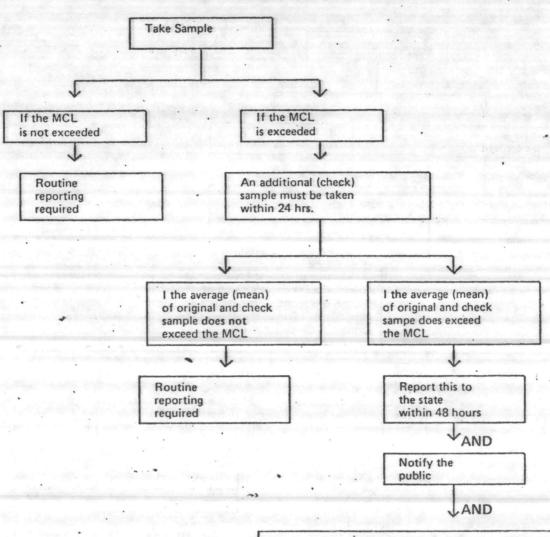
TABLE G-1
REPORTING PROCEDURES Inorganic Chemicals (Except Nitrates)
and Organic Chemicals



* Average ... TOTAL of Orig. Sample + 3 Check Samples value

TABLE G-2

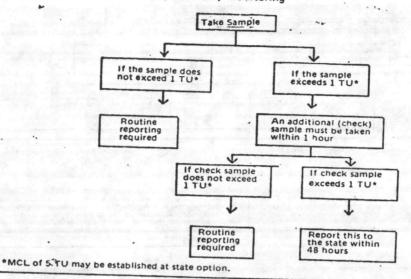
REPORTING PROCEDURES — Nitrates



Monitoring at a frequency designated by the state shall continue until the MCL has not been exceeded in two successive samples or until a monitoring schedule is set up as a condition to a variance, exemption or enforcement action.

TABLE G-3

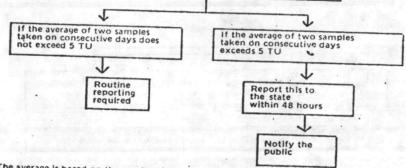
REPORTING PROCEDURES **Daily Turbidity Monitoring**



REPORTING PROCEDURES

When Calculating Two-Day Turbidity Averages

Using values from original samples on days MCL was not exceeded, and check sample values for days the MCL was exceeded, calculate the two-day average*

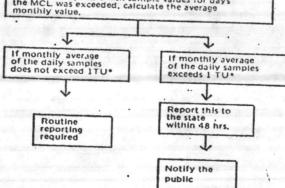


*The average is based on the results of samples taken on consecutive days (Refer to Table R, page_____.)

REPORTING PROCEDURES -

When Calculating Monthly Average Turbidity Values

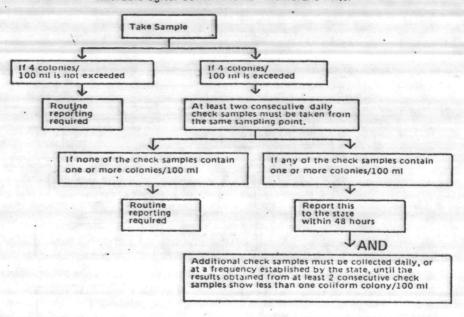
Using values from original samples on days MCL was not exceeded, and check sample values for days the MCL was exceeded, calculate the average monthly value.



*MCL of 5 TU may be established at state option.

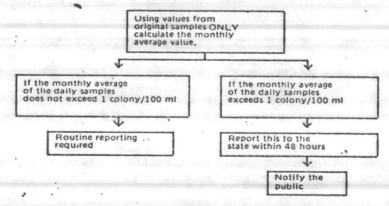
TABLE G-4

REPORTING PROCEDURES — Microbiological Contaminants - Membrane Filter

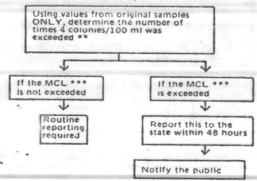


REPORTING PROCEDURES — When Calculating Monthly Membrane Filter Results

I. CALCULATE THE MONTHLY AVERAGE VALUE



II. DETERMINE THE NUMBER OF TIMES 4 COLONIES/100 ml WAS EXCEEDED



- *Check sample values are not to be used, when calculating the monthly average. (Refer to Table 6, page .)
- * For systems taking fewer than 20 samples per month, merely count the number of samples exceeding 4 colonles/100 ml.

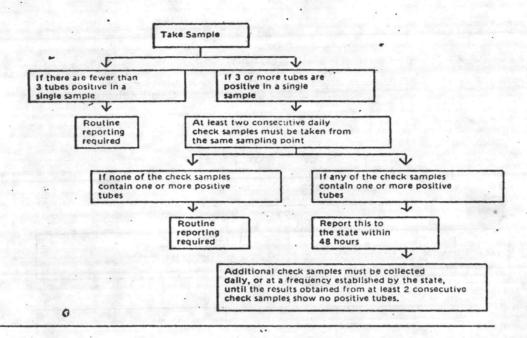
For systems taking 20 or more samples per month, calculate the percentage of samples exceeding 4 colonies/100 ml. (Refer to Table 6, page

:

***The MCL is colliform presence shall not exceed 4 colonies/
100 mi in more than one sample if less than 20 samples are
collected per month OR 4 colonies/100 mi in more than 5% of
the samples if 20 or more samples are examined per month.

TABLE G-5 REPORTING PROCEDURES -

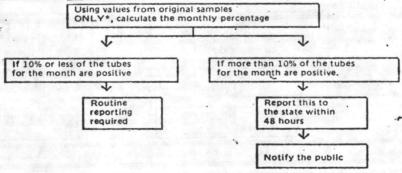
Microbiological Contaminants - Multiple-Tube Fermentation Method (10 ml)



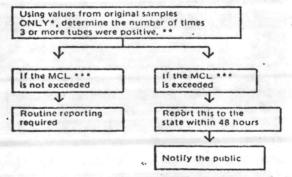
REPORTING PROCEDURES -

When Calculating monthly Multiple-Tube Fermentation (10 ml) Results

I. CALCULATE THE MONTHLY PERCENTAGE



II. DETERMINE THE NUMBER OF TIMES 3 OR MORE TUBES WERE POSITIVE



- Check sample values are not to be used where calculating the monthly percentages. (Refer to Table 7, page .)
- For systems taking fewer than 20 samples per month, merely count the number of samples which contained 3 or more positive portions.

For systems taking 20 or more samples per month, calculate the percentage of samples containing 3 or more positive portions.

*** The MCL is — not more than 1 sample may have 3 or more portions positive when less than 20 samples are examined per month or not more than 5% of the samples may have 3 or more portions positive when 20 or more samples are examined per month.

TABLE G-6

REPORTING PROCEDURES
Microbiological Contaminants - Chlorine Residual

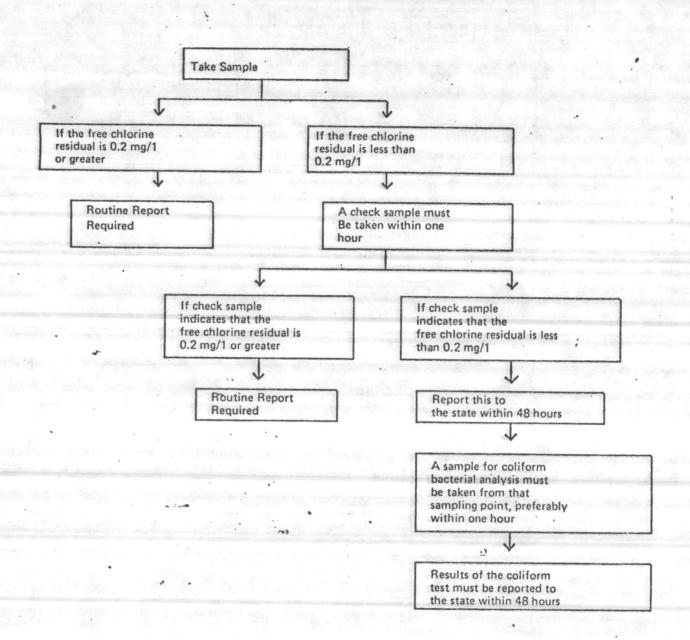
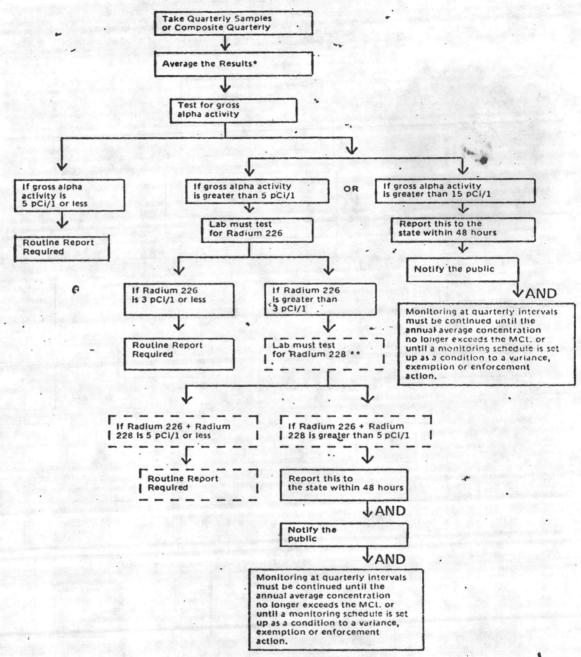


TABLE G-7

REPORTING PROCEDURES -Radiological Contaminants - Natural



* Average = Sum of four values

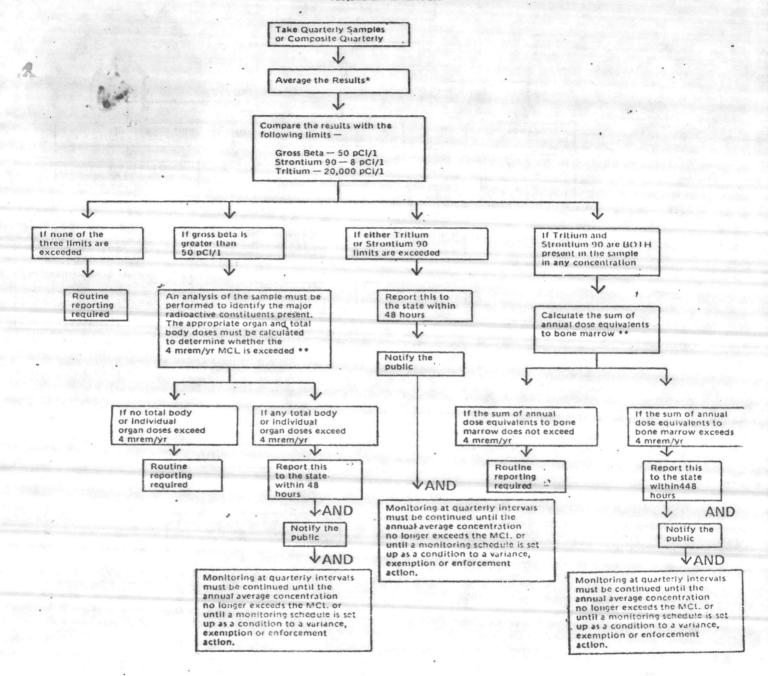
No averaging is required if the quarterly samples were composited. In that case, use the results of the single sample.

** This step is required only for the initial monitoring period and not for routine monitoring, except as required by the state.

TABLE G-8

REPORTING PROCEDURES -Radiological Contaminants - Man-made

THESE PROCEDURES ONLY APPLY TO SURFACE WATER SYSTEMS SERVING POPULATIONS OF 100,000 OR GREATER



Average = Sum of four values

No averaging is required is the quarterly samples were composited. In that case, use the results of the single sample.

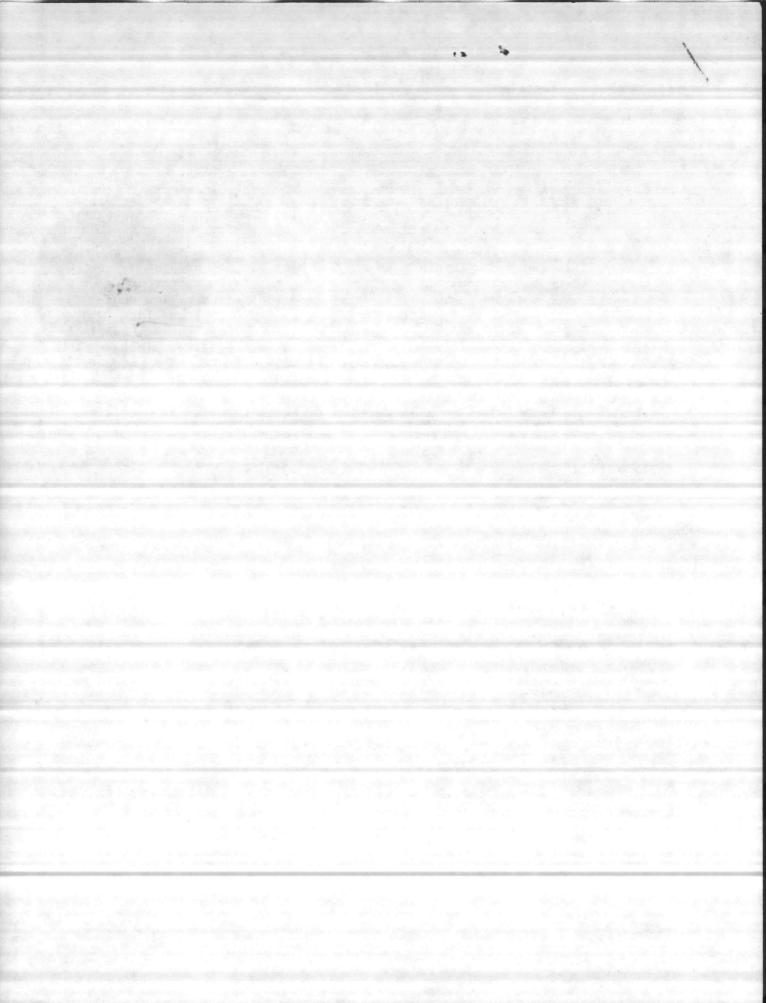
** It is likely that the Laboratory will not make these calculations. You will probably have to get help from state water supply personnel in making these calculations.

SDWA IMPLEMENTATION

The two enclosures are attached to provide additional information on the SDWA and provide some guidance for compliance, particularly with the public notification requirements. As you are probably aware, Marine Corps Bulletin 6240 and Section 1447 of the SDWA require federal activities to comply with all administrative and substantive or procedural requirements of the state which has assumed primacy for enforcement.

As you also know, the state of North Carolina has not assumed primary enforcement responsibility. The State has, however, through a memorandum of understanding with EPA agreed to receive and review monitoring data and submit deficiencies to EPA. The State has thus far agreed to perform all organic, inorganic and radiological testing. Part of the biological testing will also be performed by the State. The State's role in enforcement of the act is not well defined. The purpose of these meetings, April 27 and 28, is to formulate an implementation plan and define specifically the relationship between Marine Corps facilities in North Carolina and the state of North Carolina in complying with the Safe Drinking Water Act.

Enclosures (1) and (2) are provided only for guidance in formulation of a compliance plan. Specific requirements (i.e., reporting times, sample handling, data submission, etc.) must be coordinated with State.



This pamphlet has been written for the manager and operator of a public waterworks. It provides information concerning the requirement for PUBLIC NOTIFICATION contained in the Safe Drinking Water Act and the Safe Drinking Water Regulations published by EPA and in the Rules Governing Public Water Supply and Waterworks Regulations. Although it is primarily concerned with community systems, as defined by the Safe Drinking Water Act, it also contains the PUBLIC NOTIFICATION requirements for non-community water systems.

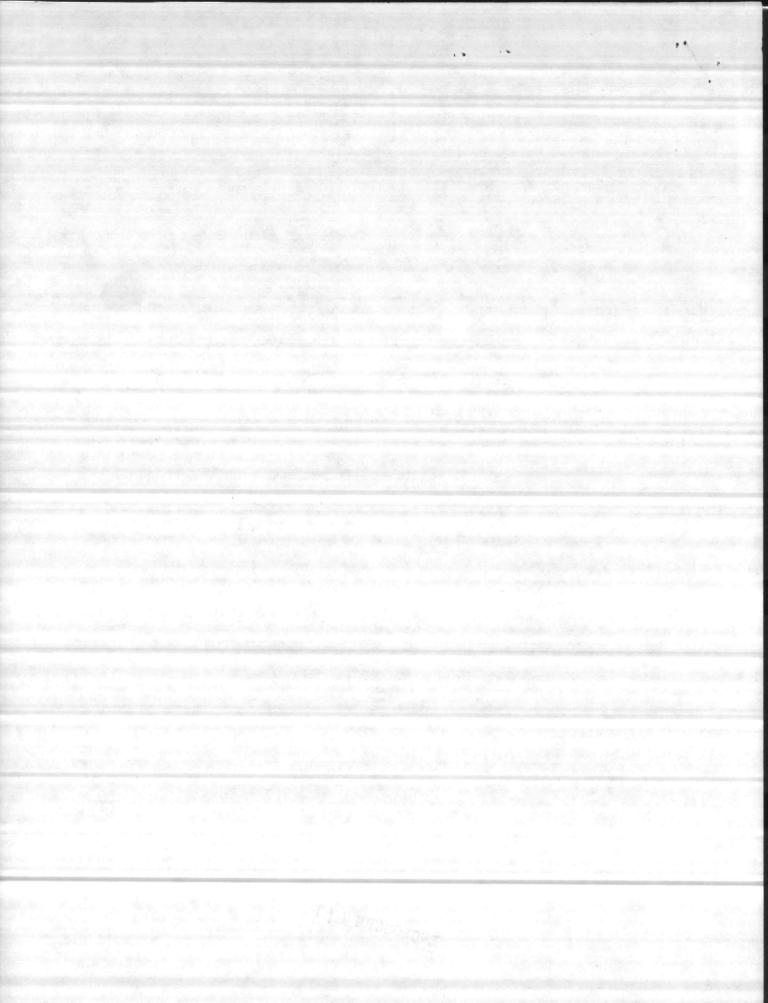
The Safe Drinking Water Act (SDWA) allows the State to apply for and receive primary enforcement authority "primacy." The administration of the Safe Drinking Water Act is contingent on a memorandum of understanding between the state of North Carolina and EPA.

PUBLIC NOTIFICATION REQUIREMENTS

Type of Violation	Required Notification			
	Mail	Newspaper	Broadcast	
Violation of a PMCL	X	X	X	
Failure to comply with the approved analytical				
testing procedure	X			
Variance or exemption has been granted to the				
system	X			
Failure to perform any required monitoring	X			
Compliance schedule is not followed	X			

This pamphlet is addressed to you as the manager or operator of a public waterworks. It is intended to help you understand why the Congress passed the Safe Drinking Water Act of 1974 (P.L. 93-523) and in particular why they included the provision that you are required, as of June 24, 1977, to give PUBLIC NOTIFICATION in certain specific situations.





PUBLIC NOTIFICATION

This pamphlet is more specifically about PUBLIC NOTIFICATION required by the Safe Drinking Water Act (SDWA) and it will take you about 30 minutes to read. It will tell you:

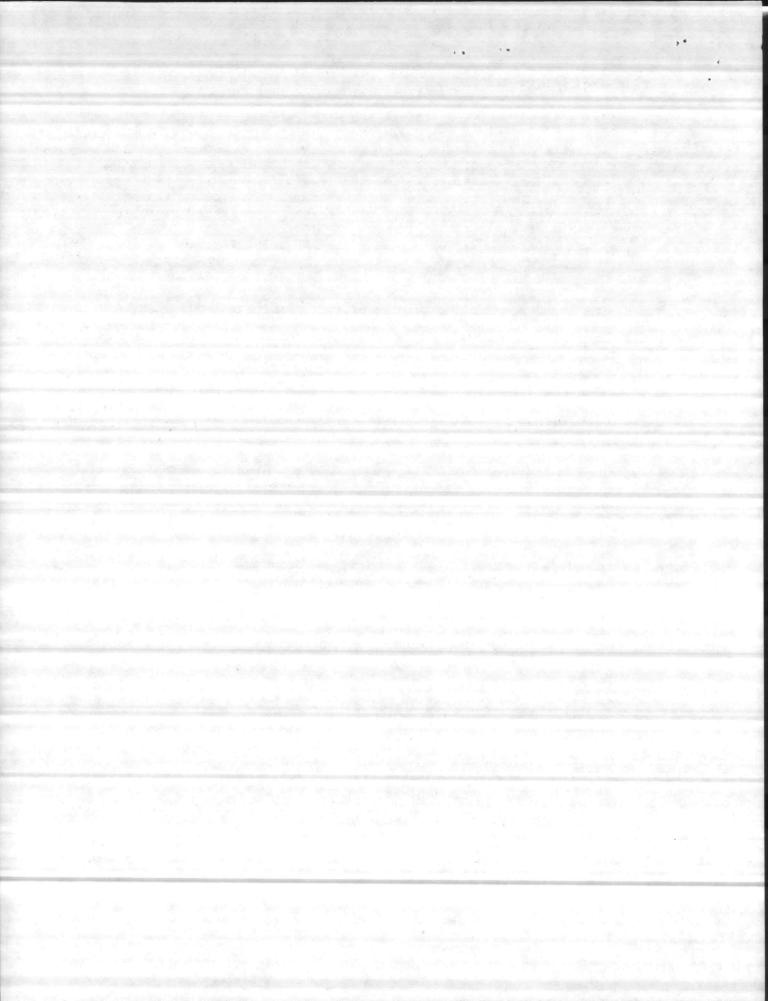
- o Why the Congress provided for PUBLIC NOTIFICATION.
- o How to develop a strategy of working with the press, radio and TV.
- o When you are required to give PUBLIC NOTIFICATION.
- o How the State will help you provide PUBLIC NOTIFICATION.
- o Some case studies and samples of releases to the media, and consumers.
- o Some suggested do's and don'ts.

WHY PUBLIC NOTIFICATION?

The Congress has determined that the public health must be protected through safe drinking water. They have also determined that the ultimate source of the revenue to provide safe drinking water should be the consumer. The Congress has provided for PUBLIC NOTIFICATION to encourage the consumer to support the expenditures it will take for you to provide safe water. The House Report (Safe Drinking Water Act, July 10, 1974) states:

"The purpose of this notice requirement is to educate the public as to the extent to which public water systems serving them are performing inadequately in the light of the objectives and requirements of this bill. Such public education is deemed essential by the Committee in order to develop public awareness of the problems facing public water systems, to encourage a willingness to support greater expenditure at all levels of government to assist in solving these problems, and to advise the public of potential or actual health hazards."

So, Congress wants you to use PUBLIC NOTIFICATION to educate your customers, and the public about your water system's problems, so they will support you. You may need higher rates. You may need public approval for bond issues, you may need help from local or State lawmakers. It is in your enlightened best interest to educate the public.



WHAT SHOULD I DO NOW?

You can do most of the planning you will need for PUBLIC NOTIFICATION right now. You know where your customers are. You can decide today what radio, television stations, and newspapers you will want to contact as they serve your customers. If you have a special situation, you know that now. For example, if you do not mail water bills to the customers, you can plan now what your alternative will be. When you get your plan together, you can check with the State and then be confident that you will be in compliance if and when you are required to give PUBLIC NOTIFICATION.

There are two basic groups that you must deal with in PUBLIC NOTIFI-CATION -- your customers and the media.

We can't stress enough how important it is to begin to communicate with your customers on a regular basis if you haven't already. You can begin now to plan how you are going to educate them about the Safe Drinking Water Act and about the problems they have to face to ensure the quality of their drinking water. If their first introduction to the Law and regulations is a notice of violation of a primary maximum contaminant level (PMCL) you may be asking for trouble. This doesn't mean that you have to do it all at once. For example, in the water bills a series of fact sheets could be included so that over a period of time the main facts of the Safe Drinking Water Act are covered.

At this time, with the new regulations coming into force, you may well be able to get the local media to do a news story. If you help them, the facts you want to get to your customers, will be included.

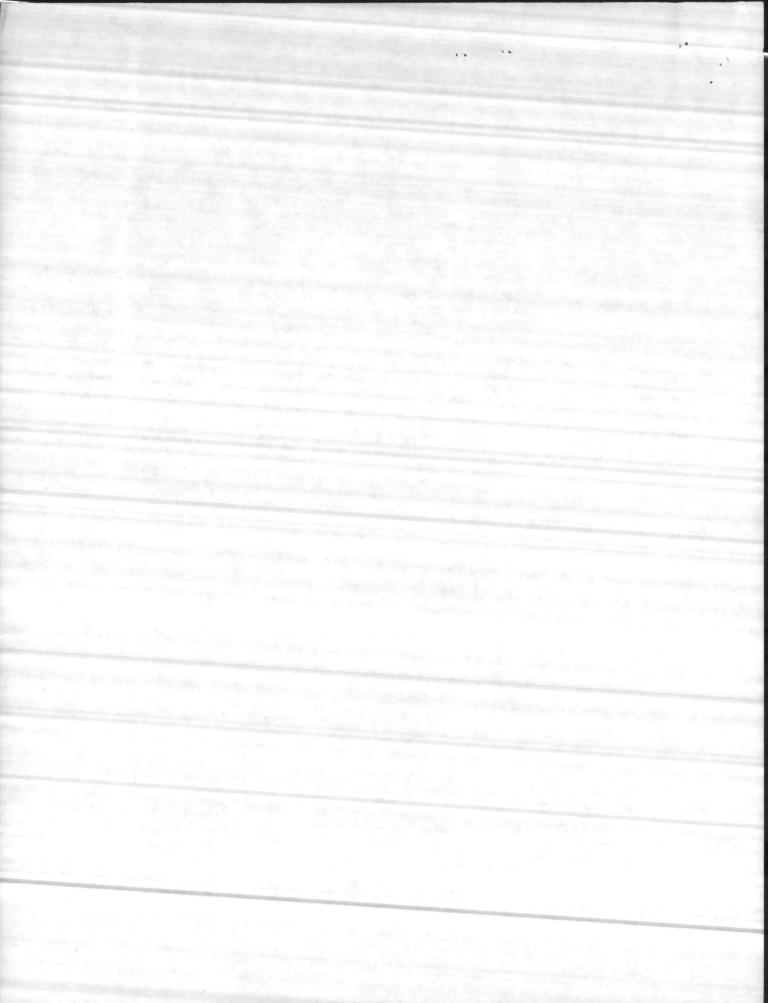
WHAT IS REQUIRED?

You are not required to report every problem you are having with your plant or staff. You are required to give PUBLIC NOTICE when:

- o there is a violation of an applicable primary maximum contaminant level.
- o a PMCL variance or exemption has been granted to the system.
- o there is a failure to perform any required monitoring.
- o any compliance schedule is not followed.

PRIMARY MAXIMUM CONTAMINANTS LEVELS

Let's look at these situations one at a time. First, let's look at primary maximum contaminant levels (PMCLs). These limits have been set by EPA and the State with many factors in mind. Many PMCLs are based upon the consumption of two liters of water a day over a lifetime. In some cases, a safety factor has been included, taking into account the possible exposure to the contaminant from other sources, such as air and food.



The violation of a PMCL normally will not result in an immediate health hazard. Most PMCLs are based on long term exposures to low levels of a particular contaminant. If you have informed your customers about the basis of the PMCLs, and the ways they have developed, in most cases there will be no reason for the consumer to become alarmed by being properly notified about a violation. They may become concerned about the longer range needs of their water system and this could work to your benefit.

MICROBIOLOGICAL CONTAMINANTS

If you violate the PMCL for Microbiological Contaminants, you will probably have solved the problem long before the PUBLIC NOTICE reached your customers. In fact, in the PUBLIC NOTICE you can inform them of the steps you have taken and the fact that the condition has been remedied, if appropriate. They may worry if they don't have the facts. If the problem is your plant, the distribution system, or the raw water source, it is far better for them to learn these facts before the time that PUBLIC NOTIFICATION may be required. They also need to realize what it is going to cost, if anything, to meet the requirements of the Public Drinking Water Regulations.

TESTING PROCEDURES

Assistance from the state of North Carolina should lessen the economic and technical impact of the SDWA monitoring requirements by performing almost all required tests free of charge at the State laboratory. The only exception is that waterworks must perform some of their own bacteriological testing and all residual chlorine testing. If you do your own bacteriological lab work, it is possible that the occasion might arise that you do not follow a prescribed testing procedure. However, the possibility is probably very remote and you should be able to predict the problem and find a solution long before you would be required to provide PUBLIC NOTIFICATION.

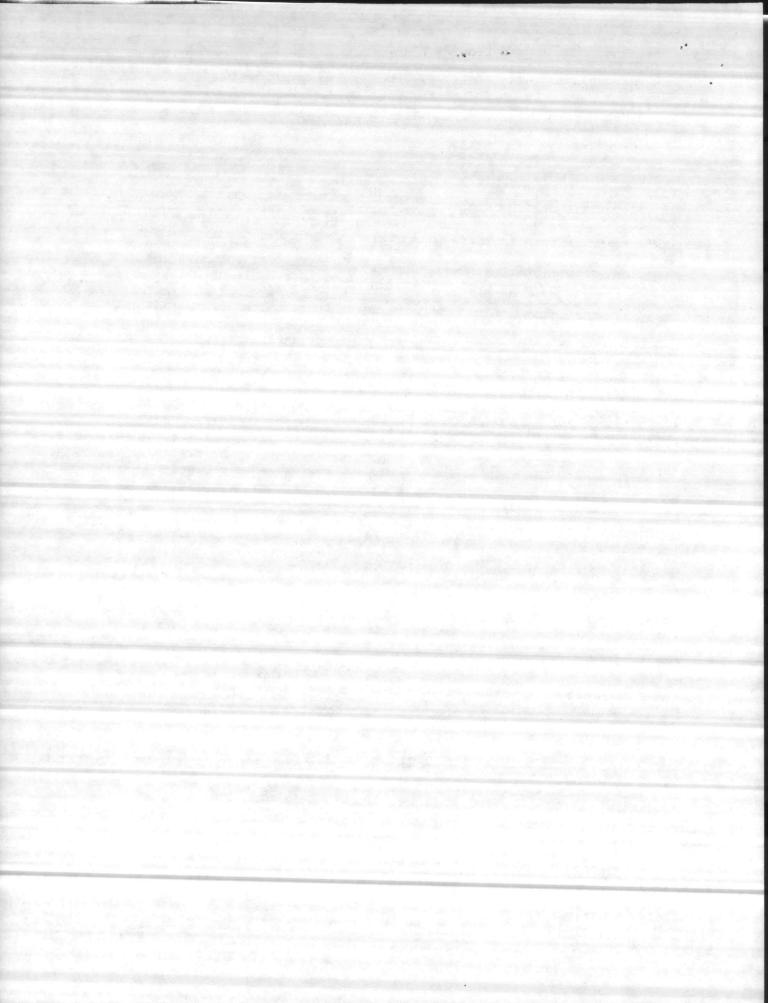
PMCL VARIANCE OR EXEMPTION

If you apply for and receive a PMCL variance or exemption, you will be required to give PUBLIC NOTIFICATION. In this case, it is clear that the intent of the regulation is to inform the public so that they will become aware of the long range problems in their water system, and accept responsibility for the improvements that need to be made. The notice that you provide can be a real opportunity to provide information and to enlist support.

Remember that a PMCL variance or exemption will be granted only if it is determined that there is no immediate danger to the public health during the time that the variance or exemption is in force. If the public is aware of this fact it should remove the possibility of over-reaction by the customers.

REQUIRED MONITORING

You are required to carry out a monitoring program: specific details regarding the sample collection and analyses program will be negotiated with the State. If you fail to collect the specified samples,



'you may be required to provide PUBLIC NOTIFICATION. Knowing what is required and scheduling the required monitoring should avoid any need for this type of PUBLIC NOTIFICATION.

COMPLIANCE SCHEDULE

There are several situations when you may be required to meet a compliance schedule. If you have a PMCL variance or exemption, there may be a time table that you are required to meet. You will have participated in drawing up the schedule, so you will have ample warning if you find you are falling behind. You may also have a compliance schedule if a PMCL has been violated and you are required to collect additional check samples. Again, you will be very much aware of the situation at the time and can make sure that the related schedule is met. So the likelihood of violating the schedule and the need for PUBLIC NOTIFICATION will be slight.

YOU'RE TRYING TO TURN ME INTO A PUBLIC RELATIONS MAN!

You already are. Any person in utilities who provides a service or maintenance to the public is in Public Relations. Your customers already have formed judgments about you and your operation based upon the contacts that they have with you. When they call for service, or to complain about the tast or odor of the water they form an opinion about your operation. But they probably take their water, and you, for granted.

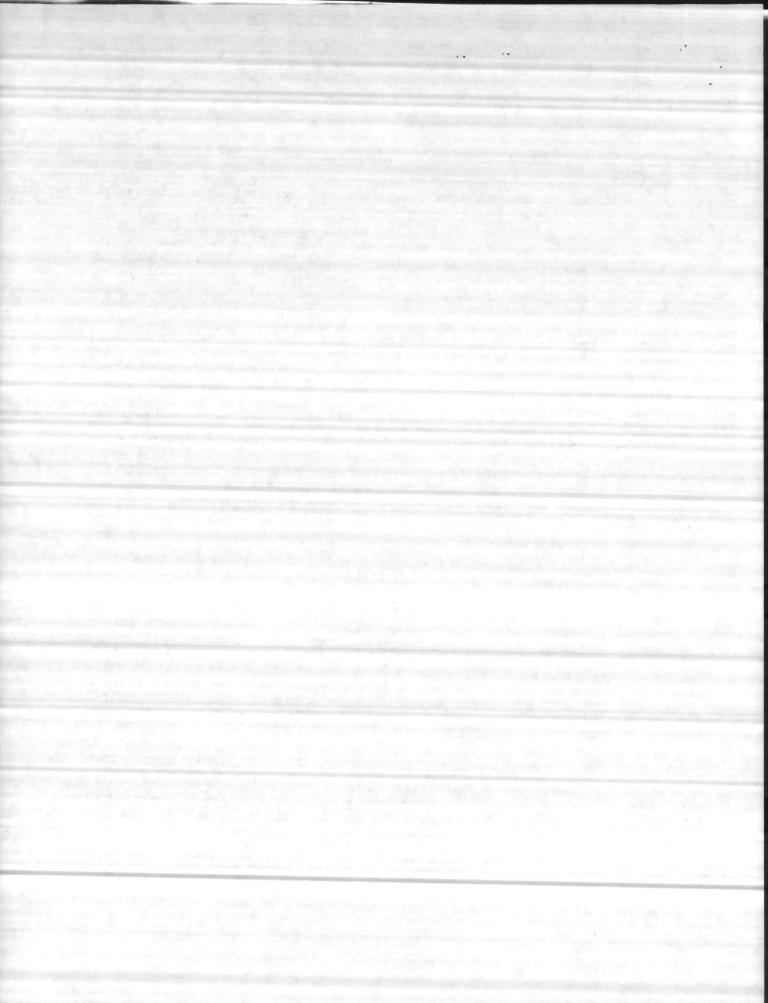
Now you have a public relations problem. - That's one way to look at it. Now you have an opportunity to develop support for what you are trying to do. - That's another approach. In the future you may have to make a PUBLIC NOTIFICATION under the requirements of the new law. If the first time your customers hear from you is to explain both the new legal requirements and that you have a problem attaining health related drinking water standards they may well overreact to the situation.

You have an option. You can begin now to inform your customers about the requirements of the Safe Drinking Water Act, and its implications for your system.

Tell them:

- o The goals of the Act, what Congress wants to accomplish.
- o How the PMCLs were set.
- o The present situation, what is the quality of their raw water source, what problems you anticipate in meeting the requirements of the law and regulations.
- o About PUBLIC NOTIFICATION and how it works.
- o What your plans are now--what will be required of your customers.

Exhibit 1 on the next page is one example of a letter intended to begin informing customers.



BASE MAINTENANCE DEPARTMENT

Dear Customer:

I am sure that you have seen the recent articles in the paper concerning the Safe Drinking Water Act of 1974 and the fact that the Environmental Protection Agency (EPA) and the Congress have become extremely concerned about the quality of the Nation's drinking water.

Because we supply your drinking water, we want to inform you about the provisions of both the Safe Drinking Water Act and the Waterworks Regulations, and the effects they will have upon our local situation.

The Law is the result of the concern of the Congress to protect the public health. This is not to imply that the Nation's water has been unsafe in the past. Rather, this is a major step toward improvement of your safety in light of modern technical knowledge.

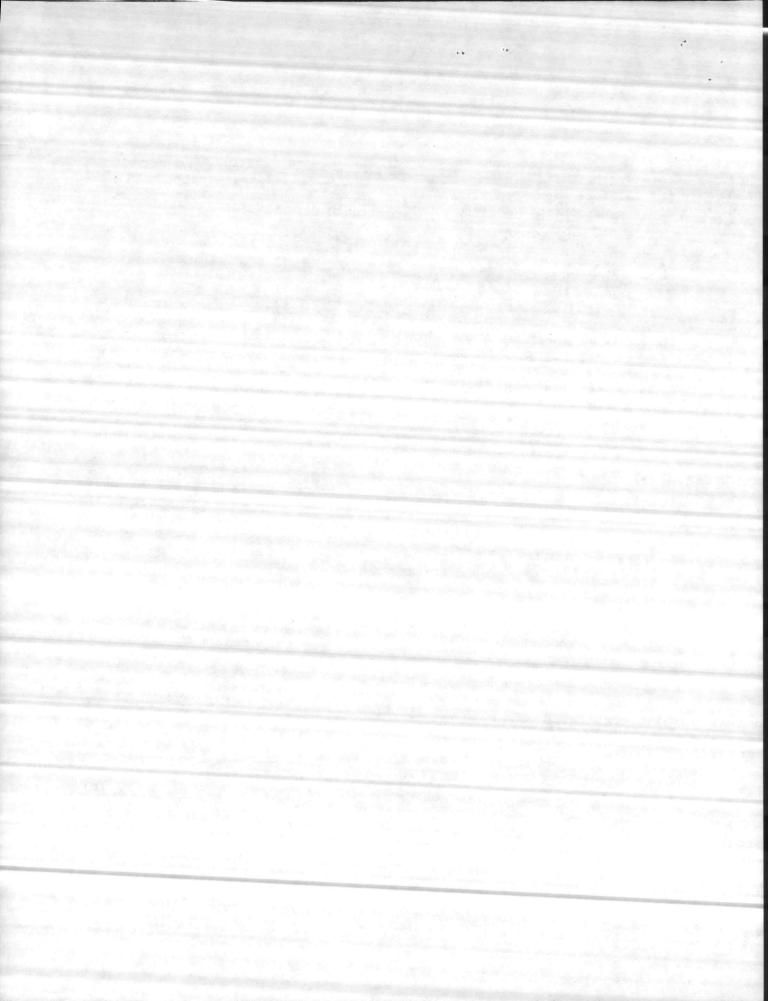
The Law also requires that your water system inform you if certain problems are encountered.

Briefly, the Law provides that drinking water standards called Primary Maximum Contaminant Levels be developed for biological and chemical contaminants in drinking water. These are referred to as PMCLs. They have been established by the Environmental Protection Agency and will probably be adopted by the Bureau of Medicine and Surgery (BUMED). In general, they have been based upon the consumption of two liters of drinking water a day for a lifetime. As science gathers more information, the kinds of contaminants and the PMCLs for them probably will change, to provide even greater protection to the public health.

We want to know now that we have always been on guard to ensure your health and have notified you of any potential health hazard which has occurred. Therefore, don't be alarmed if you receive a notice from us that indicated that primary maximum contaminant level has been violated. WE WILL NOTIFY YOU IMMEDIATELY IF THERE IS EVER AN IMMEDIATE HEALTH HAZARD.

The Congress provided the requirement for PUBLIC NOTIFICATION so that you would be aware of any major problem facing your local water supply system.

Better water is going to cost money and the Congress has determined that the cost is to be borne by the consumer. In the civilian sector, this is going to mean high water rates in the future to pay for the costs of construction and increased operational and maintenance costs. The

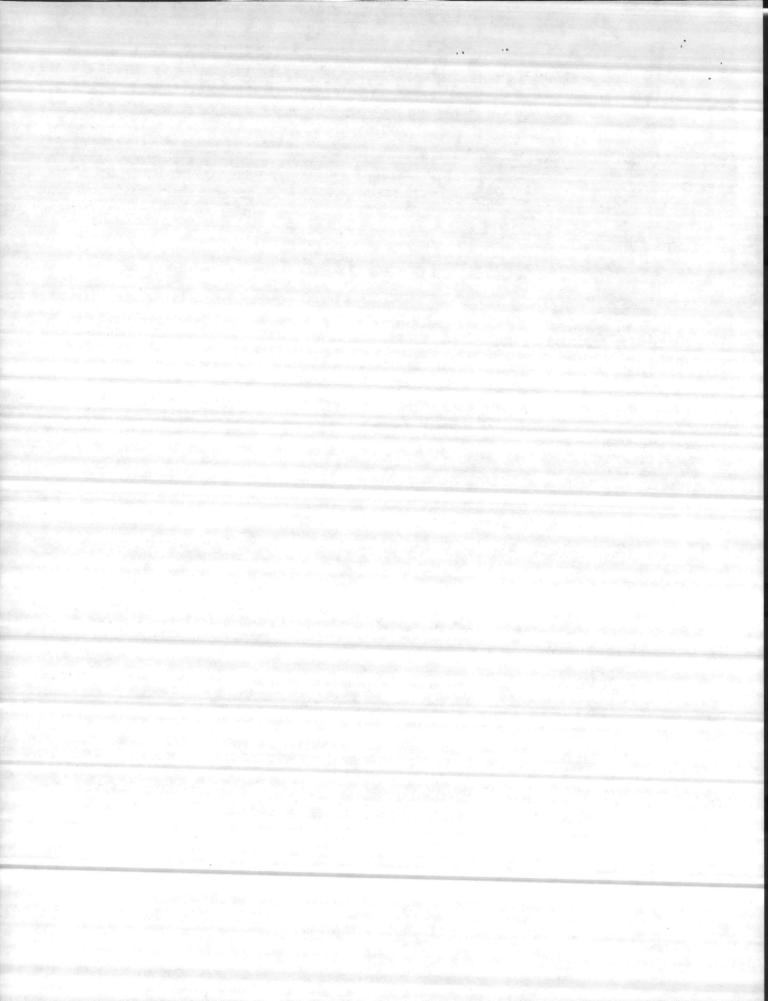


Base Maintenance Department is working to minimize costs, increase efficiency and are making every effort to find the most efficient and inexpensive way to improve the quality of your water in the future.

Thank you for taking the time to read our letter. We intend that this is the first of many communications with you to keep you informed of new developments. Please call or write us if you have any questions.

Sincerely;

Preventive Medicine Service



THE MEDIA

How many times have you heard that the press or broadcast media have messed up a story, caused panic, misinformed the public? Give the people who publish your paper and produce your radio and TV news the benefit of the doubt. They are trying to do a job, just like you. They work under time pressure. A reporter may get an assignment and have four hours — two hours, if the story is hot — to gather his facts. If he can't get you on the phone, he has to go to press, so he talks to whomever he can get, maybe people who don't have the facts you have, or don't know the history of the situation.

Now is the time, before you have a problem, to meet these men and offer to brief them. Talk to them about PUBLIC NOTIFICATION and the intent of Congress. Explain your worries about causing public alarm if the notices are not handled with understanding of the whole situation. You may find them very receptive to your offer. Be sure they know who are the responsible State officials for water supply programs in your area.

When you do talk with them explain that the regulations of the Law have just come into force and suggest a news story on the Law and the situation as you see it, say between now and 1981. Develop a plan to inform your customers and the press now. You will be glad you did if and when you face your first PUBLIC NOTIFICATION.

HOW IMPORTANT IS PUBLIC NOTIFICATION?

The Spirit of the Law and regulations is one of cooperation to get a job done for the public health. The Law and regulations place enforcement responsibility upon EPA and upon the States which assume primary enforcement responsibility.

The Congress felt very strongly about the need now to do all that can be done, with costs considered, to ensure the safety of the Nation's drinking water. Under the Federal Act, States which assume primary enforcement responsibility must also enforce reasonable PUBLIC NOTIFICATION requirements. Failure to comply with PUBLIC NOTIFICATION regulations subjects the public water supply to appropriate enforcement action. PUBLIC NOTIFICATION is an integral part of the Act and a basic tool in the education of the public.

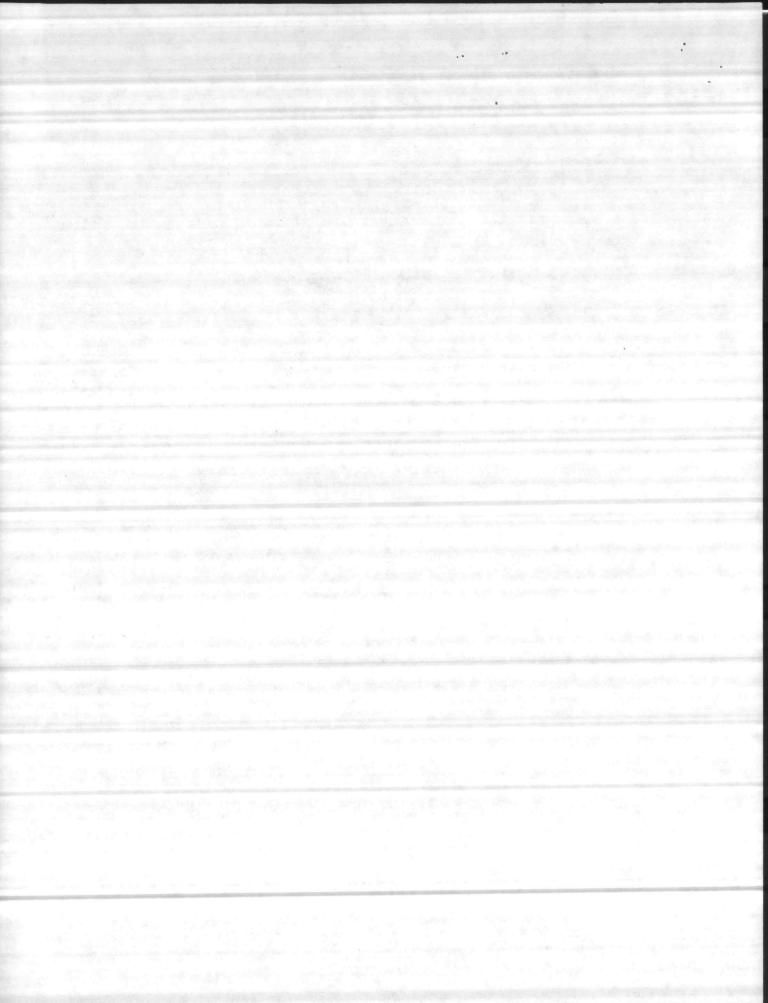
REPORTING REQUIREMENTS

The basic reason for the Safe Drinking Water Act is to ensure public health safety. Much of the effectiveness of the Act will depend on how well the reporting procedures are carried out. There are two general categories of reporting called for by the Act:

Reporting to the State

Reporting to the Public (Public Notification)

The requirements for these reports, including when they must be made, to whom, and what they must contain are discussed in the following two sections.



REPORTING TO THE STATE

There are three types of reports that must be sent to the State--

Routine sample reports

Check sample reports

Violation reports

For routine sampling and plant operational control testing, results of analyses must be reported to the State monthly. The data for each month must be compiled and sent in within ten days after the end of the month.

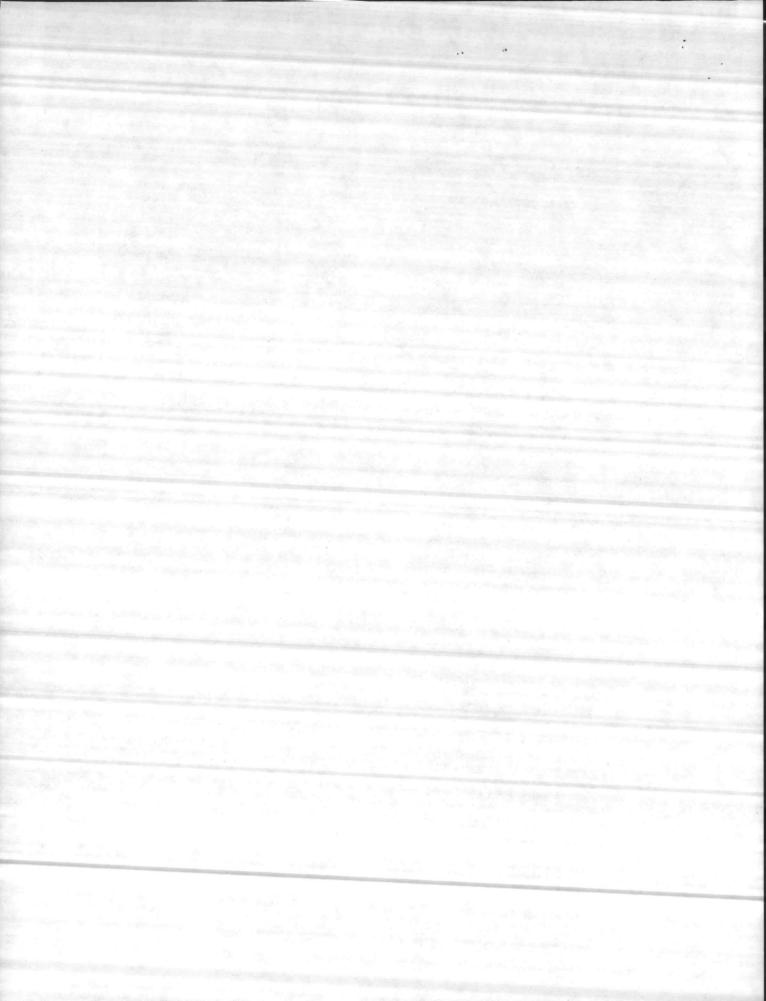
The State will collect and analyze all samples for chemical and radiological contaminants.

If the results of the routine analysis exceed the PMCL, then additional "check samples" are required. Reporting procedures for these check samples vary according to the type of contaminant. Again, the State will collect and analyze all check samples for chemical and radiological contaminants.

REPORTING TO THE PUBLIC

Under the public notification requirements, a community or non-community water system will have to publicly notify its customers of specified deficiencies identified in the system.

This DOES NOT MEAN THAT THE PUBLIC WILL HAVE TO BE NOTIFIED EVERY TIME SOMETHING UNUSUAL HAPPENS AT THE PLANT OR A SINGLE SAMPLE EXCEEDS A PMCL. With PMCLs, for example, public notification only occurs in the event of a violation of the PMCLs, and such a violation does not occur until the average of the original sample and additional check samples exceed the PMCL. The requirements for public notification vary depending on the circumstances and whether the system is a community or non-community system.



NOTIFICATION FOR COMMUNITY SYSTEMS

In general, public notification for community systems is only required in the circumstances shown below.

PUBLIC NOTIFICATION REQUIREMENTS

Type of Violation	Required Notification			
	Mail	Newspaper	Broadcast	
Violation of a PMCL	X	X	X	
Failure to comply with the approved analytical testing procedure	Х			
Variance or exemption has been granted to the system	х			
Failure to perform any required monitoring	х			
Compliance schedule is not followed	X			

There are three forms of public notification -- mail, newspaper, and broadcast. All three are required by the regulations for a violation of a PMCL. In all other circumstances, only the notice to the consumer is required.

MAIL NOTICE

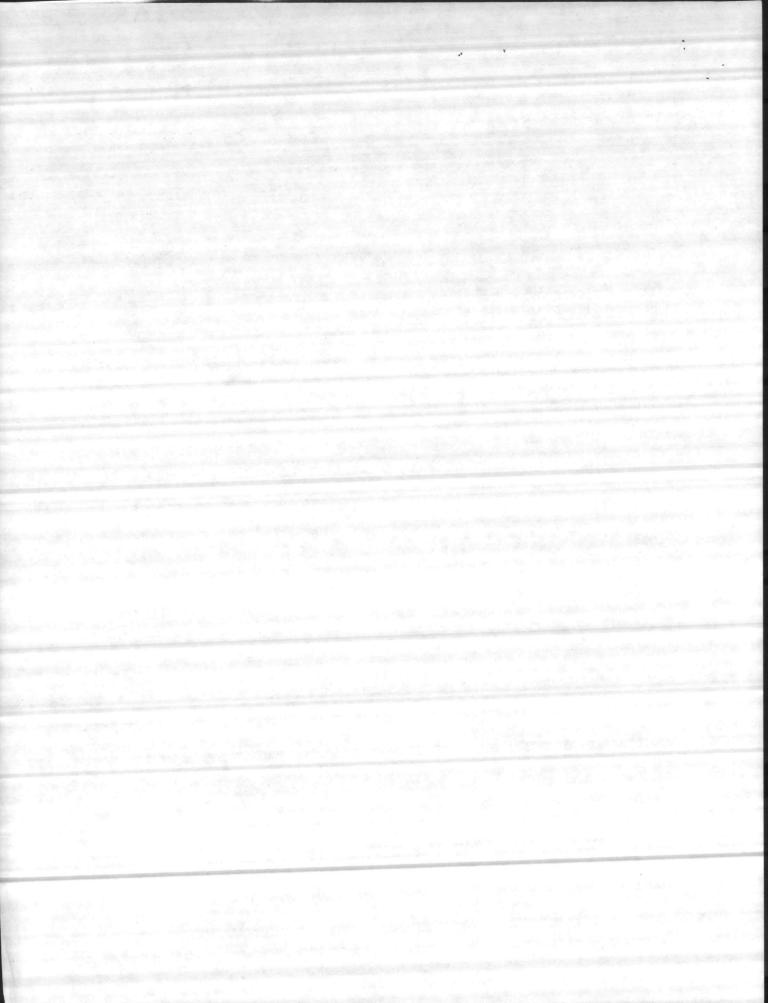
The consumer must be notified in the next regular water bill, or through special mailing, BUT IN ANY EVENT WITHIN THREE MONTHS AND BY MAIL. This notification must be repeated at least once every three months as long as the situation requires.

NEWSPAPER NOTICE

A newspaper that serves the area must be notified and notice of the violation must be published in that paper on three consecutive days. The three-day publication period must be completed within 14 days of the violation.

If no daily paper exists, a weekly paper that serves the area must be advised and the notice of violation must be published in three consecutive issues of that paper.

If there are no dailies or weeklies, notice must be displayed in post offices serving the area.



BROADCAST NOTICE

Radio and television stations serving the area must be notified within seven days of the violation.

NOTIFICATION FOR NON-COMMUNITY SYSTEMS

Public notification requirements for non-community water systems are different from those required for community systems. Since non-community systems principally serve travelers who do not receive water bills from the system and who are probably not exposed to local radio or TV, a notice that informs the consumer <u>before</u> he drinks the system's water is required.

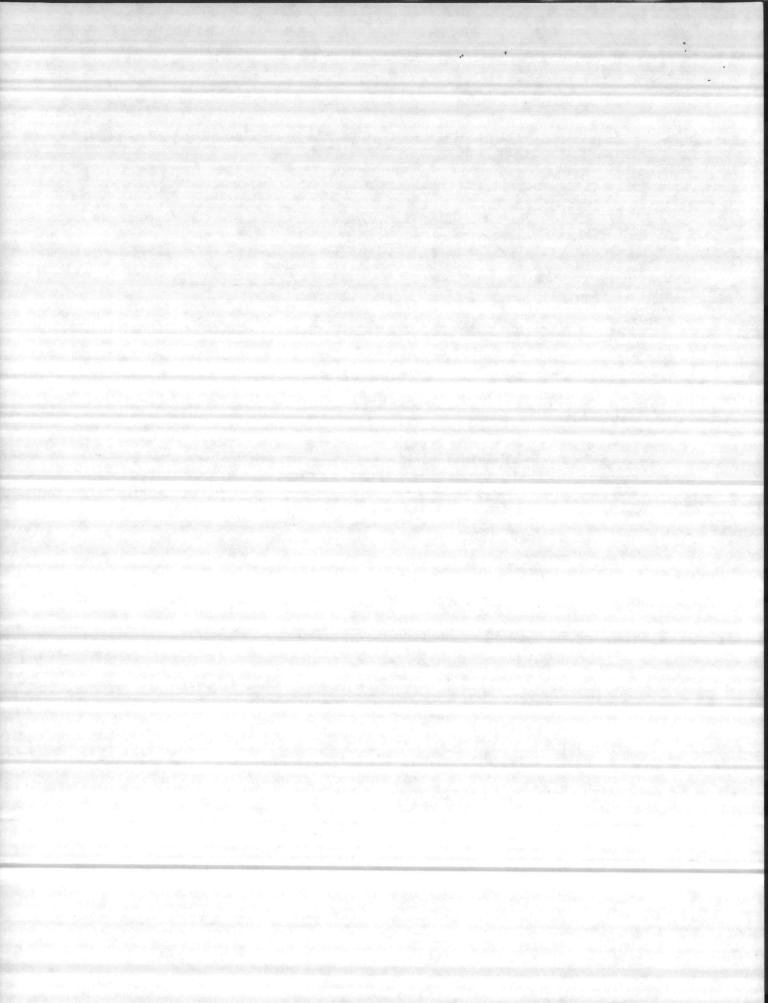
This notification must be given in a way that adequately informs the public using the water. In Virginia, notices such as posters or signs near drinking fountains or handbills distributed to industrial workers are what is required. Notice must be provided wherever drinking water is available to the public.

HOW TO WRITE A PUBLIC NOTICE

Now that you know the regulations about when you must provide PUBLIC NOTIFICATION and where you must publish it, let's take a look at the regulations about the notice itself.

The regulations do not tell you how to write a PUBLIC NOTICE but they do specify requirements about what it should contain:

- o It must be conspicuous (print media).
- o It must not be overly technical.
- The print must be easy to read (no tiny notice buried in notice section).
- o No methods should be used to interfere with the purpose of the notice.
- o It should disclose all material facts, giving the nature of the problem
- o It should contain a clear statement that a Primary Drinking Water Regulation has been violated, if applicable.
- o It should contain a statement of preventive measures that should be taken by the public, if applicable.
- o It should be bilingual, if appropriate to community.

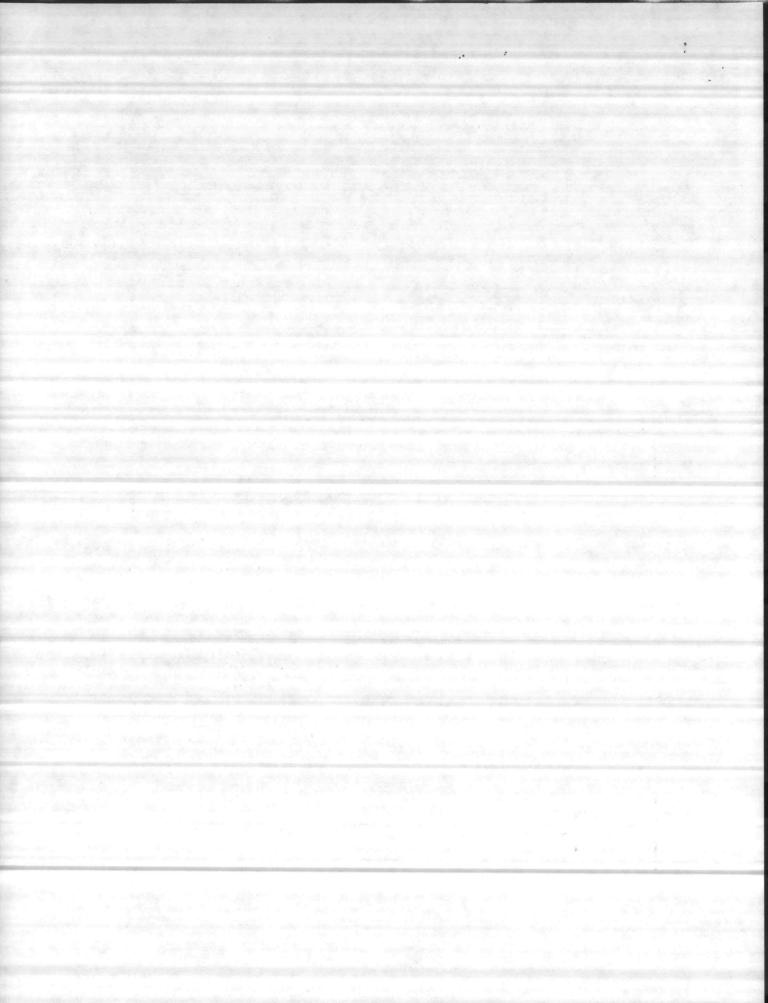


In addition, the PUBLIC NOTICE may include:

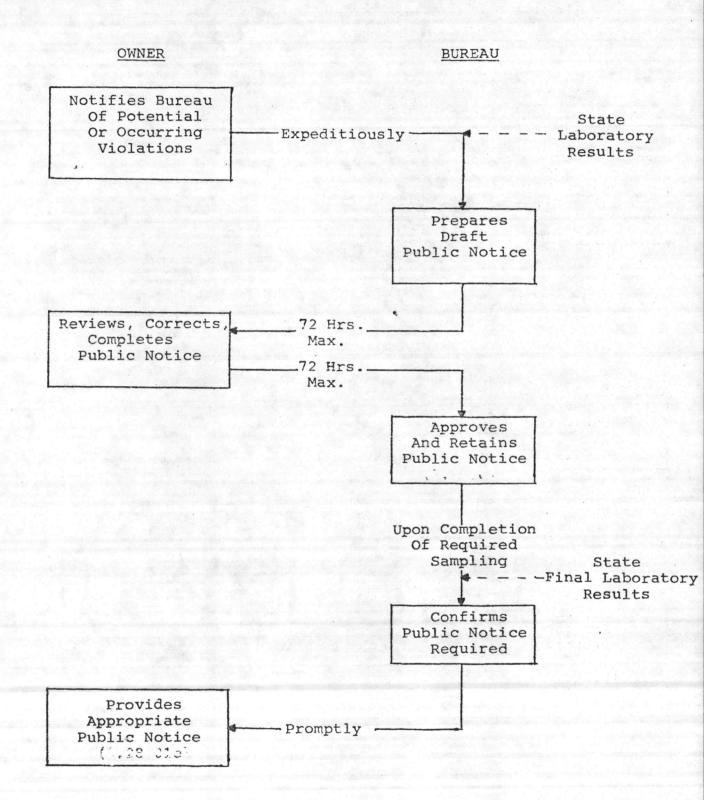
- o A balanced explanation of the significance or seriousness to the public health.
- o A fair explanation of steps taken by the system to correct any problem.
- o A report of the results of any additional sampling.

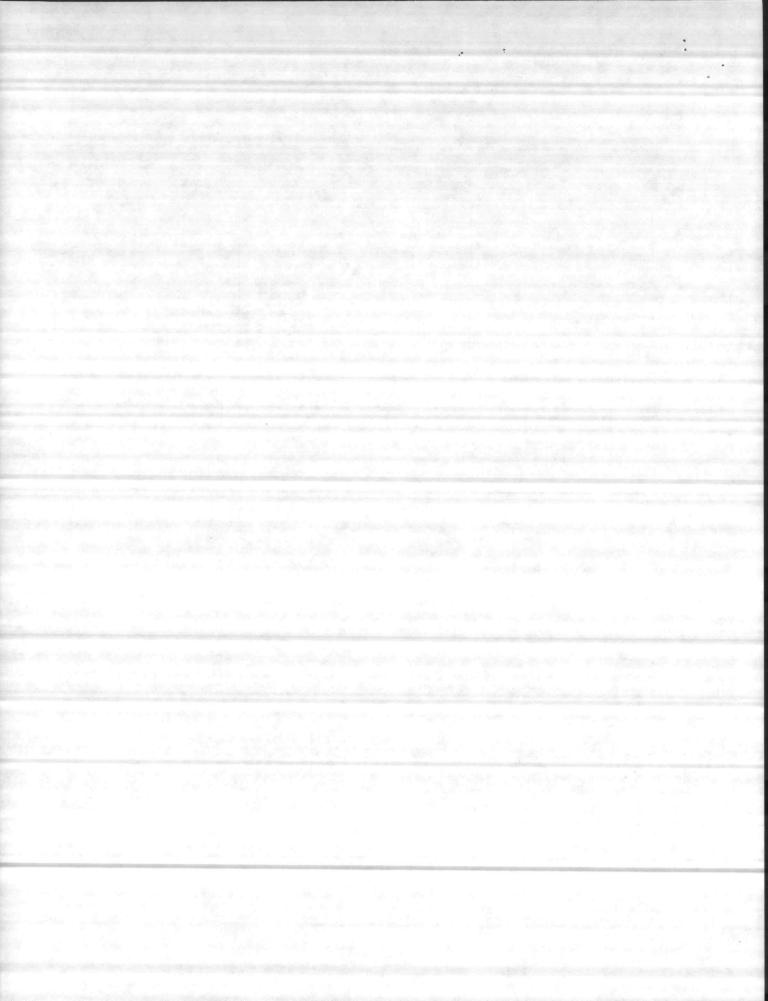
The two flow diagrams on the following pages outline the procedures.

Now that you know the requirements, let's take a look at a sample notice.



PROCEDURE FOR ISSUANCE OF PUBLIC NOTICE PMCL VIOLATIONS

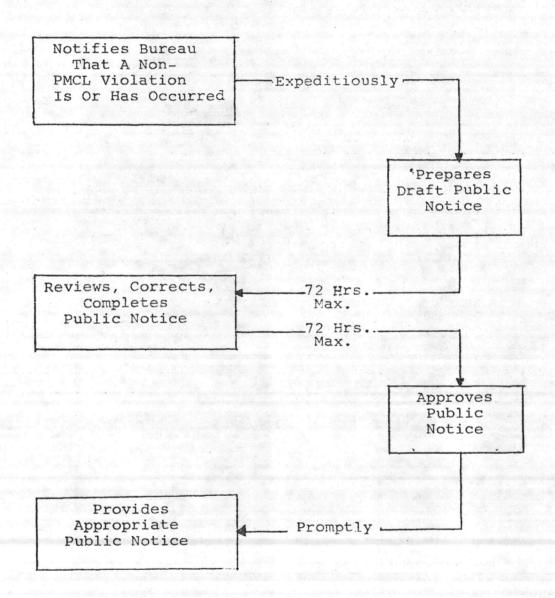


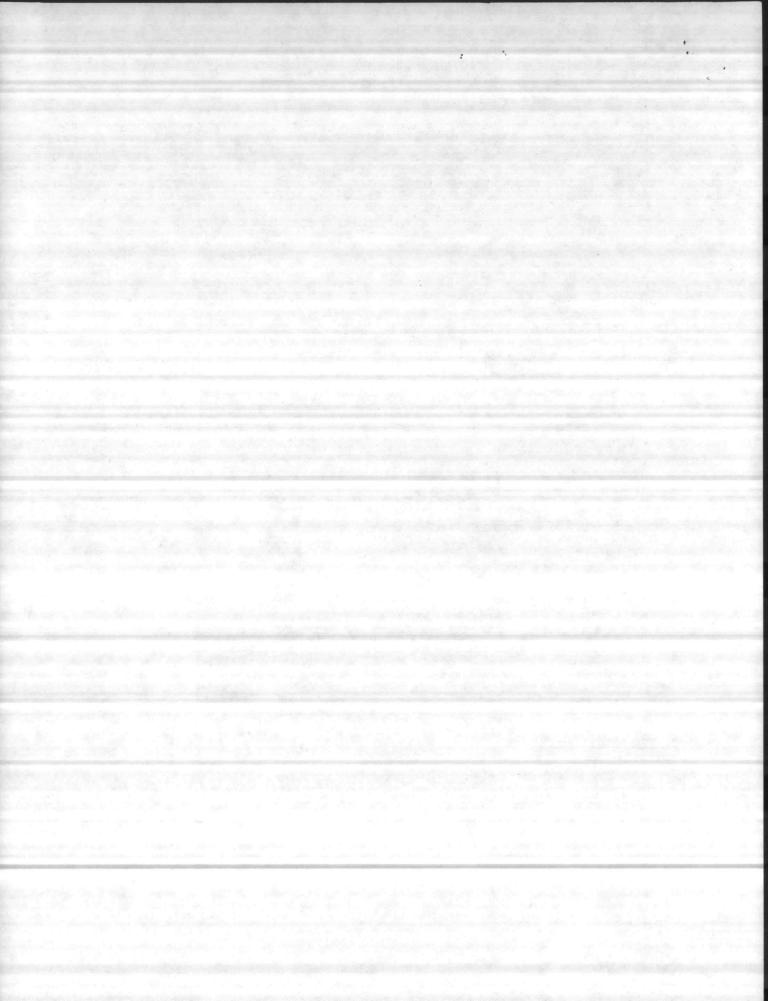


NON-PMCL VIOLATIONS REQUIRING PUBLIC NOTIFICATION

OWNER

BUREAU





WATER EXCEEDS NITRATE LIMIT

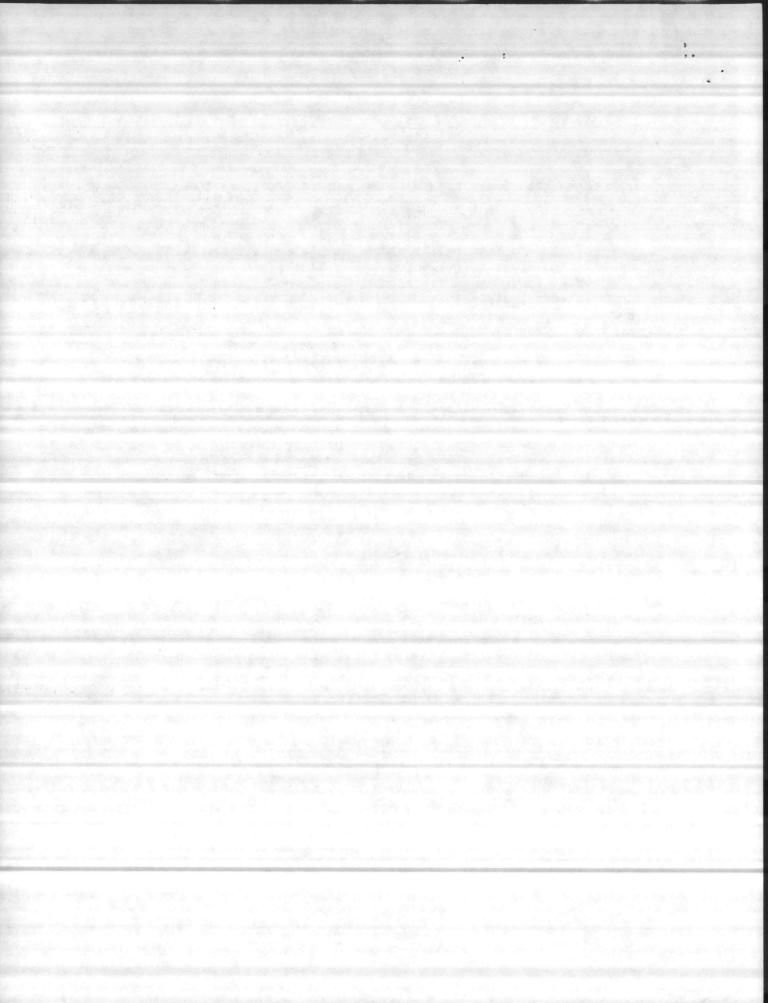
The Public Works Department reports that the maximum contaminant level for nitrate in drinking water was exceeded during its most recent reporting period.

The State Board of Health has set the limit at 10 milligrams nitrate per liter of water. Samples from the north plant contained 24 milligrams per liter.

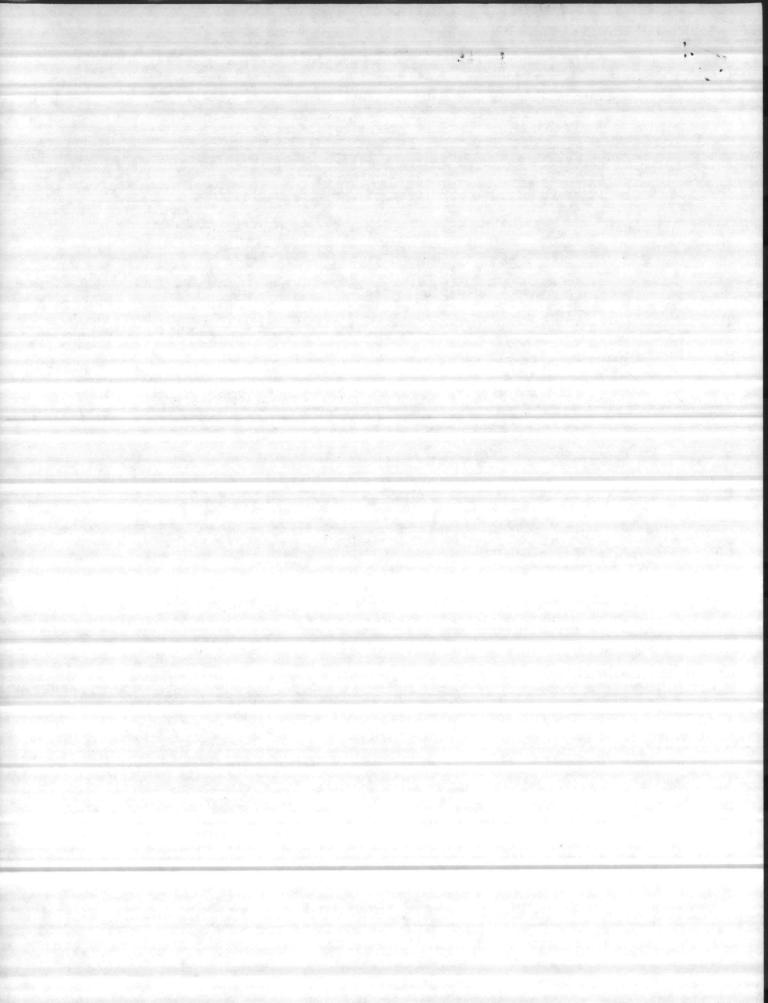
Adults and most children need not be concerned. However, parents should find other safe sources of drinking water for infants less than six-months old. An excess nitrate intake by an infant can reduce its available oxygen supply, possibly producing "blue baby" symptoms of suffocation.

Station medical personnel & the hospital have been notified of the situation by the water district. The health department cautions not to boil the water as boiling increases the concentration of nitrate.

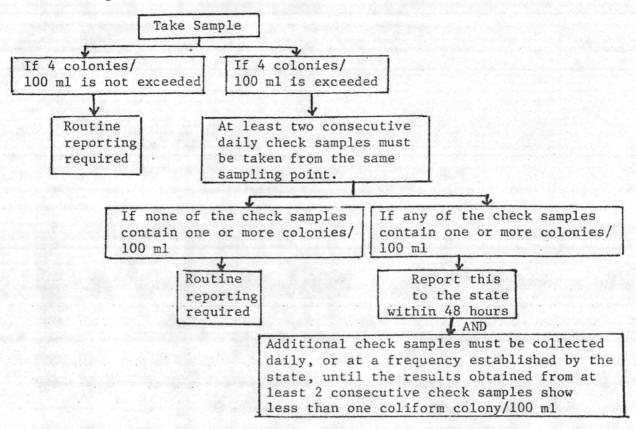
Nitrate is extremely difficult to remove from water and the station has applied to the State for a temporary exemption from the requirement of no more than 10 mg/l nitrate in drinking water. The district is searching for alternate sources of water and exploring treatment techniques to reduce the nitrate level.



treatment techniques to reduce the nitrate level.



REPORTING PROCEDURES -Microbiological Contaminants - Membrane Filter



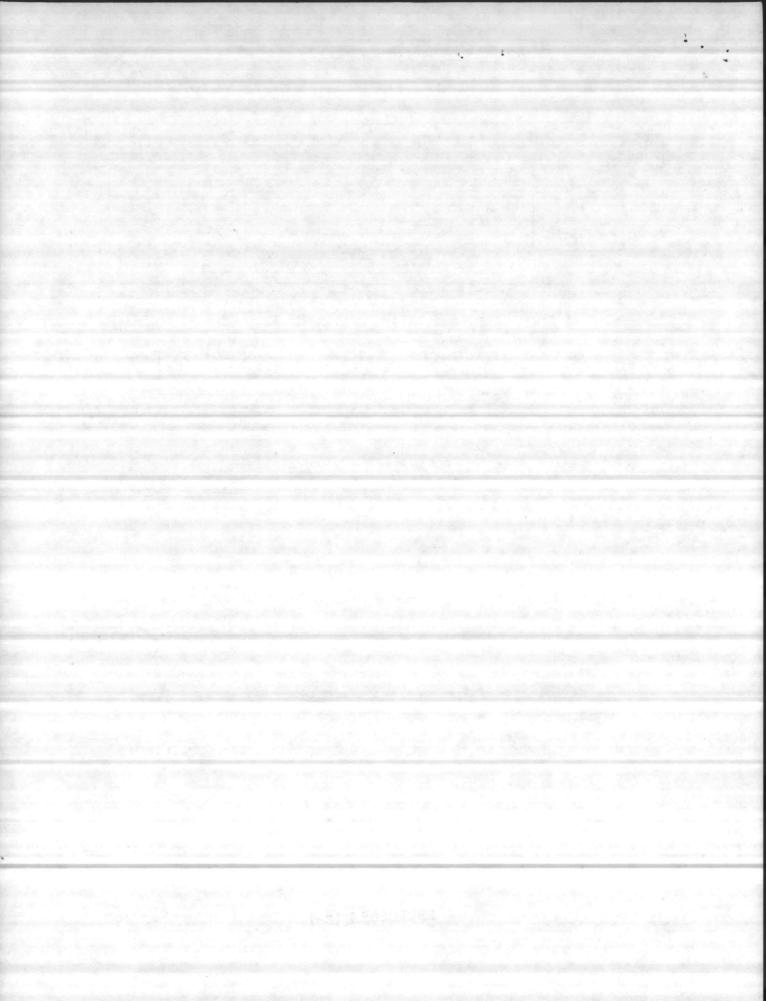
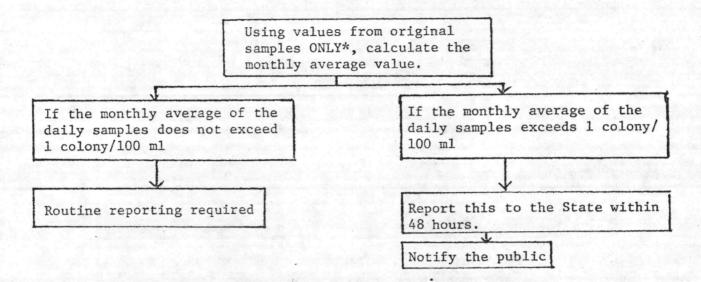


FIGURE 7

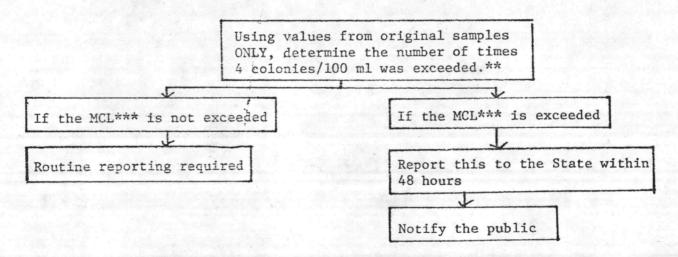
-REPORTING PROCEDURES --

When Calculating Monthly Membrane Filter Results

I. CALCULATE THE MONTHLY AVERAGE VALUE



II. DETERMINE THE NUMBER OF TIMES 4 COLONIES/ 100 ml WAS EXCEEDED

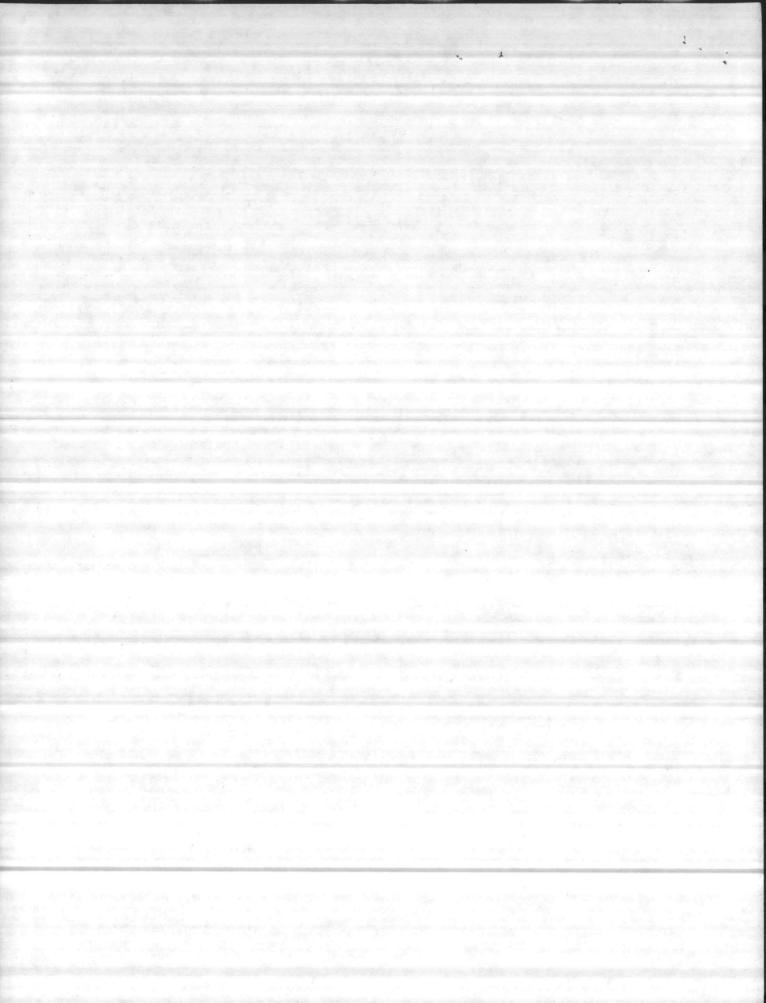


*Check sample values are not to be used when calculating the monthly average.

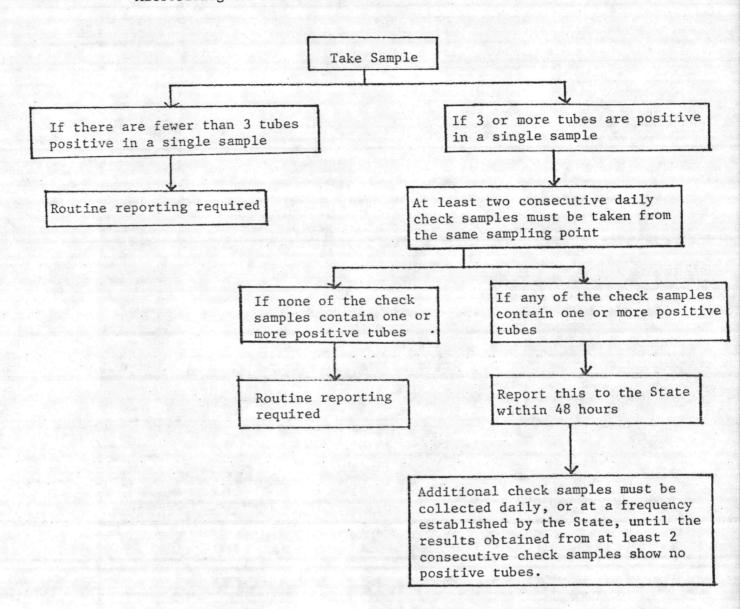
**For systems taking fewer than 20 samples per month, merely count the number of samples exceeding 4 colonies/100 ml.

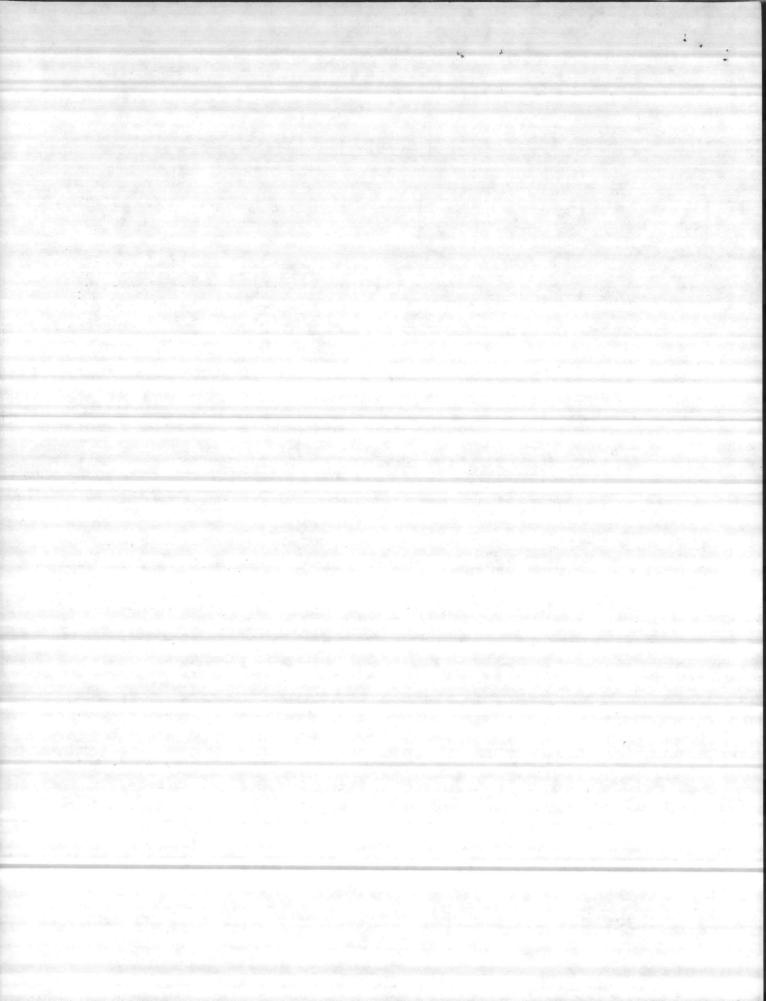
For systems taking 20 or more samples per month, calculate the percentage of samples exceeding 4 colonies/100 ml.

***The MCL is -- coliform presence shall not exceed 4 colonies/100 ml in more than one sample if less than 20 samples are collected per month or 4 colonies/100 ml in more than 5% of the samples if 20 or more samples are examined per month.



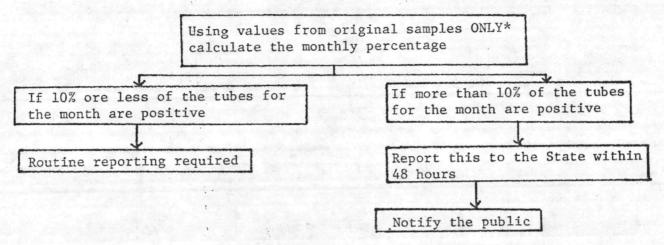
REPORTING PROCEDURES -Microbiological Contaminants - Multiple-Tube Method (10 ml)



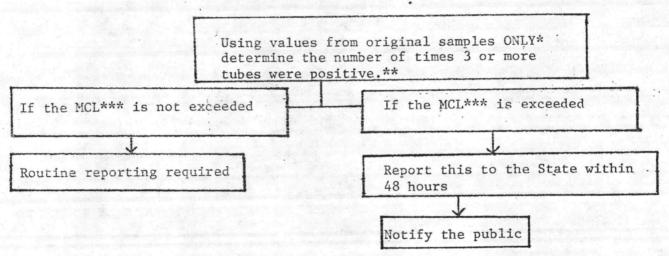


**REPORTING PROCEDURES -When Calculating Monthly Multiple-Tube Fermentation (10 ml) Results

I. CALCULATE THE MONTHLY PERCENTAGE



II. DETERMINE THE NUMBER OF TIMES 3 OR MORE TUBES WERE POSITIVE

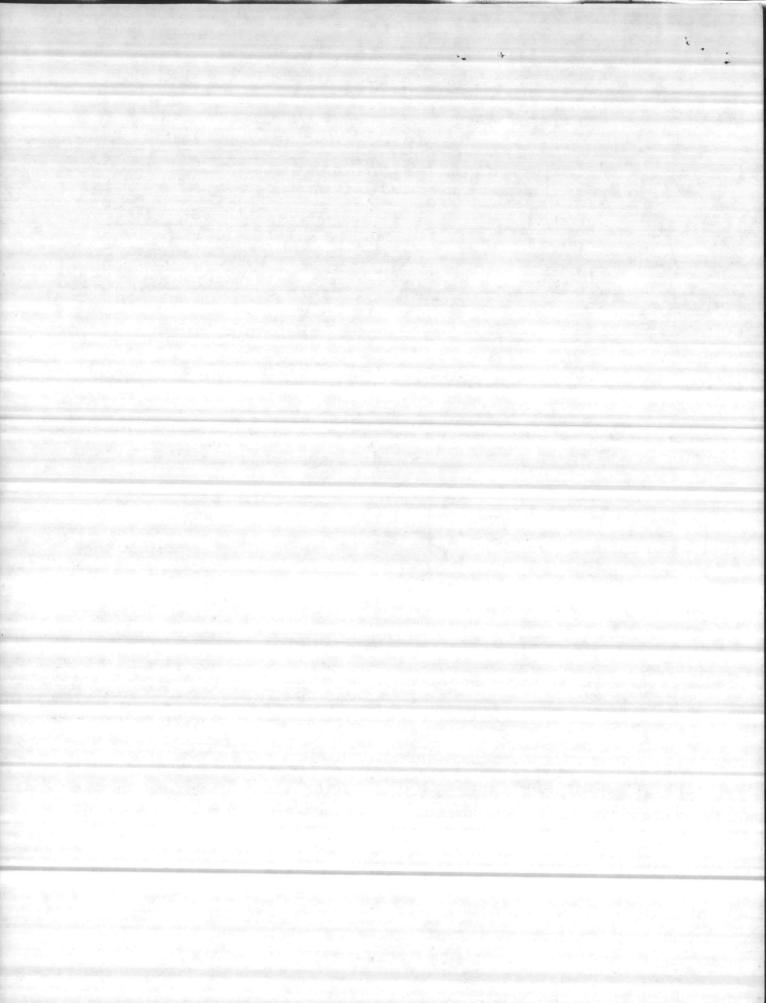


*Check sample values are not to be used where calculating the monthly percentages.

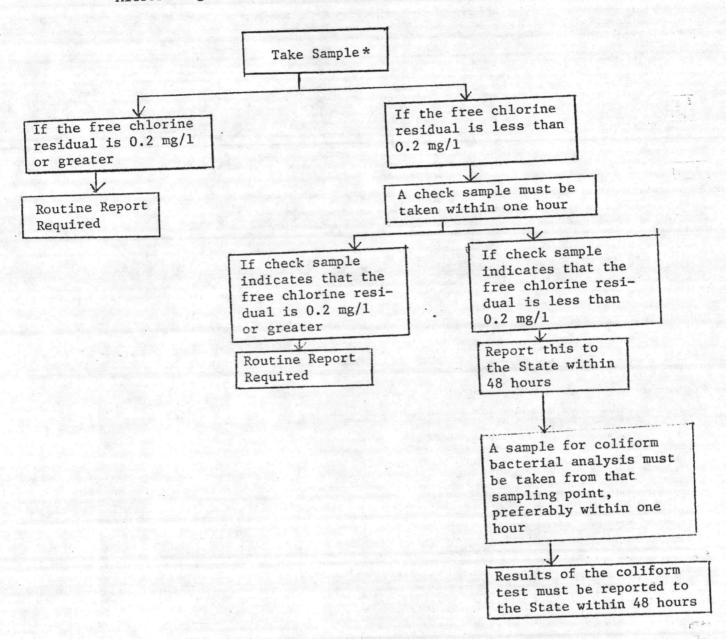
**For systems taking fewer than 20 samples per month, merely count the number of samples which contained 3 or more positive portions.

For systems taking 20 or more samples per month, calculate the percentage of samples containing 3 or more positive portions.

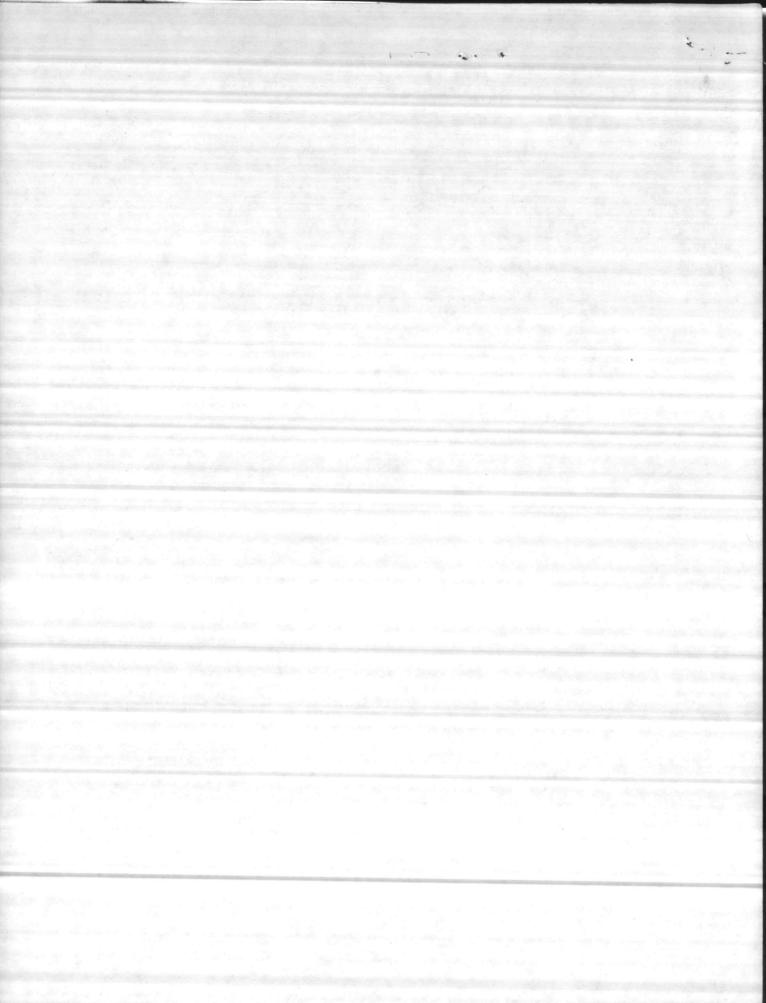
***The MCL is -- not more than 1 sample may have 3 or more portions positive when fewer than 20 samples are examined per month or not more than 5% of the samples may have 3 or more portions positive when 20 or more samples are examined per month.



REPORTING PROCEDURES -Microbiological Contaminants - Chlorine Residual



*If chlorine residual test is used, there must be four samples for each Bacti required or at least one per day.







o -- - mi wooten

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

1421 PEACHTREE ST., N. E. ATLANTA, GEORGIA 30309

June 28, 1977

Naval Regional Medical Center Preventive Medicine Service Camp Lejeune, North Carolina 28542

Dear Sir:

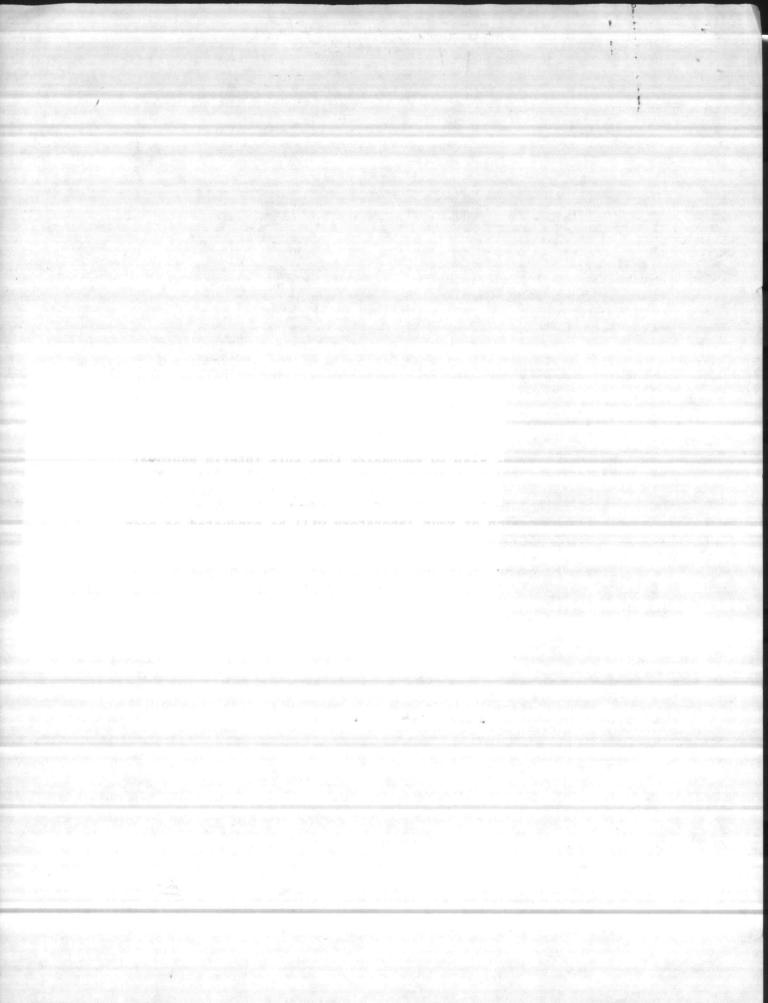
This is to advise you that Region IV of the Environmental Protection Agency has concurred in the Department for interim approve samples as specific Regulations.

We do, however is made in the abse is an administrativ transition toward in An on-site evaluation as scheduling permit

If you have any Chief of our Water S

1977

Jack E. Ravan Regional Administrator







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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

1421 PEACHTREE ST., N. E. ATLANTA, GEORGIA 30309

June 28, 1977

Naval Regional Medical Center Preventive Medicine Service Camp Lejeune, North Carolina 28542

Dear Sir:

This is to advise you that Region IV of the Environmental Protection Agency has concurred in the Department of Defense request for interim approval of your laboratory to analyze drinking water samples as specified in the National Interim Primary Drinking Water Regulations.

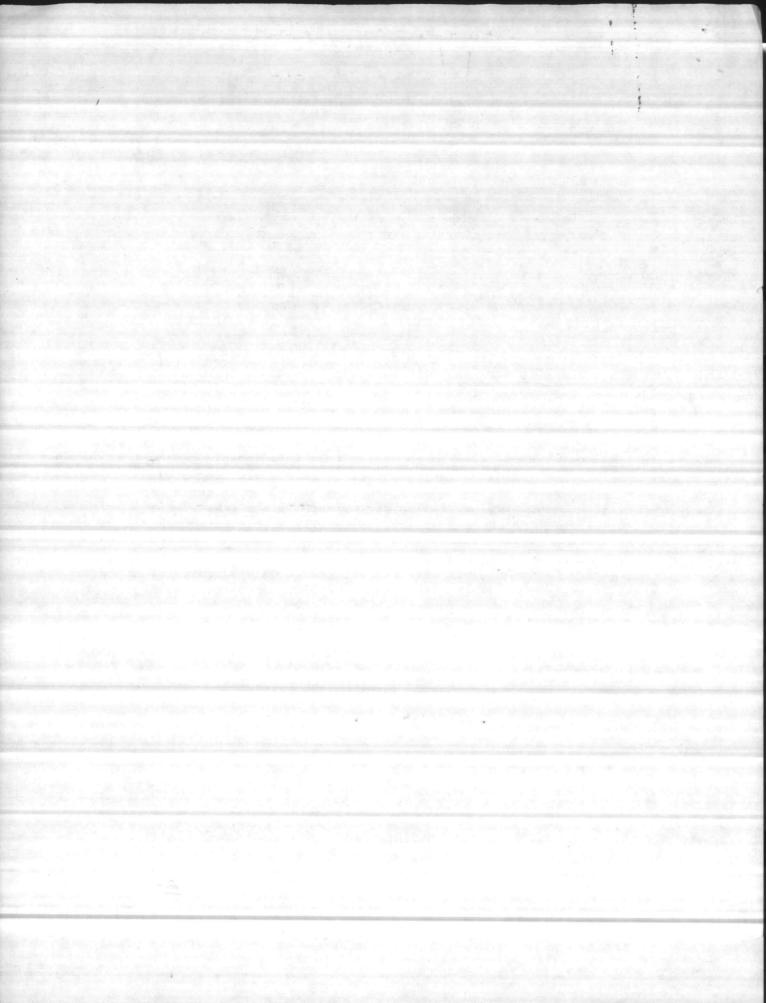
We do, however, wish to emphasize that this interim approval is made in the absence of any previous on-site evaluations. This is an administrative action only and is designed to effect a smooth transition toward implementation of the Safe Drinking Water Act. An on-site evaluation of your laboratory will be conducted as soon as scheduling permits.

If you have any questions, please contact Gary D. Hutchinson, Chief of our Water Supply Branch (FTS 257-3781, Commercial 404/881-3781).

Sincerely yours,

Jack E. Ravan

Regional Administrator



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UNITED STATES MARINE CORPS MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO

PWO:RHK:dh 6240 3 1 AUG 1977

From: Commanding General

To: Commander, Atlantic Division, Naval Facilities Engineering

Command, Norfolk, Virginia 23511 (Attn: Code 09A21)

Subj: Water pollution from coal storage piles

Ref: (a) Telecon btwn R. H. Kerley, Public Works Dept., MCB, CLNC and D. Goodwin, LANTNAVFACENGCOM (Code 114) on 29 Aug 1977

Encl: (1) LANTNAVFACENGCOM Memo 114:DPG dtd 1 Aug 1977, subj: Coal Conversion; wastewater impact

1. Enclosure (1) identifies a particular problem with ground water pollution at the Marine Corps Base, Camp Lejeune. By reference (a) LANTNAVFACENGCOM agreed that a study of the problem could best be done by the A/E doing the Industrial Pollution Study.

2. It is requested that coal pollution be included in the scope of the Industrial Pollution Study.

J. KOVACH By direction

Copy to: LANTNAVFACENGCOM (Code 114)

Blind copy to:
AC/S, Fac (w/encl)

BMaint0 (w/encl)



DNITED STATES MARINE CORPS MARINE DO 175 BASE SAMPLE RETURN WORTH CARDLINA 3814



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PARTMENT OF THE NAVY ATLANTIC DIVISION NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA 23511

TELEPHONE NO. 444-7313 IN REPAUTOYON 690-7313 114: DPG

1 AUG 1977

Dans Coognin

MEMORANDUM FOR MCB CAMP LEJEUNE AND MCAS CHERRY POINT

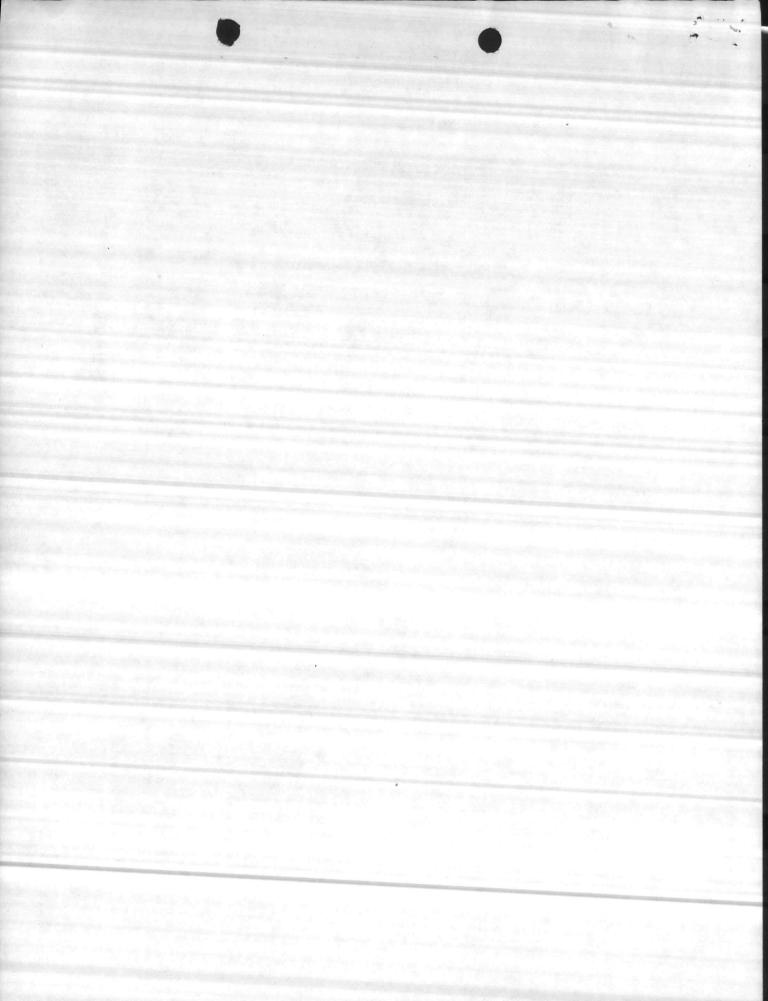
Subj: Coal Conversion; wastewater impact

Encl: (1) Code 114 memo to Code 112 of 1 Aug 1977

1. Enclosure (1) is forwarded for your information and use.

DR Bailey

J. R. BAILEY, P. E. Head, Environmental Quality Section Environmental Engineering Branch Utilities Division





DEPARTMENT OF THE NAVY ATLANTIC DIVISION NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA 23511

14-7313 IN REPLY REFER TO: 114:DPG 6240 1 AUG 1977

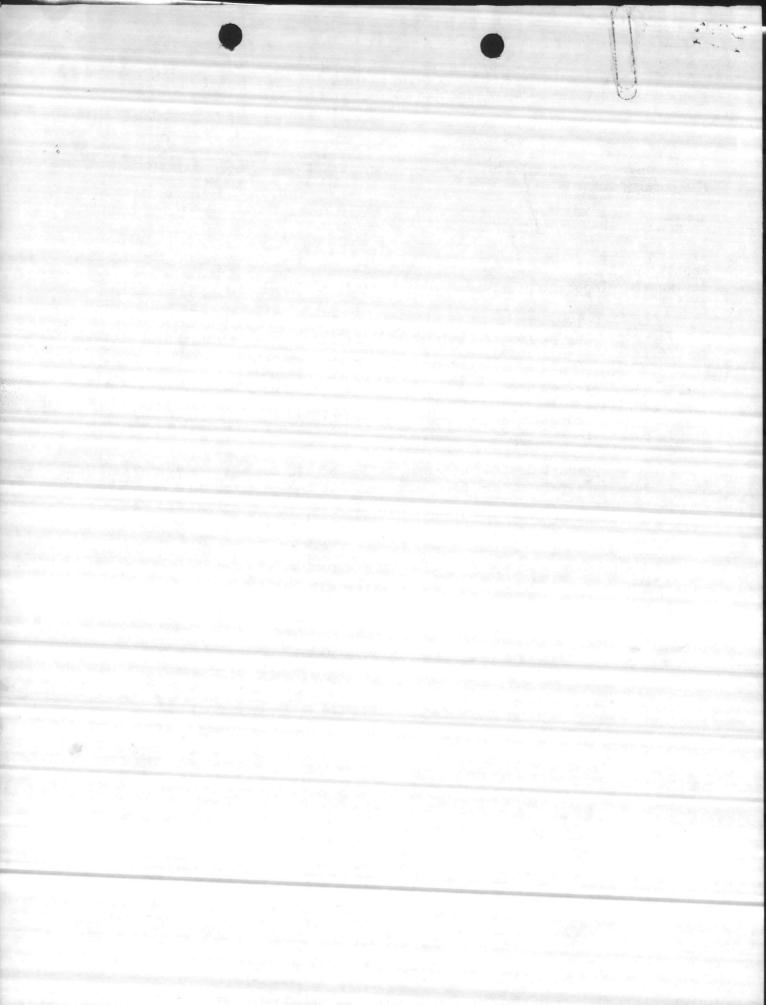
MEMORANDUM FOR CODE 112

Subj: Coal Conversion; wastewater impact

- 1. The proposed coal conversions for Naval Station, Norfolk, and Naval Amphibious Base, Little Creek, will presumably be designed to have any dry weather (operational) wastewater discharges connected to the sanitary system.
- 2. The remaining wastewater impacts will be from the acid stormwater runoff from the open coalpile.
- 3. If silos are not used to prevent this runoff, the open coalpile should be lined to prevent groundwater contamination. The coalpile should also be bermed with the stormwater runoff collected, settled and slowly pumped to the sanitary system.
- 4. For conceptional design purposes, a flow of 100,000 gallons per acre for a heavy (4") rain should be considered. If the settling pond is pumped down at 25-50 GPM/acre, approximately one-half acre-foot for each acre of pond capacity should provide an adequate settling/holding capacity.

DR Bailey

J. R. BAILEY, P. E. Hoad, Environmental Quality Section Environmental Engineering Branch Utilities Division





STATE OF NORTH CAROLINA

JAMES B. HUNT, JR.

DEPARTMENT OF HUMAN RESOURCES

Division of Health Services

SARAH T. MORROW, M.D., M.P.H.
SECRETARY
P. O. Box 2091

Raleigh 27602

February 1, 1978

JACOB KOOMEN, M.D., M.P.H.
DIRECTOR

0ne Hundred Years
of Public Health
in North Carolina

NEWSLETTER NO. 4

TO:

Water Supply Officials

Health Department Personnel

Consulting Engineers

FROM:

W. J. Stevenson, Head

Water Supply Branch

Sanitary Engineering Section

SUBJECT:

Safe Drinking Water Act in North Carolina

*National Interim Primary Drinking Water Regulations Now In Effect

*North Carolina Water Supply Branch Will Be Handling Most Elements Of The Safe Drinking Water Act Program In The State

*North Carolina Laws Still In Effect As In The Past

*EPA Regional Office In Atlanta In Charge Of Enforcing Safe Drinking Water Act in North Carolina

Beginning June 24, 1977, the National Interim Primary Drinking Water Regulations became effective throughout the United States. As of this date North Carolina has not assumed primary enforcement responsibility for these regulations. However, the development of a Memorandum of Understanding has enabled the State to handle most aspects of the program. North Carolina's water suppliers are responsible for complying with the Federal regulations and reporting to the Water Supply Branch of the North Carolina Division of Health Services as required in the Interim Regulations.

As of June 24, 1977, all <u>surface</u> water supplies should have been making daily turbidity analyses by the nepholemetric method (section 141.22). In addition, all <u>surface</u> and ground water <u>community</u> supplies are responsible for the number of bacteriological analyses shown on the attached population table. For those supplies with populations of under 1,000 people, only one monthly sample is required. This sample can be the sample analyzed each month in the State laboratory. Supplies serving greater than 1,000 people should check the population table for the number of samples required each month. These samples must be analyzed in an approved laboratory.

Water Supply Officials Health Department Personnel Consulting Engineers Page 2 February 1, 1978

Within the next month, the State laboratory expects to have initiated a program for analyzing all bacteriological samples for those supplies serving a population of 10,300 or fewer, 10% of the bacteriological samples for supplies serving a population of more than 10,300 but requiring less than 100 samples per month and 2% of the bacteriological samples for supplies requiring more than 100 samples per month.

For a list of approved laboratories, you should contact Dr. R. J. Drye, Head, Environmental Sciences Branch, Laboratory Section, North Carolina Division of Health Services, P. O. Box 2091, Raleigh, North Carolina 27602; telephone (919) 733-7308.

If there is any violation of either the standards or the monitoring requirements, the Water Supply Branch should be notified, within 48 hours. If the Water Supply Branch determines that there is a need to notify the public, the water supplier will be notified.

Violations

Turbidity

Turbidity analyses must be made daily for all surface water supplies from samples which are to be collected at the entrance to the distribution system. A violation of the turbidity standard occurs if the average of two consecutive samples is greater than 1 turbidity unit or if the monthly average exceeds 1 turbidity unit.

Bacteriology

Each month the number of bacteriological samples indicated on the population table must be collected from representative points throughout the distribution system. These samples may be analyzed either by the multiple tube or the membrane filter method. For either method, if the original and two consecutive daily check samples exceed the standard, the State must be notified. Further requirements concerning the bacteriological standards can be found in the National Interim Primary Drinking Water Regulations.

Public Notification for Community Supplies

For any violation including failure to meet monitoring requirements, the supplier must notify persons served by the system by including a notice in the first set of water bills after the violation. If no water bills are issued or if billing is less frequent than every three months, notification must be made by another form of direct mail. However, before notifying the public, contact the Water Supply Branch in Raleigh, North Carolina to confirm that public notification is required. There are additional public notification requirements for failure to meet maximum contaminant levels. It is necessary

Water Supply Officials Health Department Personnel Consulting Engineers Page 3 February 1, 1978

to publish notification of this failure in a newspaper of general circulation for three consecutive days within 14 days of the discovery of the violation; or if no daily newspapers are available, three consecutive weeks in a weekly newspaper; or if no weekly newspapers are available, notice must be posted in the post office which serves the area. In addition, a copy of the notification must be furnished to local radio and television stations within 7 days of the discovery of the violation.

In all cases the notice should be conspicuous and should not be so technical as to confuse the reader. It must include any pertinent facts regarding the violations and a statement of what regulation has been violated. Any needed preventative measures should also be listed.

The notice may also include any explanation of the seriousness of the problem to the public and the action being taken to correct the problem.

If you have any questions regarding this matter, please let us know.

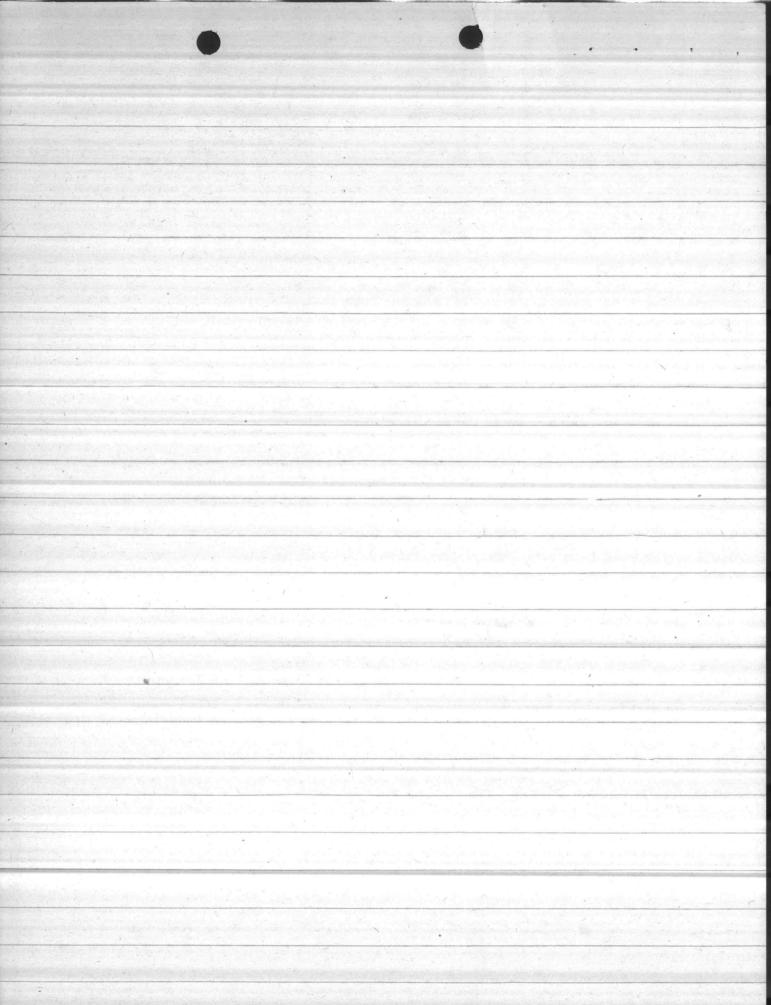
POPULATION TABLE

Population Served	Minimum	Number of	Samples Per Month
25 to 1,000		1	1 1 1 W. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1,001 to 2,500		2	
2,501 to 3,300		3	
3,301 to 4,100		4	
4,101 to 4,900		5	
4,901 to 5,800		6	
5,801 to 6,700		7	
6,701 to 7,600		8	
7,601 to 8,500		9	
8,501 to 9,400		10	
9,401 to 10,300		11	
10,301 to 11,100		12	Links - Berling to the
11,101 to 12,000		13	
12,001 to 12,900		14	
12,901 to 13,700		15	
13,701 to 14,600		16	
14,601 to 15,500		17	
15,501 to 16,300		18	
16,301 to 17,200		19	
17,201 to 18,100		20	
18,101 to 18,900		21	
18,901 to 19,800		22	
19,801 to 20,700		23	
20,701 to 21,500		24	
21,501 to 22,300		25	
22,301 to 23,200		26	
23,201 to 24,000		27	
24,001 to 24,900		28	
24,901 to 25,000		29	
25,001 to 28,000		30	
28,001 to 33,000		35	
33,001 to 37,000		40	
37,001 to 41,000		45	
41,001 to 46,000		50	
46,001 to 50,000		55	
50,001 to 54,000	the second of th	60	and define the form of the company o
54,001 to 59,000		65	
59,001 to 64,000		70	
64,001 to 70,000		75	
70,001 to 76,000		80	
76,001 to 83,000		85	
83,001 to 90,000		90	
90,001 to 96,000		95	
96,001 to 111,000		100	

DATE: 21 April 77 OPNAV 5216 (144 (REV. 6-70) S/N 0107-LF-778-8099 DEPARTMENT OF THE NAVY Memorandum FROM Dir MREA Div TO BMO SUBJ Cogdell's breek Monitoring 1. As a followip to An earlier report Concerning this creek, Bacteria Counts helow the Force Main at HPT. 5TP have dropped from an average of about 3000 in March 77 to 300 in April. The latest Courts unere determined by a Fecal Strep Coliform testing procedure that indicates The 300 Count is not attributable to human Waste. a Count of 300 is Too high for rurreational use of the water, but Tince the Pollution is attributable to Wild Unimal Populations, In not Sure That Of. We have Day further action at this RWAN

Copies and the second second second Consuming the Contract of the Contract of Andrew Andrews Contraction of the Portion of March 11 to 1 John House of the same The sec time of the section of the feeting to

From: Ecologist. Julia fixe To: Director NREAD Subj: Cogdells buch Pollution as intructed the hab, has conducted test on Cogdels Greek and results indicate The stream has improved airel July 76. Back text condustil on samples collected below the force main at # Point STP have bropped from 3,000 on 8 March 77 to 300 on 20 April 77. 300 coliform may not be area. Fical strip coliform test endicate that the bacteria is primarly of will amendorige and not human and continuing below the force main at Hadrot RT Sewage Trudment



Total Fleat 20,000 18 TNIC TNTC 19 4,500 20 0 TNTC 21 PINTO 40 22 4117 e 28 360 24 TNT Q 200 25 named 900 26 305 27 125 TNIC 28 8:00 TYTC 300 190 TNTC THIC 220 4



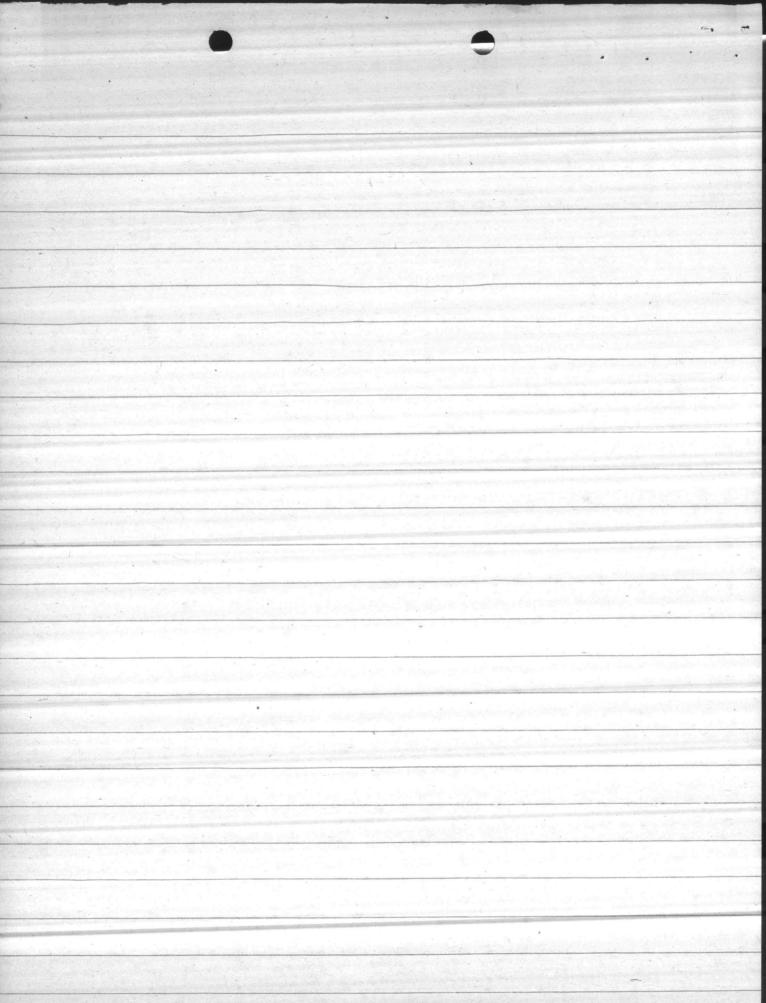
NATURAL RESOURCES AND ENVIRONMENT AFFAIRS DIVISION BASE MAINTENANCE DEPARTMENT MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA 28542 18 FeB 77 From: Director, NREA Division To: Julian
Subj: 1. Col. wood wante a montoy regart on Cozdelli cruh Company how to was pollutoring Teaher getting enfol (over)

TNT
22 Facal
23-40 Sailvel J 20 - TNTC /

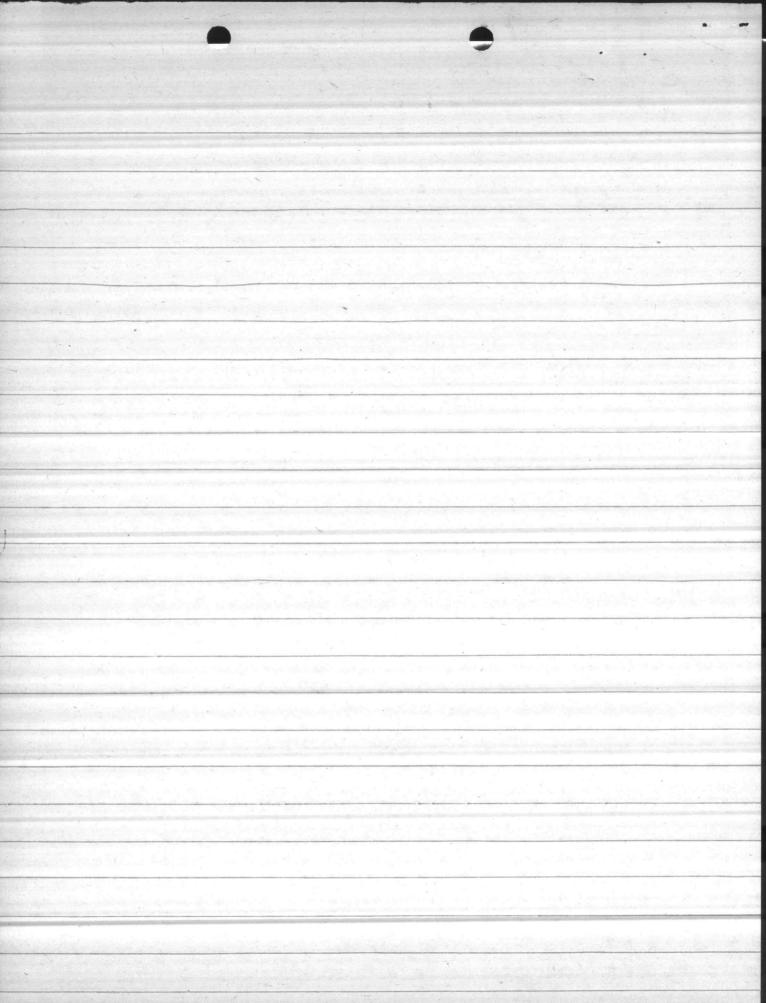
NREA fets take a look at entire water -Shed of Or. Corl



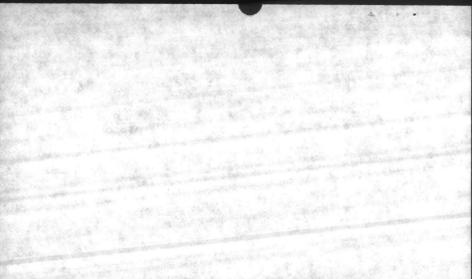
(24 FeB 1977 BUE From MARA to BMO Suly Cogdells Culk Polliction/ yn Request 1. The alt guin a pretty good Summary of Stream Conditions Since last Summer. 1PH + Do are generally OR - BOD and Bacteria Court and very excession, although Some improvement is Seen in recent months - Probably due to low temperatures. 2. home of these Samples were taken below the Broken Sewage main [They are testing below the main at this time). The trench at north End of landfill has heen closed off for Some time - leaving movement through Soil a likely Source - Gulian har detected Strong odom bet functive of Cruck and n. End of landfill.



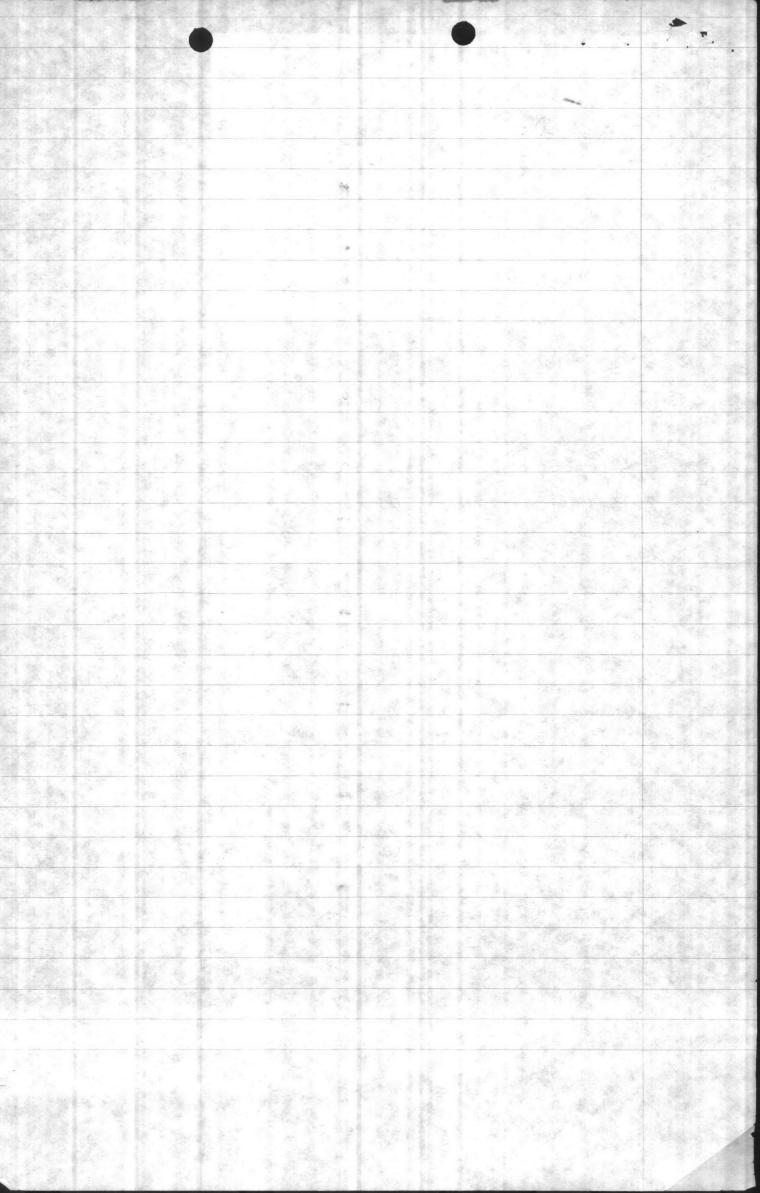
3. The Creek drains a mostly Forested area and there are no Sewage mains up the Oreck. Therefore, Can only Surmise that Landfill remains as The plumain Jource T. Will Sulmit An Additional Fyort On Sewage main impact as testing results are available 1/R



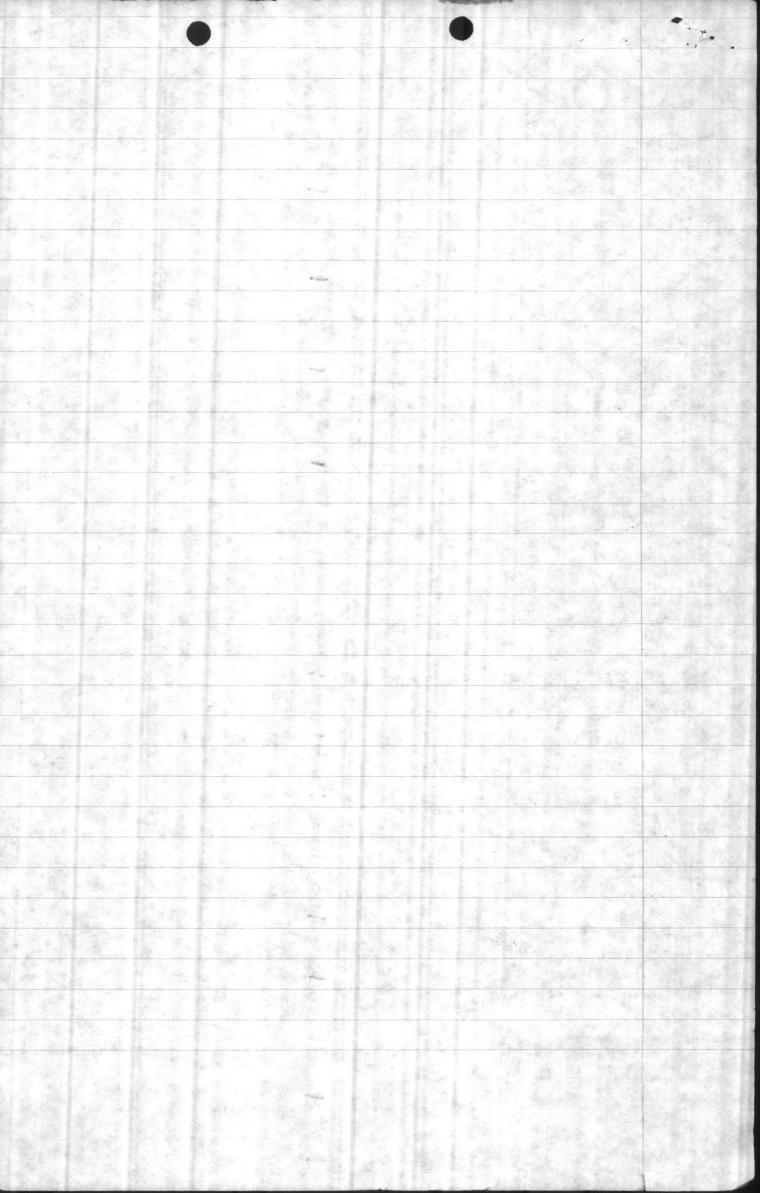
Cogdels beef below pand fell about landfill C-2 between primary & See toustant C-3 below force main near Bldg 683 C-4 at Man Sowie Road. C-5



4	C-1-	Cogdel	e at B	vidge	NORM	
	. 6-2		s opst		DH-	6.50 8.5
	CH-I	Cowher	ed at B	ridge	D0 -	4.0 Mg/L-6.0 Mg/L
	CHI	- counci	ed upst	T COME	BOD	- z - Ce majl
Date	Location	0.0.	PH	BOD5	Fecal Coli.	COI NOT Exceed 200 court
6-14-76	Cop 1	0,2	6.5	700.	\$ 500	
	CH-1	6.7	6.9	5 1	0	
6-17-76	C-1	0,3	6.9	340	120	
	CH-1	6.5	6.9	8,	60	
6-21-76	C-1	2.5	6.9	40,	2780	
	CH-I	5,9	6.9	2.5	1260	
6-26-76	C-1	0.5	6.6	- 34	100	
theo	C-2	2.7	6.8	3	0	
A	CH-1	5.8	6.9	2 2	0	
Head	CH-2	2.2	6.9	20	40	
7-1-76	C-1	0,3	6.9	35	120	
	c-2	1.8	6.9	5	0	
	CH-I	6.0	6.9	2,5	0	
7.8-76	6-1	0.4	6.5	48.0	× 40	
	c-2	4.5	6.7	5.5		
	CH-1	6.2	6.5	5.0	92	
7-15-76	C-1	0.3	6.7	120	30	
	6-2	114	6.1	5,5	750	
	CH-I	6.7	6.6	8.5	- 68	
7-21-76	C-1	0.2	6.8	75	180	
	C-2	0.4	6.3	16	120	
	CH-1	7.1	6.8	7.5 .	570	
7-28-76	C-1	0.4	6.7	102	160	
	C-2	2.8	6.1	9	410	
	CH-I	6.5	6.9	7 .	230	
8-5.76	C-1	4.7	5.8	16	1000	
	CH-1	6.7	5.7	9 .	360	
8-12-76	6-1	2.3	4.8	50	130	
	CH-I	6.9	6.8	10 .	0	
8-19-76	C-1	0.2	7.0	140	300	
4	CH-I	7.5	6.9	3,5	60	
8-24.76	C-1	1.4	6.2	70	600	
	CH-1	6.4	6.3	7 .	30	

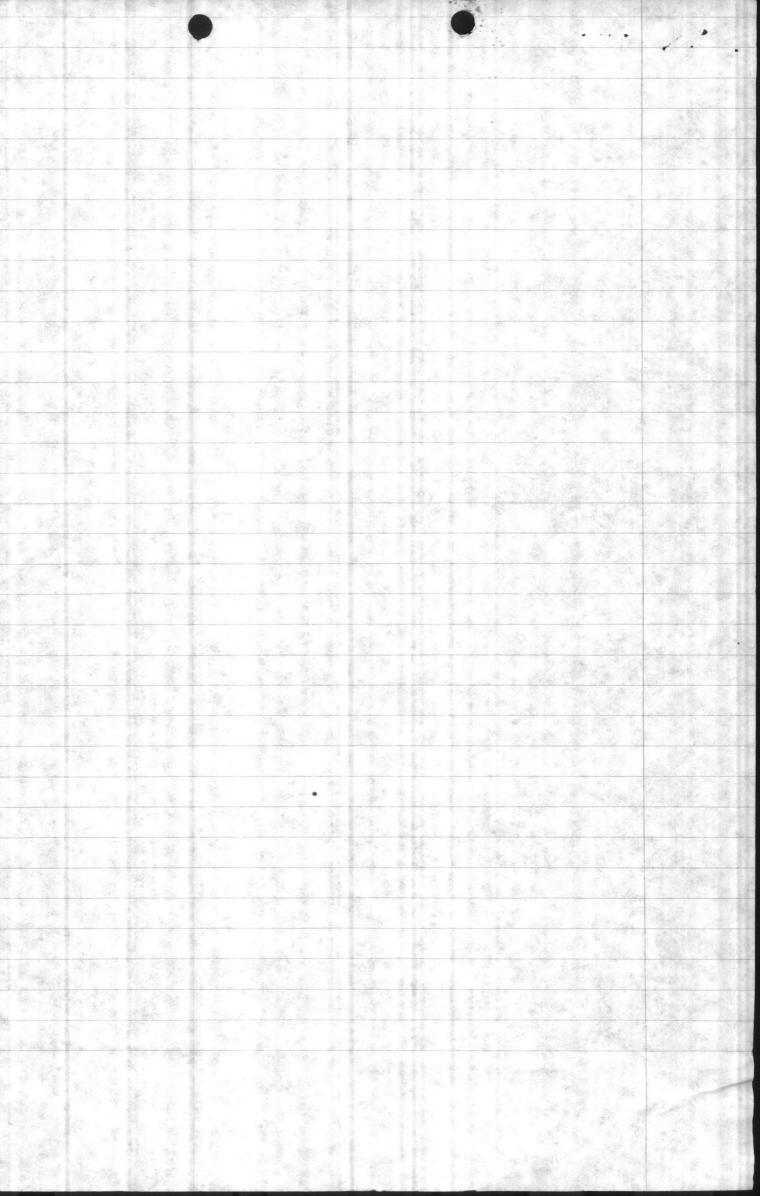


Date	Location	D.o.	PH	BOD5	FeeclColi	
9-2-76	C-1	1.4	6.6	124	× 400	
	CH-I	7.1	6.6	6.5	- 90	
9.9-76	C-1	2.3	6.6	108	× 600	
No.	6-2	4.2	4.1	5	60	
	CH-I	7.4	6.7	7.	- 60	
9-29-76	0-1	0,4	6.2	102	× 410	
	c-2	2.8	6.1	9	160	
	CH-1	6.8	6.3	7	230	
10-4-76	C-V	1.4	6.2	70	× 200	
	C-2	2.7	6.8	3	60	
	CH-1	7.1	6.6	6.5	- 80	
10-17-76	C-1	1,0	6.1	90	× 100	
	C-2	4.5	6.7	5,5	240	
	CH-I	7.4	6.7	8	120	
10-24-76	C-1	0.3	6.7	120	× 80	
	CH-I	7.5	6.9	3.5	100	
10-31-76	C-1	4,0	6.3	40	× 500	
	CH-1	7.0	6.4	3	- 200	
11-7-76	c-1	7.6	6.6	52	× 150	
	CH-1	8.8	6.5	5	- 30	
11-12-76	C-1	3.7	7.0	50	x 400	
	CH-I	7.9	7,0	3	10	
11-17-76	C-1	7.0	7,0	10	¥ 900	
	CH-1	8.8	7.1	2.5	- 200	
11-24-76	c-1	7,4	7,0	45	X 50	
	CH-1	9.5	7.6	6	100	
12-2-76	C-1	8.4	6.6	5	x 0	
	CH-I	9.3	4.6	3	- 200	
12-7-76	C-1	7.7	7.0	12	x o	
	CH-I	8,3	7.1	5	350	
1-13-72	6-1	9.8	6.7	10	×100	
	CH-1	11.0	6.6	7	-0	
1-20-77	C-1	10.4	6.3	5	× o	
	CH-1	10.5	6.5	4 .	200	
			Control of the second	are the second		



C-3 By Plant

Date	Fecal	Stiep	Ratio	Total	D.0	PH	302
3-1	300					and the second	
3-2	200		it is a second				
3.3	240				-	-	14
3-4	120						
3-7	20,000	2800	7,1	TNTC			
3.8	1,000	600	17	16000			
3-9	120			2500			
3-10	140	92	1.5	600			
3-14	350	320	1,1	_			
3-15	200	100	2.0	700		100	
3-16	210	(20)	10.5	800.			
3-17	400	40	10	500			
3-18	100	68	1.5	320			
					and a		
			C-4				
3-3	50				_		5
3-7	740	3280	0.23	3500			
3.8	3000	6000	0.5	9100			
3-9	300	84	3.6	3000			
3-10	70	76	0.92	400			
3-14	900	340	2.6				
3-15	150	112	1:3	2400			
3-16	40	32	1,25	500			
3-17	90	36	2.5	1200			
3-18	320	160	2.0	340			
					1 11 13		
4-20	300						
4 - 11	300						
						1.00	



		Cons	ice Ka
	Man	- 2000	
C-5	111		

			0-3				
Date	Feco)	styp	Ratio	Total	5.0,	pH	BOD
3.3	140						6
3-7	٥٥٥٥ و٥٥	1920	10.4	8500			
3-8	100	1000	0.1	1200			
3-9	300	1820	0.16	6000		4	
3-10	70	60	1.115	300			
3-14	900	400	2.25	-			
3-15	200	80	2.5	2400			
3-16	200	(16)	12.5	800			
3-17	300	52	5,8	400			
3-18	244	400	0.6	600			
			c-1				
3-3	70				9.6	7,0	2,8
3-9	20	20	1.0	100	8.8	6.6	4,5
3-16	296	(20)	14.5	470	7.9	6,2	7.0
3-18	800	36	22.2	1200	7.2	6.4	
				10 Ps			
			c-2	Way at the			
3-3	0				6.8	4,2	8
3-9	0	4	0,	300	7,4	4.8	4.5
3-16	D	0	0	50	5.2	3,8	510
3-18	4	D	0	0	3,8	4.1	
¥ 1,034			CH-1				
3-3	100	4.50			9.8	7.2	5
3-9	120	300	0.4	3000	9.3	6.2	3,5
3-16	100	40	2.5	100	8.1	6. Z	9.0
3-18	84	48	118	1600			
			2 1 2				
3-9	D	40	CH-2	2000	6.9	4.9	3.5
				AND THE BOOK STORY OF THE STORY			



NATURAL RESOURCES AND ENVIRONMENTAL AFFAIRS DIVISION Base Maintenance Department Marine Corps Base Camp Lejeune, North Carolina 28542

MAIN/JIW/th 30 August 1977

J. K. Timmons and Associates, Inc. 1314 West Main Street Richmond, Virginia 23220

ATTN: MR. DENNIS L. KAISER

Dear Sir:

As per your request, the enclosed NPDES permit for the Camp Geiger sewage treatment plant is forwarded for your use in compiling the sewage treatment plant operations and maintenance manual.

Sincerely,

WENDELL A. NEAL Director

Enclosure

THE STATE OF THE PROPERTY OF T

Terror months

DESTRUCTION AND THE



J. K. TIMMONS & ASSOCIATES, INC.

ENGINEERS . SURVEYORS . PLANNERS
1314 WEST MAIN STREET . RICHMOND, VIRGINIA 23220 . (804) 353-6687

Directors:

J. K. TIMMONS, N.S.P.E. J. H. HENSON, N.S.P.E. W. R. KLUGE, C.L.S. C. R. WARREN, N.S.P.E.

August 24, 1977

Col. C. W. Wood
Base Maintenance Officer
United States Marine Corps
Marine Corps Base
Camp LeJeune, North Carolina 28542

Re: NPDES Permit for Camp Geiger Sewage Treatment

Plant

Dear Sir:

We are preparing an operations and maintenance manual for the expanded wastewater treatment plant at Camp Geiger. A copy of the NPDES permit is to be included in this manual. We received from your office a copy of a letter dated July 21, 1977, referencing revisions and modifications of the existing permit. We need a copy of the actual permit in addition to these revisions.

Please send us this permit at your earliest convenience.

Sincerely,

Dennis Kaiser

DK/ct

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The second

ASSISTANT CHIEF OF ST., FACÍLITIES HEADQUARTERS, MARINE CORPS BASE

DATE OH MILE MY

TO:

BASE MAINT O

DIR, QUARTERS & HOUSING

PUBLIC WORKS O

DIR, BOQ/BSQ

COMM-ELECT O

BASE FIRE CHIEF

MOTOR TRANSPORT O

ATTN:

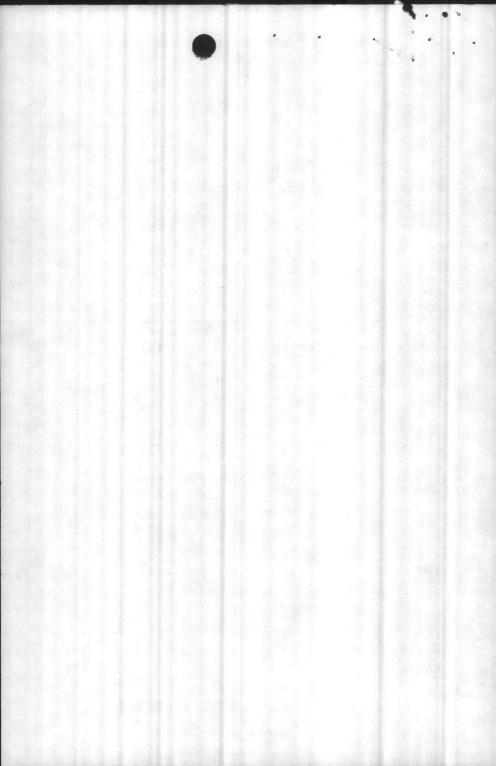
1) Attached is forwarded for info action.

Action for Puro. Pla provide support Jugo to Puro

2. Please initial, or comment, and return all papers to this office.

3. Your file copy.

"LET'S THINK OF A FEW REASONS
WHY IT CAN BE DONE"



	ACTION	INFO	INITIAL
вмо			1000
ABMO		-	BINZ
MAINT NCO			, 00
SAFETY CHMN			
PROP			
M&R			
OPNS			
ADMIN			
TELE			1
UTIL		/	AMBO
ENVIRON AFF	•	/	2711
SECRETARY			
F&A BRANCH			





DE RTMENT OF THE NAVY ATLANTIC DIVISION NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA 23511

TELEPHONE NO.

444-7313

IN REPLY HEVEL TO:

114: DPG

1 AUG 1977

V

MEMORANDUM FOR MCB CAMP LEJEUNE AND MCAS CHERRY POINT

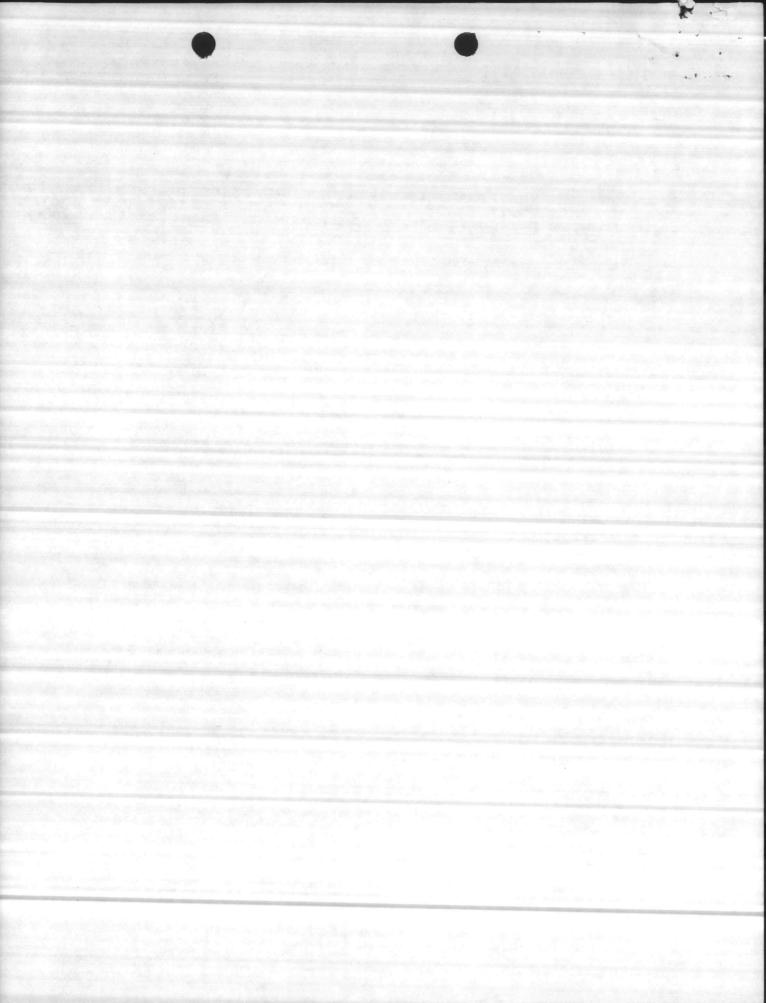
Subj: Coal Conversion; wastewater impact

Encl: (1) Code 114 memo to Code 112 of 1 Aug 1977

1. Enclosure (1) is forwarded for your information and use.

DR Bailey

J. R. BAILEY, P. E. Head, Environmental Quality Section Environmental Engineering Branch Utilities Division





DEPARTMENT OF THE NAVY ATLANTIC DIVISION NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA 23511

14-7313
IN REPLY REFER TO:
114:DPG
6240
1 AUG 1977

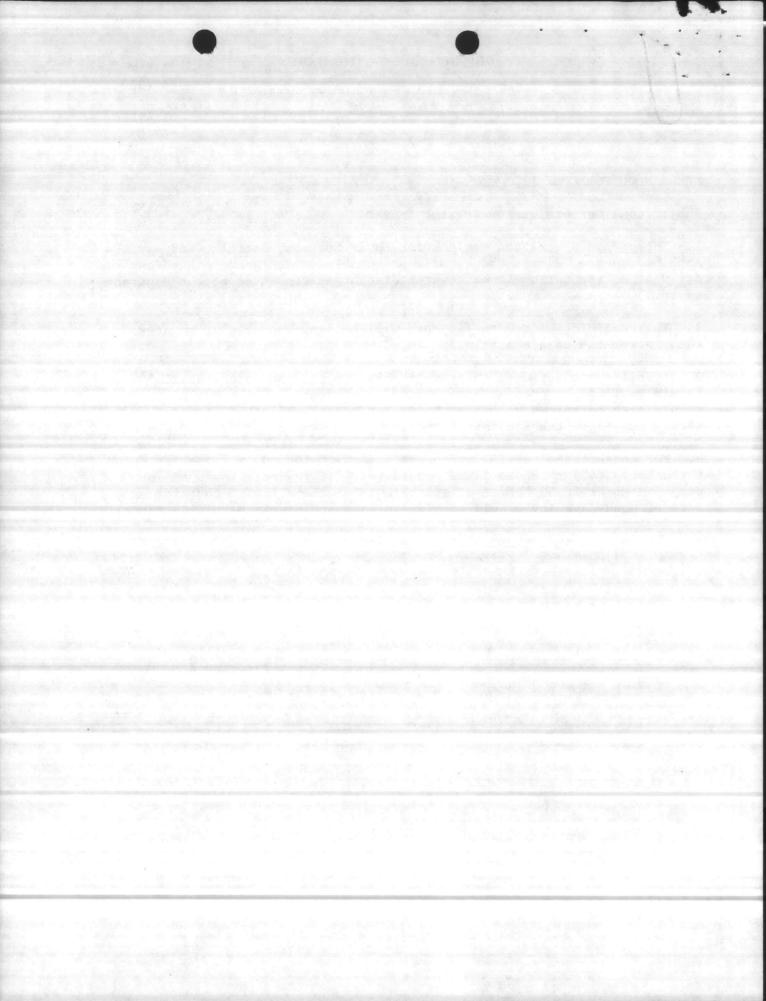
MEMORANDUM FOR CODE 112

Subj: Coal Conversion; wastewater impact

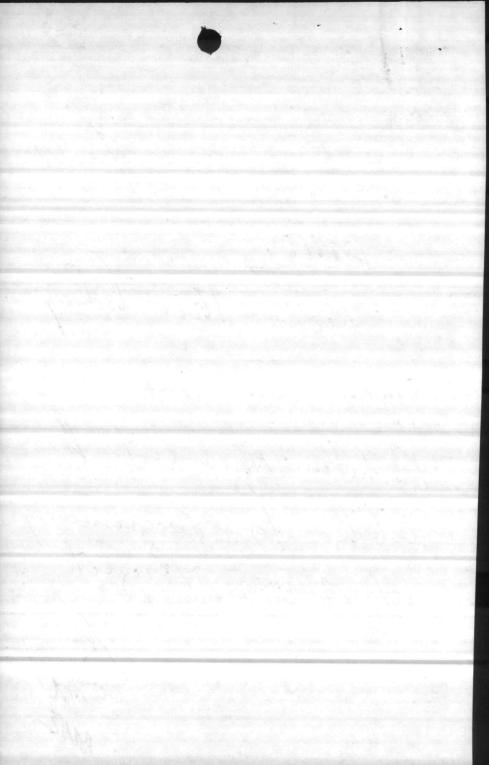
- 1. The proposed coal conversions for Naval Station, Norfolk, and Naval Amphibious Base, Little Creek, will presumably be designed to have any dry weather (operational) wastewater discharges connected to the sanitary system.
- 2. The remaining wastewater impacts will be from the acid stormwater runoff from the open coalpile.
- 3. If silos are not used to prevent this runoff, the open coalpile should be lined to prevent groundwater contamination. The coalpile should also be bermed with the stormwater runoff collected, settled and slowly pumped to the sanitary system.
- 4. For conceptional design purposes, a flow of 100,000 gallons per acre for a heavy (4") rain should be considered. If the settling pond is pumped down at 25-50 GPM/acre, approximately one-half acre-foot for each acre of pond capacity should provide an adequate settling/holding capacity.

DR Bailey

J. R. BAILEY, P. E. Head, Environmental Quality Section Environmental Environmental Environmental Utilities Division



NATURAL RESOURCES AND ENVIRONMENTAL AFFAIRS DIVISION BASE MAINTENANCE DEPARTMENT MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA 28542 6/22/11 Director, NREA Division $\langle \cdot \rangle$ From: Subj: SMW Rec'd This today appears like More Polhetin Abstement - lo likely for Programming W/ mise. Project YR WAN BUE





DEPARTMENT OF THE NAVY ATLANTIC DIVISION NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA 23511

4-7313
IN REPLY REFER TO: 114: DPG 6240

AUG 1977

MEMORANDUM FOR CODE 112

Subj: Coal Conversion; wastewater impact

- 1. The proposed coal conversions for Naval Station, Norfolk, and Naval Amphibious Base, Little Creek, will presumably be designed to have any dry weather (operational) wastewater discharges connected to the sanitary system.
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DR Bailey

J. R. BAILEY, P. E. Head, Environmental Quality Section Environmental Engineering Branch Utilities Division

JULIEN,

CAMP LESEUNE IS SCHEDULED FOR A COAL CONVERSION

STUDY BY LANDON CODE 112. THIS WILL INCLUDE A

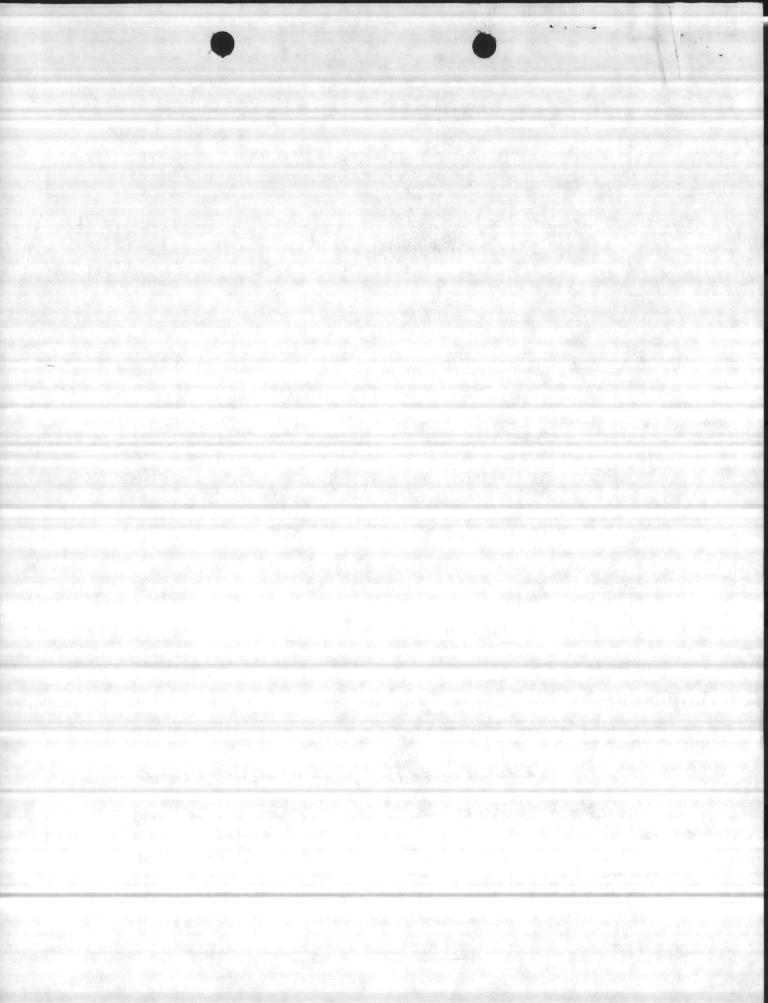
LOOK AT THE COAL PILE AND HANDLING FACILITIES AND

THE AIR, WATER, NOISE AND SOLID WASTE POLLATION PROBLEMS.

IT HAS NOT BEEN SCHEDULED YET. JOE ASHLEY OF CODE 112

15 THE PERSON TO TALK TO ADOUT 1T. (AUTOWN 690-7331)

Chanle,



Ou

North Carolina Department of Natural & Economic Resources

JAMES B. HUNT, JR., GOVERNOR

HOWARD N. LEE, SECRETARY

DIVISION OF ENVIRONMENTAL MANAGEMENT

BOX 27687, RALEIGH 27611 TELEPHONE 919 733-4740



Dear Sir:

The North Carolina Division of Environmental Management is in the process of surveying the existing wastewater analytical capabilities in the State. The information gathered will be helpful in evaluating the data which is presently reported under the Surface Water Monitoring and Reporting Act of this Division. Since your facility is a major contributor of wastewater data, we are requesting that you complete the enclosed questionnaire and return it within 30 days to North Carolina Department of Natural & Economic Resources, Division of Environmental Management, Laboratory Section, P. O. Box 27687, Raleigh, North Carolina 27611. At that time all responses shall be carefully reviewed to shape future Departmental policy on this matter.

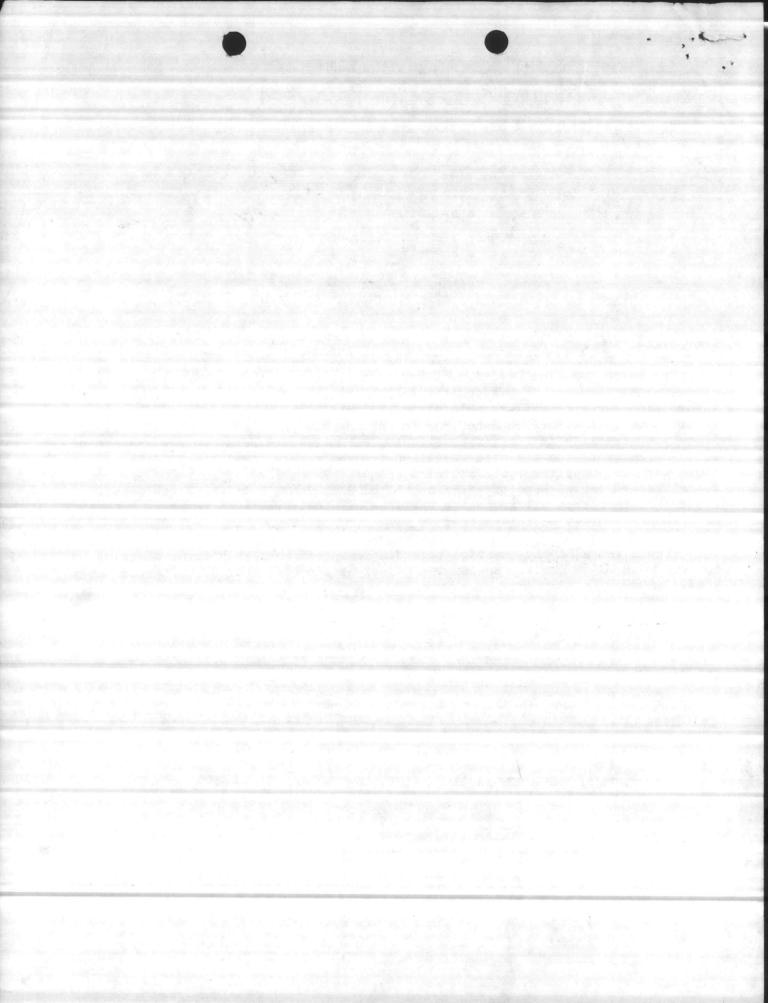
Should there be any question regarding completion of this form, please contact your Water Quality Regional Engineer at his office or D. E. Lentzen at 919/733-3909.

We appreciate your cooperation in this study.

Yours truly,

W. E. Knight

Enclosure



North Carolina Department of Natural and Economic Resources

Division of Environmental Management

Survey of Wastewater Laboratory Service to Class III and IV Facilities GEOTTHOM

Lab	orat	ory Services
A.	1.	Name of Sanitary District, Treatment Authority, Municipality or Industrial Treatment Facility Marine Corp Base, Camp Lejeune, N.C.
	2.	Mailing address: Commanding General, Marine Corp Base, Camp Lejeune North Carolina 28542
в.	1.	Are any State or NPDES required wastewater monitoring analyses performed by your laboratory? Yes No
-		If yes, please complete the applicable questions which follow.
		If no, please provide the requested information on commercial laboratories which perform the State or NPDES required analyses for your unit (Part I C and III C.)
	2.	Quality Control Laboratory. Natural Reasorces Laboratory Location & Environmental Affairs Div. Camp Lejeune. N.C. (Please complete a separate form for each laboratory providing State or NPDES required monitoring data.)
	3.	Please list the Class III and IV treatment facilities in your district or under your authority. Check those served by your laboratory.
		Treatment Facility Class Plant Location Listed on reverse side
c.	1.	Hadnot Point STP Camp Geiger STP Montford Point STP Tarawa Terrace STP Please list the name of the commercial laboratory(ies), the location (city), and an estimate of the time lapse from the sample taking until the analyses are begun by the commercial laboratory.
	(1)	Name Location (city) Time Lapse
	(2) (3)	
	2.	Do your plant personnel collect any of the required samples which are analysed by the commercial laboratories? Yes No
	3.	Circle the type of samples collected by the commercial laboratory personnel.
		Upstream Plant Influent Plant Effluent Downstream
D.	Nat	ne and title of person completing questionnaire.
		Wallace Eakes, Knyxthemistx supvy chemist

HADNOT POINT STP MONTFORD Point STP

TARAWA TERRACE STP

ONSLOW BEACH STP TO COUNTHOUSE BAY STPT

RIFLE RANGE STP HIND SIP

he Corp Base, Camp Lejeune North Carolina 28542

Marine Corp

Commanding Ceneral.

Quality Control Laboratory, Natural Reasonces & Environmental Affairs Div, Camp Lejeune, N.C.

Listed on reverse side

Hadnot Foint STE Camp Lejeune Camp Lejeune Camp Geiger STP Camp Lejeune Montford Point STP Camp Lefeune TII Tarawa Terrace STP

II. Laboratory Personnel Qualifications and Duties.

Please complete the information requested for all laboratory personnel performing wastewater analyses. If all the required analyses are performed by one individual, write "all" in the analyses performed column. If several of the tests are performed by the individual but not all those required of your facility, you may list the tests by numbers as they appear in Section III; or you may abbreviate the test names performed by each individual. More than one person may be listed as performing each analysis. Next, list each employee's applicable education and experience for performing the analytical testing he does. Use an additional sheet if more space is necessary.

Analyses Performed	Experience Type & Years	Operator's Certificate	Attendance at NER Lab Course	High School yrs/grad	Tech School yrs/grad	College yrs/grad
all	chemistry	none	no NER 2 EPA	1953		1972
all except		none	none	1963		1973
	laboratory		1976	1946		
all	laboratory 35 yrs	grade II	1976	1942		Que gas (197)
1	all all except BOD, COD, TKN all	all chemistry 3.75 yrs all except laboratory 2.5 yrs laboratory 30 yrs laboratory	all chemistry none all except laboratory BOD, COD, TKN 2.5 yrs none laboratory all 30 yrs grade II laboratory	all chemistry none 2 EPA all except laboratory BOD, COD, TKN 2.5 yrs none none laboratory all 30 yrs grade II 1976 laboratory	all chemistry none 2 EPA 1963 all except laboratory 2.5 yrs none none 1963 laboratory 30 yrs grade II 1976 1946	all chemistry none 2 EPA 1963 all except laboratory 2.5 yrs none none 1963 laboratory 30 yrs grade II 1976 1946

III. State or NPDES Required Parameter Testing

A. Please check the sampling method used to obtain compliance monitoring samples and estimate the number of hours lapsing between ending sampling and beginning the analyses.

	Composite Automatic	Composite Manual	Grab	Time Lapse
Upstream			x	max 3 hours
Influent		24 grab samples at one hour interval	Ls	8 hours max.
Effluent		same as above		same as abov
Downstream			x	3 hours max

B. Are sampling activities under the supervision of laboratory personnel? Yes No except the upstream and downstream which are collected by the lab personel NAWX waste water plant operators collect the influent and effluent samples

1972	1963	no NER 2 EPA	none	प्रमुख्कृत्वर्ध्य	11s	Wallace Lakes
1973	1963	none	none	laboratory 2.5 yrs laboratory	all except BOD, COD, THON	Lin Passingham
	1946	1976	gr de II	30 yrs	all .	Hoy Burns
	1942	1976	grade II	Laboratory 35 yrs	all	Don Clark

X max 3 hours

Lergb samples

At one hour intervals

same as above

X 3 hours max

except the upstream and downstream which are collected by the lab personel next waste water plant operators collect the influent and effluent samples

C. From the list below note which of the following parameters are State or NPDES required monitoring analyses for your facility(ies) by checking the box in the first column. If a commercial laboratory performs the analysis, indicate which laboratory does this in the next box by noting its position number from the list of Section I.C.1. If your laboratory performs this analysis for State or NPDES monitoring requirements, place a check in the second box and complete the information regarding the reference source for the analytical procedure used in this test determination. The Standard abbreviations are listed below. If you use reference sources other than these, give a complete citation for them.

Standard Abbreviations: 1. S.M.-Standard Methods for the Examination of Water and Wastewater; 2. EPA Methods-Methods for Chemical Analysis of Water and Wastes; ASTM-Annual Book of ASTM Standards.

Number	Required Monitoring	Laboratory Analysis by	The laboratory use in the Federal Reg List of approved m	ister, Wednesday, ethods, VOL 41, NO	December 2, 232 .	65B	
ample:	(/)	(/) (1)	pН	Electrode	EPA	1974	239
1	(1)	(1)	Chromium BOD Acido mod	seemone -	Contraction of the last of the	1975	543
2	(7)	(X		icalion & electro		and the state of t	293
3	(4)	(1)	COD Dichroma	ite Reflux	SM	1975	550
4	()	112		6 00 1		1605	222
	IX	(1)	Chlorine (residual)	amperometric.	Sn		326
5	(X)	(1)	Coliform, fecal, MF	nimprone filter	5 N	1 9975	922
6		()	Coliform, total, MF				
7	()	()	Coliform, fecal, MPN				
8	()	()	Coliform, total, MPN				
9	()	()	Color, Pt. Cobalt				
10	()	()	Color, Spectrophoto		The state of the state of		
11	()	()	Cyanide				
12	()%)	(1)	Dissolved Oxygen	Olectrode	Sn	1 1975	450
13	()	(),	Formaldehyde	property and the second			
14	(X)	(1)	Nitrogen, Kjeldahl Did	estion + Distillation + Tit	teation 5	m 1975	437
15	()	()	Nitrogen, ammonia				
16	(x)	(V)		d-Liquid extration	E	PA 1974	229
17	(x)	(1)	pH		Name of the American		
18	()	()	Phenol				
19	()	()	Phosphate, total			201	
20	(X)	(V)	Residue, total	GRAVIMETRIC		5m 1973	91
21	(X)	(1)	Residue, suspended	CHAGS FIBER F			594
22	()	()	Surfactants (MBAS)	- UTSLEIGH	75 (55)	2111	
23	()	()	Settleable matter				
24	(0/)	(1)		phelometric	5m 19	175 1	32
25	()	()	Aluminum	PRELOMOTETO	JUN L	12	
26	()	(5	Cadmium				
27	\	\	Chromium (Total)				
28	()	()	Copper			and the second second	
29	75	()	Nickel	And the second s	AND THE RESERVE		
30	\	75	Zinc			Charles Control	
30			Other NPDES or Star	Poguired Toots			
31	(x)	(15	conductivity	BRIDG-E	5m 1	175 7	11
	(X)	W	Temperature	thermometer	3m	1975 1	25

The laboratory uses only approved methods as published in the Federal Register, Wednesday, December 1, 1976, List of approved methods.

Mg de modification de electrode . SM

Januar Sy

LI

IV. Laboratory Equipment

Please list the manufacturer and model of the major equipment used in your laboratory in conjunction with the required monitoring analyses performed.

Equipment	Manufactur	er	Model
Analytical balance	2- Christian Brother	5 2 PAN	H-33 Bolance
Atomic absorption spectrophotomet	ter none		
Autoclave 2-scientific Equ 2-Barnstead	ipment MFG Corp.	816 tank-	
Deionizer or still Barnstead	-pure with water pur	ifier still	/deionizer
Discolved Owner meter Yellow	Springs Instrument Springs Insturment	model model	57
Daniel Grieve Cor		200	
Furnace, 550°C Thermolyne	model FB1410M		
Incubator, 35°C	entific 1- Lir	berg	
Labline	Cat# 3554B entific model 805		er de desta de la companya de la co
Membrane Filter Unit 2- Milipe	re stainless filter	holders	
Microscope 1- Spencer MIXXX	ch & Lemb Monecla disecting microscop		•
pH meter Corning Model 1 Orion model 701	0		
Refrigerator 1- Westinghouse 1- General elect	model F-12 ric model TB14SRC	(2n arder)	refrigera
Spectrophotometer 2- Bausch &	Lomb Spec-20		
Sterilizer, dry heat, 170°C no	ne		1146
Water bath, 44.5°C Precision	ftabe incubator		
mpermetric Titrator Wallac	e & Tiernan A-970		
conductivity Bridge Yellow Yellow	springs Instrument Springs Instrument	model 33 model 31	
urbidity HF Instruments	model DRT100		
AND THE RESERVE OF THE PARTY OF	NOT THE PLANT AND THE PROPERTY OF THE PARTY	the state of the s	

none

2-scientific Equipment MFG Corn. 2-Barnstead

81.6R tank-type

Barnstead Corning Mega-pure with water purifier still/deiddizer model 57 model 54 Yellow Springs Instrument

yelloe Springs Insturment Grieve Corp. model LO-200 1- drying oven MFG & model unknown

Thermolyne model F81410M Precision Scientific 1- Linberg Labline Cat# 355LB Precision Scientific model 805

2- Milipore stainless filter holders

2-KKKegKox Bausch & Lomb Monoclar Monocular 1- Spencer Mises disecting microscope Corning Model 10 Orion model 701

1- Westinghouse model F-12 1- General electric model TB14SRC (on order) refrigerator

2- Bausch & Lomb pec-20

Trecision portentificabator

ampermetric Titrator Wallace & Tiernan A-970

Conductivity Bridge Yellow springs Instrument model Yellow Springs Instrument model 31

Turbidity HF Instruments model DRT100

. Quality Assurance

A. Sampling and analytical procedures

Please complete the following table for State or NPDES required monitoring tests. (1) Report "P" for plastic, "G" for glass, or "SG" for sterile glass container type used in holding the respective samples prior to analysis. (2) Report the type of chemical and/or physical preservative measures used to hold the samples until they are analyzed. (3) Report the maximum amount of time (hrs) lapsed from collecting the sample until analysis is started. (4) Report the number and concentration range of the standards in your standard curve. Example: cyanide -(6), 40 µg - 2 mg.

arameter	(1)Container	(2)Preservative	(3) Holding time	(4)Std #/range
OD 800	<u>o</u>	Retrigeration	8	nultiple Dululia
od cod	G	11 1	8	0-100mg
hloride		e yandar		0
hlorine (residual)	6	None	NONE	wante
oliform, fecal, MF	56	Represention	8	post Neg
oliform, total, MF	36		8	Plates
oliform, fecal, MPN				
oliform, total, MPN				
olor. Pt. Cobalt				
olor. Spectrophoto				
yanide				
issolved oxygen	G Exen	NONE	NONE	name and the second
ormaldehyde				
itrogen, Kjeldahl	6	Refriguetion	8	0-20 mg
itrogen, ammonia		1 0		
11 and grease	G	1:1 H2504	24	0-500 mg
H DA	G	NONE!	NONE	4, 7, 9 Buffer
henol		100 mg 148 mg		J - 1.
hosphate, total				-
esidue, total				
esidue, suspended	6	Refrigeration	8	
urfactants (MBAS)		, v		
urbidity	Place	Representation	~	0134
luminum		, , , , , , , , , , , , , , , , , , ,		
admium				ego - g menheri stami i sepantikana - je sakan
hromium (Total)				
opper				
ickel				
inc				
ther NPDES or State		NONE	nove	tion to and tradition of equipment of the transfer of the tran
Required tests T	emperatine NON	e Nove	None	
	Sales and will be a second			

B. Equipment Maintenance

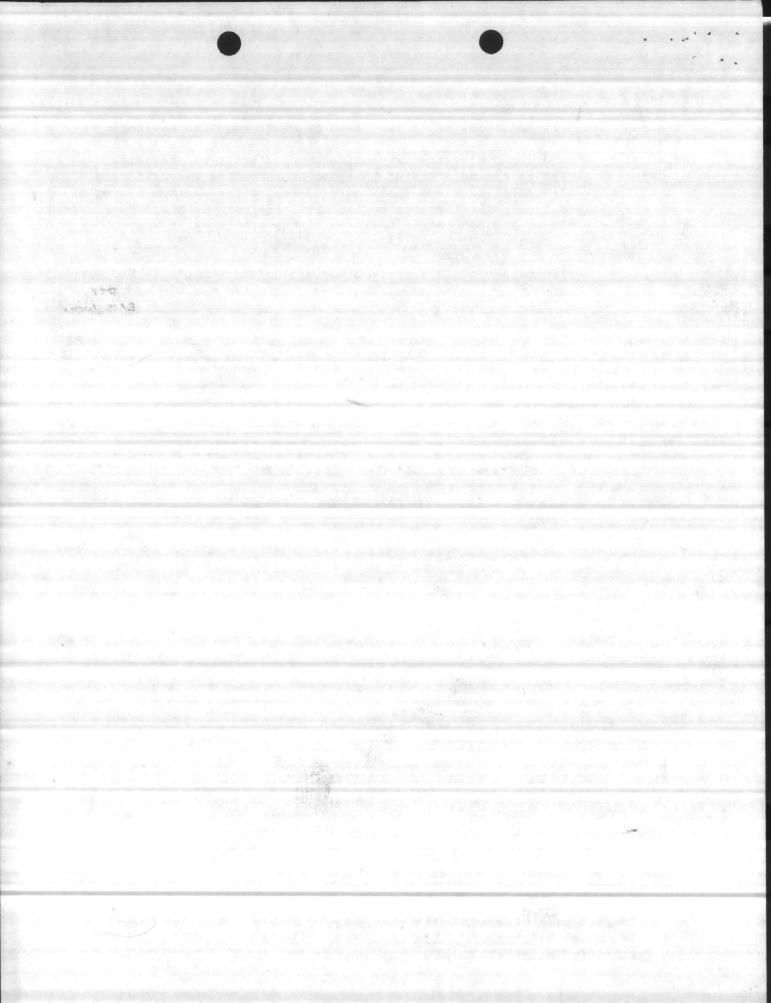
1. Analytical balance

Circle how frequently your analytical balance is

(a) Zeroed? (daily weekly monthly yearly

(b) Checked with standard weights? daily weekly monthly

(c) Are these weights traceable to National Bureau of Standards certified weights? Yes/No



2. Incubators

(a) Are incubator temperatures checked daily when they are in use? Tes/No

(b) Is a written record kept of these temperatures? Yes/No

(c) Are thermometers used for this purpose temperature compensated against certified thermometers? Yes/No

C. Reference Material

1. Literature

(a) Do you have the complete reference write-up for all analytical procedures carried forth in your laboratory. Example: Standard Mathods, EPA methods. ASTM. Yes/No

(b) Do you have a step by step procedure write-up for the analytical procedures carried forth in your laboratory? Yes/No

2. Standards

- (a) Are working standards analyzed along with each sample series to verify your standard curve? (Yes/No
- (b) Are external standards analyzed periodically? Yes No
 - (1) Frequency (circle): Monthly, Quarterly, Semiannually, Annually
 - (2) Source (circle): Another laboratory, Scientific supply house, EPA

D. Records

1. Solutions

(a) Is a written record made when new reagents and solutions are made?

(b) Circle the information contained in this log: Reagent made, date, balance readings, volume made, analyst

2. Data

(a) Are written records made of calculations in the determinations? Yes/No

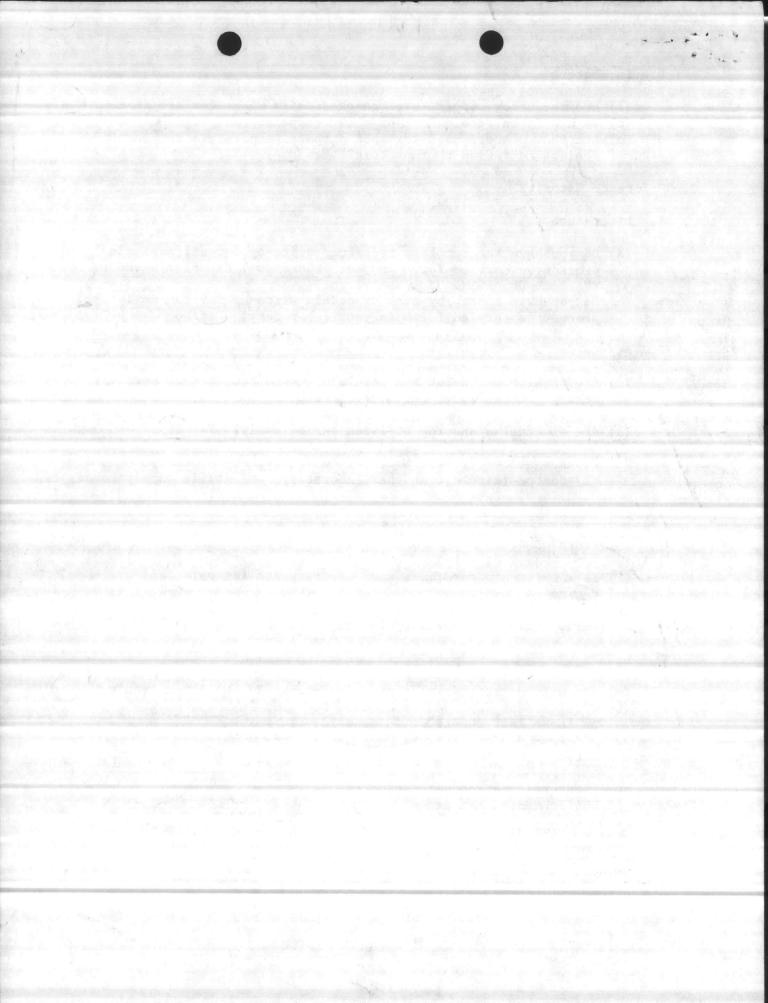
(b) Circle those applicable: Records are made in bound book, on loose leaf sheets, in pencil, in ink

Trent tilland ylddar yldin hin i'r ti Hinn lling - barran transan yr gan barra (ffr

To sustuff Larveliable of withshead and see comme

Return survey form to:

Department of Natural and Economic Resources Division of Environmental Management Laboratory Section P. O. Box 27687 Raleigh, North Carolina 27611



Memorandum

DATE: 1 Mar 1977

FROM Director, NREA Div

TO Base Maintenance Officer

SUBJ Additional workload/QCL

Ref:

(a) Safe Drinking Water Act (PL-93-523)

(b) Annual Well Analysis - NavFac Inst 5450

(c) NPDES Miscellaneous Discharges

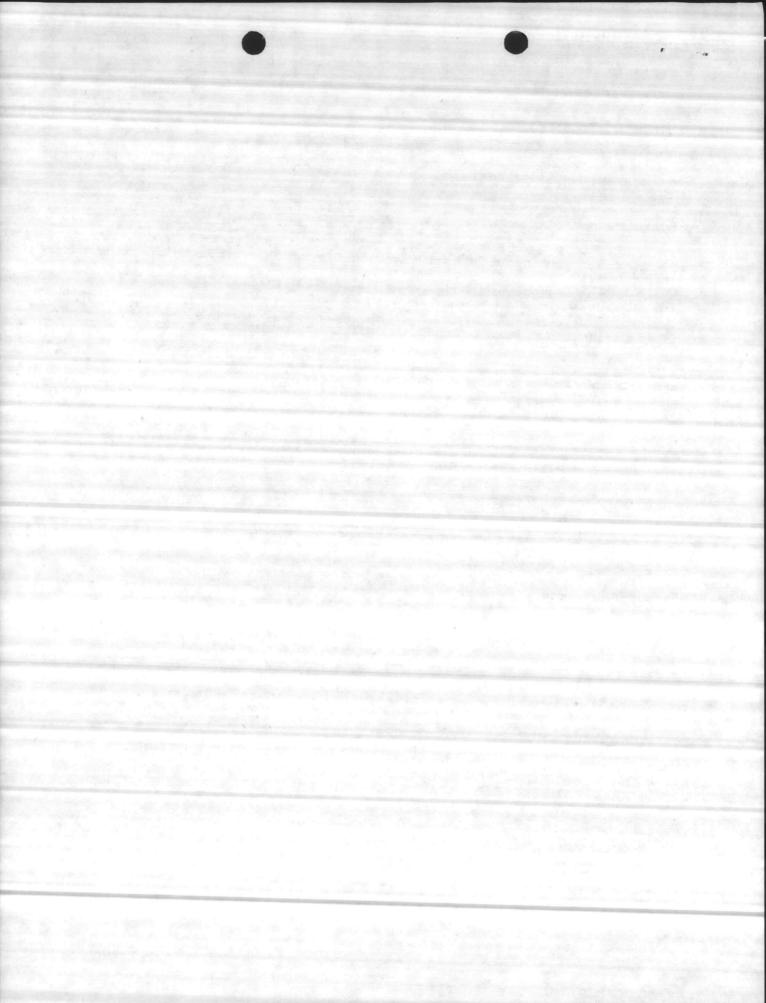
(d) Chemical Dump and Landfill Monitoring - NavFac Report U6119

(e) Annual Water Plant Analysis - NavFac & Bumed Inst(f) Additional Operational Monitoring - Steam Plants

1. References (a) through (f) if completely implemented represent a significant impact in terms of materials and manpower commitments. Summer 1977 represents the deadline for beginning miscellaneous discharge and drinking water monitoring. Other additional monitoring requirements may be phased in under less demanding time frames; likely a self imposed deadline of within the current fiscal period will suffice. As a base for evaluating capabilities for absorbing additional work, the following tables were constructed using EPA data and the lab operation history to assign time values for various testing proceedures.

a. Potable Water and Steam Plant Analyses

<u>Test</u>	Test/Year	Min/Test	Hour/Year
Potable Water Plant Anal	ysis		
pH Alkalanity Chlorides Hardness Iron Phosphates Fluoride Total Coliform Bacteria Fluoride (Daily)	468 468 468 468 468 312 468 2340 1560	3.2 3.2 3.2 3.2 12.8 19 12.8 5.1 15.3	25 25 25 25 100 100 100 200 400
Steam Plant Analysis			1000
pH Alkalanity Chloride Hardness Total Dissolved Solids Phosphates	3120 2080 3120 1040 3120 1040	1.5 4.6 1.5 2.3 0.8 2.3	80 160 80 40 40 40 40



Test	Test/Year	Min/Test	Hour/Year
<u>Other</u>			
Preparing Reports Preparing Reagents Supply Supervision	Variable		150 100 50 10 310
	TOTAL		1750

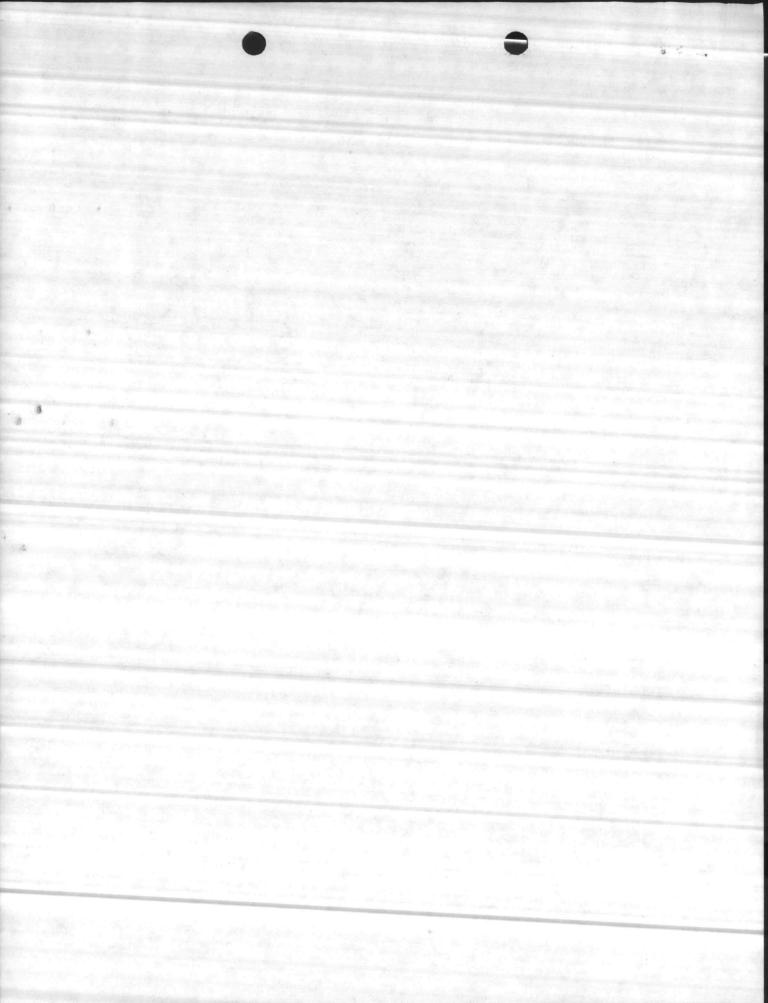
b. Waste Water Treatment Plant Analysis

Test	Test/Year	Min/Test	Hour/Year
Biochemical Oxygen Demand	3380	26	1484
Suspended Solids	2548	20	832
Total Solids	100	22	36
Total Kjeldhal Nitrogen	100	30	48
Chemical Oxygen Demand	204	35	120
Total Coliform Bacteria	182	17	52
Fecal Coliform Bacteria	2145	10	364
Outfall Fecal Bacteria	108	13	24
Fluoride	678	. 9	104
Plant Operation Analysis	2190	5	184
Sample Collection	65	. 600	650
Reagent Preparation	108	30	54
Boat Maintenance	69	39	45
Quality Control Analysis	2342	10	390
Reports & Paper Work	1097	34	
Other Assigned Work	1265	12	624
TOTAL	16581	. 12	260 5271

3.02 people

- c. Present QCL commitments do not allow much flexibility and significant additional requirements may be at the expense of current responsibilities. Due to the fact that one physical science technician is graded at the 5 level, operational testing must be dropped to provide supervision when a 6 level technician is on annual or sick leave. The dropping of operational testing will be unnecessary when the 5 billet is elevated to a 6 level. At the resulting level of staffing, current responsibilities can be met.
- Additional workload as presently anticipated.
 - a. SDWA
 - (1) Requirement

Organic chemicals (By contract)
Inorganic chemicals
Turbidity
Bacteria



_ Subj: Additional welload/QCL

(2) Manpower

343 hours - First Year 275 hours - Thereafter

- (3) Equipment AA Unit
- b. Annual Well Analysis
 - (1) Requirement

 Complete physical and chemical analysis
 - (2) Manpower
 384 hours/year (Field testing required)
 - (3) Equipment AA Unit & Vehicle
- c. Chemical Dump Landfill Monitoring
 - (1) Requirement
 Similar to SDWA parameters
 - (2) Manpower
 65 hours/year
 - (3) Equipment AA Unit & Vehicle
- d. Miscellaneous Discharge
 - (1) Requirement

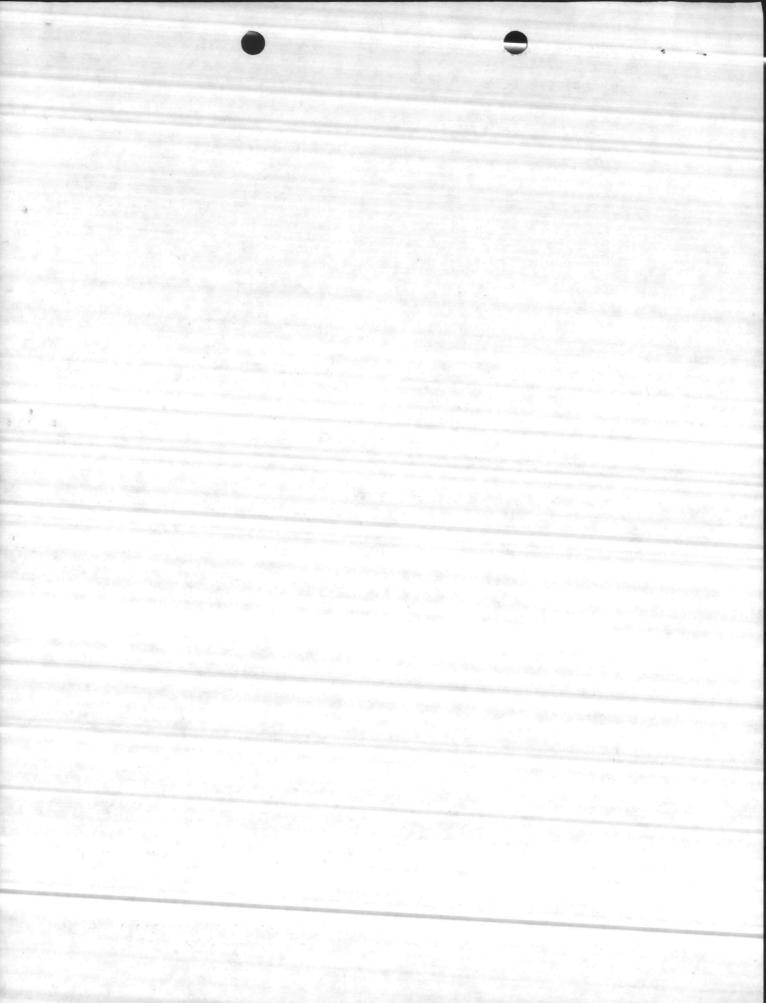
Boiler discharge (1)
Washracks - grease racks (116)
Storm Sewers (60)
Oil Storage Areas
Firefighting Areas
Swimming Pool Discharges
Cooling Towers (9)

(2) Manpower

2158 hours per annum until abatement

(3) Equipment

Oil-grease testing aparatus on hand Vehicle AA Unit



Subj: Additional wakload/QCL

- e. Annual Water Plant Analysis
 - (1) Requirement

Complete physical and chemical analysis of raw and finished water at each plant once a year.

(2) Manpower

None - NavFac will accomplish. Sample collection and administrative - Not significant.

- (3) Equipment None
- f. Steam Plant Monitoring
 - (1) Requirement

Current system fails to achieve intended result of operational control resulting in ineffective energy production and condensate line maintenance problems. Effective monitoring required for a minimum of 5 days per week. Current commitment is 440 hours/year lab time with recommended operational changes not effected.

(2) Manpower

2080 hours additional to provide mobile testing. Grade level unknown. Concomitant reduction of 300+ hours/year lab time.

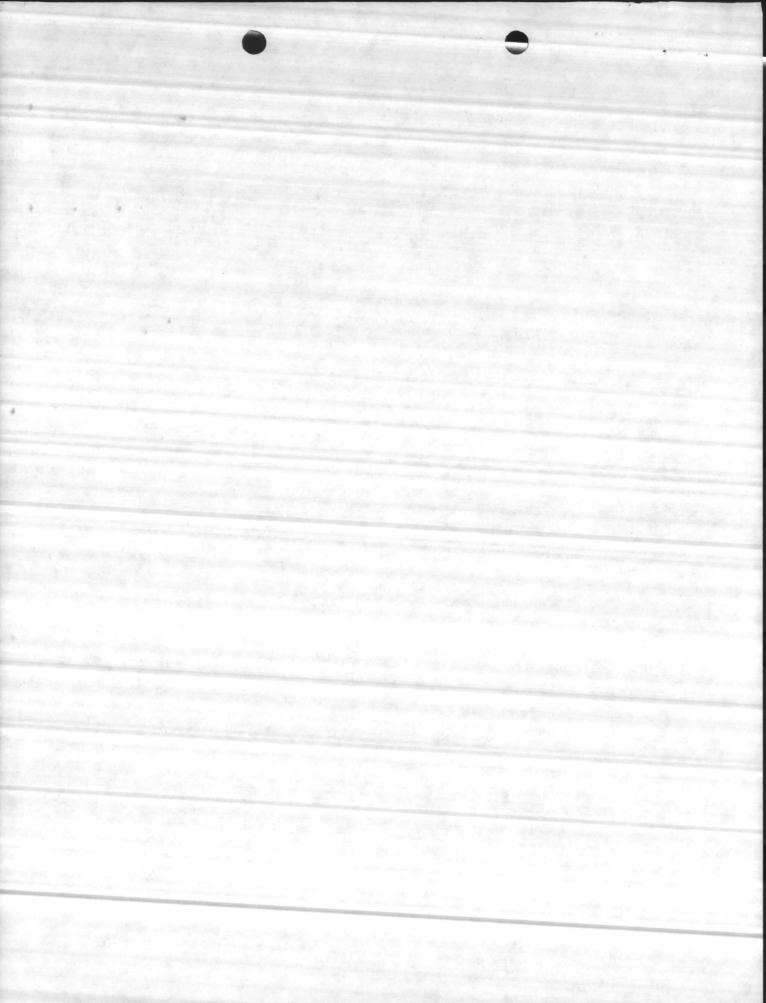
- (3) Equipment
 - 1 Van type vehicle
 Testing aparatus Not significant
- 3. Summary
 - a. Implemented

Requirement	Hrs/Y	r
SDWA	342	1st Yr
Annual Well Analysis	384	
Miscellaneous Discharges	2158	
Chemical Dump-Sanitary Landfill	65	
Annual Water Plant Analysis	0	
Additional Steam Plant Work	2080	
TOTAL		hrs/yr

b. With possible changes

Requirement

(1) Reducation of river water monitoring (contingent on final EPA approval) to once per month saves 530 hours per year total work.



- (2) 75% of the washrack-grease rack monitoring may be eliminated if activity can provide tangible evidence that construction of abatement facilities is in the funding cycle. This possibility hinges on EPA change of permit. In any event an initial monitoring would be required and if EPA would go along with it, monitoring of once/year should suffice until abatement is achieved. A continuing requirement would be the 25% outlying point sources that cannot be tied into the sewer line. Should EPA commitment occur along the lines of above thinking, miscellaneous monitoring should require no more than 600 hours/year.
- (3) An unresolved contingency is the requirement to monitor until the point source is documented when oil pollution violations (above 15 mg/l) occur in storm drains. Oil and grease testing has recently indicated severe problems. Depending on what EPA holds us to on this matter, our storm water responsibility (60 pts) could easily double or triple in terms of monitoring commitments.

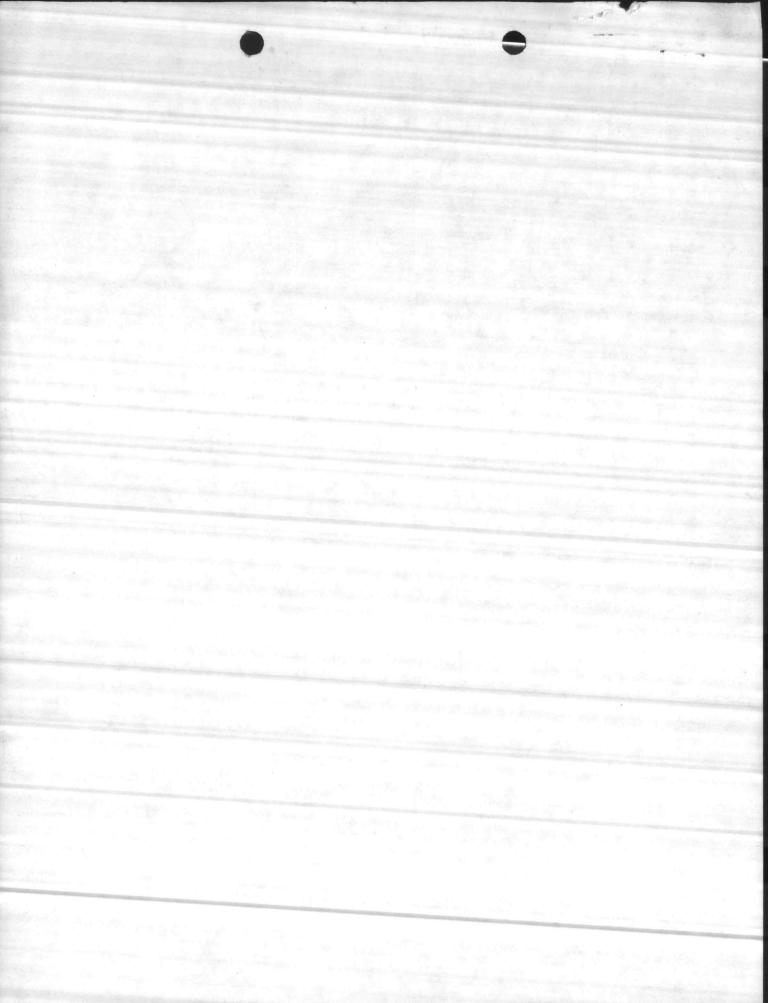
c. Contingency Manpower Estimate

*Without storm sewer duplicative monitoring

Test	Hrs/Y	r
SDWA	+ 342	1st Yr
Annual Well Analysis	+ 384	
Miscellaneous Discharges	+ 600	1
Chemical Dump-Sanitary Landfill	+ 65	
Annual Water Plant Analysis	0	
Additional Steam	+2080	
Reduce RiverMonitoring	- 530	
Reduce Lab Work for Steam	- 300	
TOTAL		hrs/yr*

d. Until duplicative monitoring of storm discharges, monitoring of sources that will eventually be eliminated, and utilities operational monitoring requirements can pass from theory to a firm commitment, an accurate assessment cannot be obtained. By viewing what's been described above on a best case - worst case basis, it appears certain that 1½ to 2 additional man years will be necessary. Possibly the March meeting with Mr. Holdaway will resolve some of the above.

Wendell a. NEAL



lemorandum

DATE: 1 Mar 1977

Director, NREA Div FROM

Base Maintenance Officer

Additional workload/QCL SUBI

Ref:

(a) Safe Drinking Water Act (PL-93-523)

(b) Annual Well Analysis - NavFac Inst 5450

(c) NPDES Miscellaneous Discharges

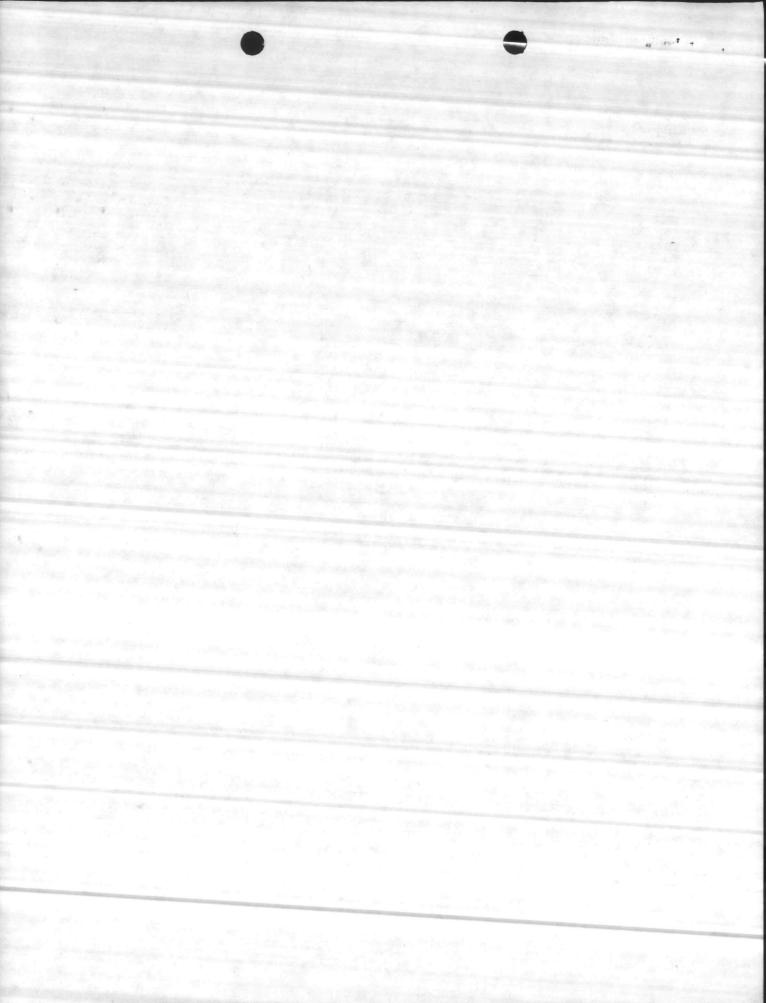
(d) Chemical Dump and Landfill Monitoring - NavFac Report U6119

(e) Annual Water Plant Analysis - NavFac & Bumed Inst (f) Additional Operational Monitoring - Steam Plants

1. References (a) through (f) if completely implemented represent a significant impact in terms of materials and manpower commitments. Summer 1977 represents the deadline for beginning miscellaneous discharge and drinking water monitoring. Other additional monitoring requirements may be phased in under less demanding time frames; likely a self imposed deadline of within the current fiscal period will suffice. As a base for evaluating capabilities for absorbing additional work, the following tables were constructed using EPA data and the lab operation history to assign time values for various testing proceedures.

a. Potable Water and Steam Plant Analyses

Test	Test/Year	Min/Test	Hour/Year
Potable Water Plant Analy	ysis	C. Spirit	
pH	468	3.2	25
Alkalanity	468	3.2	25
Chlorides	468	3.2	25
Hardness	468	3.2	25
Iron	468	12.8	100
Phosphates	312	19	100
Fluoride	468	12.8	100
Total Coliform Bacteria	2340	5.1	200
Fluoride (Daily)	1560	15.3	400
			1000
Steam Plant Analysis			
pH ·	3120	1.5	80
Alkalanity	2080	4.6	160
Chloride	3120	1.5	80
Hardness	1040	2.3	40
Total Dissolved Solids	3120	0.8	40
Phosphates	1040	2.3	40
The state of the s	2010	2.3	40
			440



·Subj:	Additional	kload/QCL
		WILL AND COL

Test	Test/Year	Min/Test	Hour/Year
<u>Other</u>			ACTION OF THE PARTY OF THE PART
Preparing Reports Preparing Reagents Supply Supervision	Varial	ole	150 100 50 10 310
	TOTAL		1750

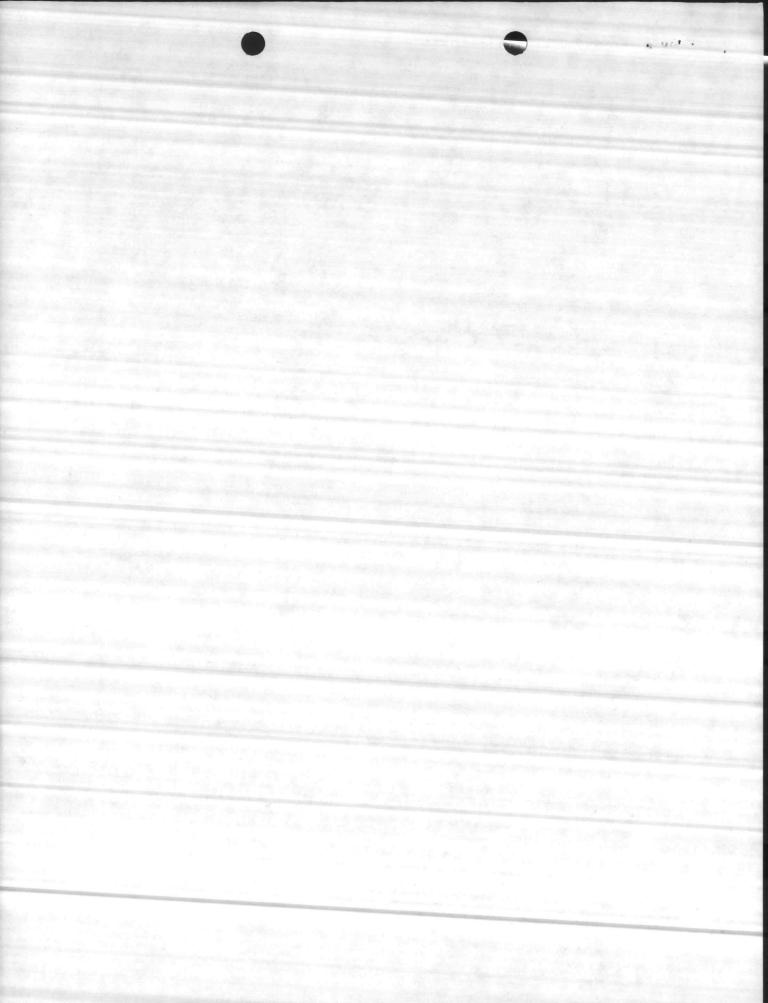
b. Waste Water Treatment Plant Analysis

Test	Test/Year	Min/Test	Hour/Year
Test Biochemical Oxygen Demand Suspended Solids Total Solids Total Kjeldhal Nitrogen Chemical Oxygen Demand Total Coliform Bacteria Fecal Coliform Bacteria Outfall Fecal Bacteria Fluoride Plant Operation Analysis Sample Collection Reagent Preparation	3380 2548 100 100 204 182 2145 108 678 2190 65 108	Min/Test 26 20 22 30 35 17 10 13 9 5 600 30	1484 832 36 48 120 52 364 24 104 184 650
Boat Maintenance Quality Control Analysis Reports & Paper Work Other Assigned Work TOTAL	69 2342 1097 1265 16581	39 10 34 12	54 45 390 624 260 5271

3.02 people

- c. Present QCL commitments do not allow much flexibility and significant additional requirements may be at the expense of current responsibilities. Due to the fact that one physical science technician is graded at the 5 level, operational testing must be dropped to provide supervision when a 6 level technician is on annual or sick leave. The dropping of operational testing will be unnecessary when the 5 billet is elevated to a 6 level. At the resulting level of staffing, current responsibilities can be met.
- 2. Additional workload as presently anticipated.
 - a. SDWA
 - (1) Requirement

Organic chemicals (By contract)
Inorganic chemicals
Turbidity
Bacteria



. Subj: Additional kload/QCL

(2) Manpower

343 hours - First Year 275 hours - Thereafter

- (3) Equipment AA Unit
- b. Annual Well Analysis
 - (1) Requirement

Complete physical and chemical analysis

(2) Manpower

384 hours/year (Field testing required)

- (3) Equipment AA Unit & Vehicle
- c. Chemical Dump Landfill Monitoring
 - (1) Requirement
 Similar to SDWA parameters
 - (2) Manpower
 65 hours/year
 - (3) Equipment AA Unit & Vehicle
- d. Miscellaneous Discharge
 - (1) Requirement

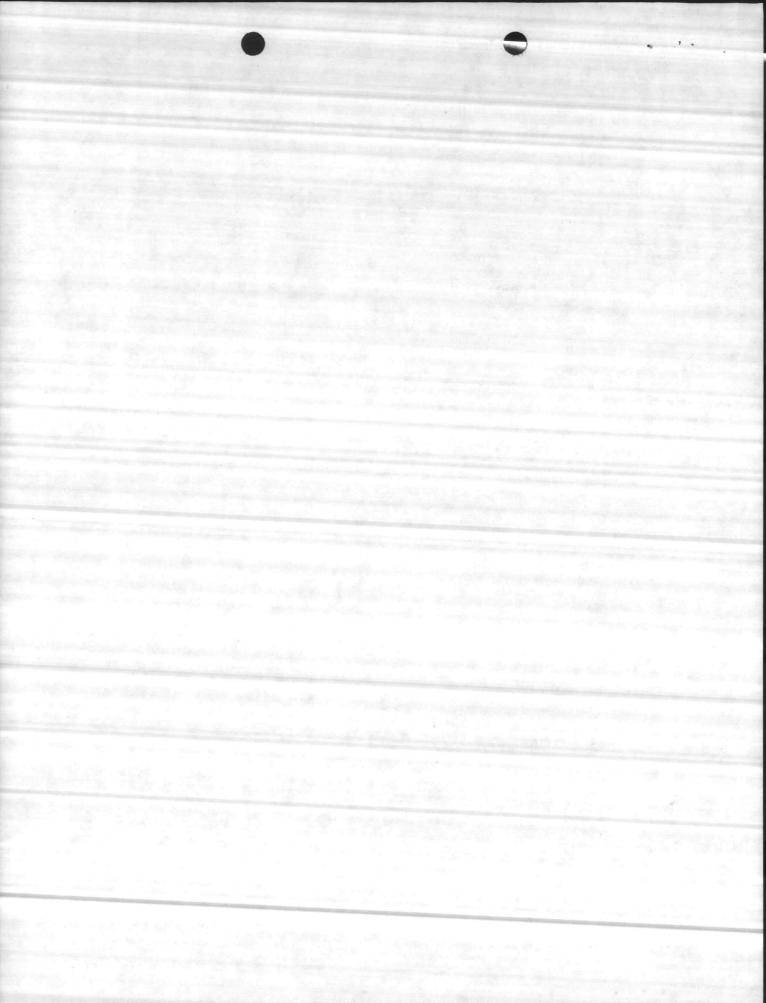
Boiler discharge (1)
Washracks - grease racks (116)
Storm Sewers (60)
Oil Storage Areas
Firefighting Areas
Swimming Pool Discharges
Cooling Towers (9)

(2) Manpower

2158 hours per annum until abatement

(3) Equipment

Oil-grease testing aparatus on hand Vehicle AA Unit



Subj: Additional we kload/QCL

- e. Annual Water Plant Analysis
 - (1) Requirement

Complete physical and chemical analysis of raw and finished water at each plant once a year.

(2) Manpower

None - NavFac will accomplish.
Sample collection and administrative - Not significant.

- (3) Equipment None
- f. Steam Plant Monitoring
 - (1) Requirement

Current system fails to achieve intended result of operational control resulting in ineffective energy production and condensate line maintenance problems. Effective monitoring required for a minimum of 5 days per week. Current commitment is 440 hours/year lab time with recommended operational changes not effected.

(2) Manpower

2080 hours additional to provide mobile testing. Grade level unknown. Concomitant reduction of 300+ hours/year lab time.

(3) Equipment

1 Van type vehicle Testing aparatus - Not significant

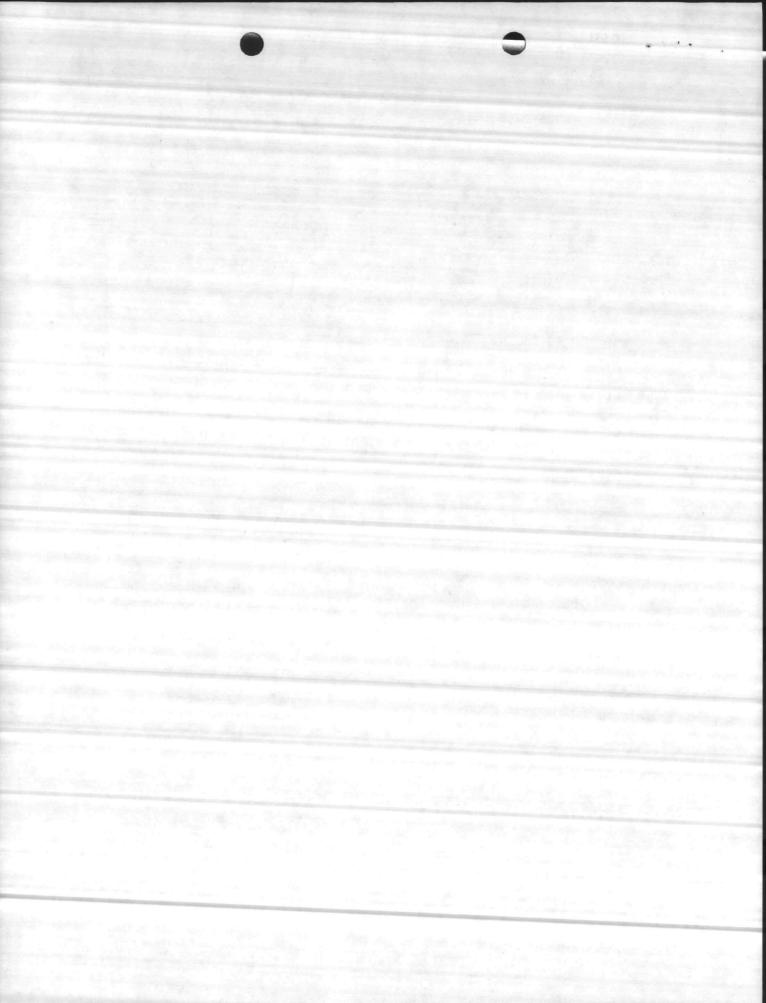
- 3. Summary
 - a. Implemented

quirement Hrs/Yr		r
SDWA	342	1st Yr
Annual Well Analysis	384	
Miscellaneous Discharges	2158	
Chemical Dump-Sanitary Landfill	65	
Annual Water Plant Analysis	0	
Additional Steam Plant Work	2080	
TOTAL	3909	hrs/yr

b. With possible changes

Requirement

(1) Reducation of river water monitoring (contingent on final EPA approval) to once per month saves 530 hours per year total work.



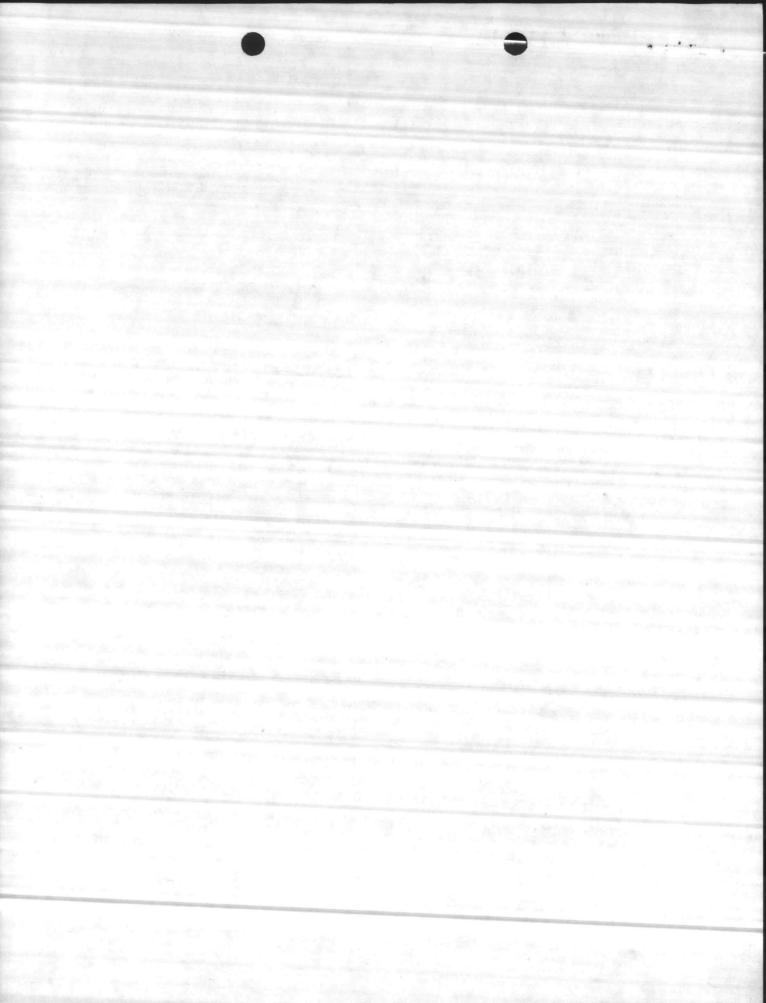
- (2) 75% of the washrack-grease rack monitoring may be eliminated if activity can provide tangible evidence that construction of abatement facilities is in the funding cycle. This possibility hinges on EPA change of permit. In any event an initial monitoring would be required and if EPA would go along with it, monitoring of once/year should suffice until abatement is achieved. A continuing requirement would be the 25% outlying point sources that cannot be tied into the sewer line. Should EPA commitment occur along the lines of above thinking, miscellaneous monitoring should require no more than 600 hours/year.
- (3) An unresolved contingency is the requirement to monitor until the point source is documented when oil pollution violations (above 15 mg/l) occur in storm drains. Oil and grease testing has recently indicated severe problems. Depending on what EPA holds us to on this matter, our storm water responsibility (60 pts) could easily double or triple in terms of monitoring commitments.
 - c. Contingency Manpower Estimate

Tést	Hrs/Yr
SDWA	+ 342 1st Yr
Annual Well Analysis	+ 384
Miscellaneous Discharges	+ 600
Chemical Dump-Sanitary Landfill	+ 65
Annual Water Plant Analysis	0
Additional Steam	+2080
Reduce RiverMonitoring	- 530
Reduce Lab Work for Steam	- 300
TOTAL	2641 hrs/yr*

*Without storm sewer duplicative monitoring

d. Until duplicative monitoring of storm discharges, monitoring of sources that will eventually be eliminated, and utilities operational monitoring requirements can pass from theory to a firm commitment, an accurate assessment cannot be obtained. By viewing what's been described above on a best case - worst case basis, it appears certain that 1½ to 2 additional man years will be necessary. Possibly the March meeting with Mr. Holdaway will resolve some of the above.

Wendella. Real



WORK REQUEST (MAINTENANCE MANAGE) NAVFAC 9-1 W014/20 (REV. 2-68) \$/N-0105-002-7510 \$upersedes NAVDOCK' 351



(PW Department see Instructions in NAVFAC MO-321)

Requestor see Instructions on Reverse Side PART 1 REQUEST (Filled out by Requestor)

	-
1	-/
1	-
00	-

Natural Resources an		2. REQUEST NO.
	d Environmental Affairs Divi	sion
3. TO		4. DATE OF REQUEST
Operations Division		20 Dec 1976
5. REQUEST FOR		5a. REQUEST WORK START
COST ESTIMATE	PERFORMANCE OF WORK	ASAP
6. FOR FURTHER INFORMATION CALL		7. SKETCH/PLAN ATTACHED
Julian Wooten - 5003	/2082	YES NO
·	(Including location, type, size, quantity, etc.)	
Description of work	- Well should be 30' deep 11/4 inch casing Wells will be equipped with 1 hand pump will be necessary	n a cap ary for sample collection
	Some right-of-way clearing	
Tugtification Whom	- 1/11- ()	
water to determine p	ossible movement via geologic	ry to enable sampling of well cal strata of rironmental
		\ ***
PROVED. WILL b	3-	
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PART IV-REMARKS

APPROVED. Will be accomplished as soon as practicable on Job Order #

WORK REQUEST (MAINTENANCE MANAGES NAVFAC 9-1 iii014/20 (REV. 2-68) \$/N-0105-002-7510 Supersedes NAVDOCK 331

PECEIVED OPERATION STVISTON PASE MANUFEMANCE MOS

(PW Department see Instructions in NAVFAC MO-321)

Requestor see Instructions on Reverse Side PART 1 REQUEST (Filled out by Requestor)

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1. FROM			2. REQUEST NO.
Natural Resource	s and Environme	ntal Affairs Division	
3. TO			4. DATE OF REQUEST
Operations Divis	tion		20 Dec 1976
5. REQUEST FOR	\ <u>_</u>	3	
6. FOR FURTHER INFORMATION CALL	MATE Z	PERFORMANCE OF WORK	ASAP 7. SKETCH/PLAN ATTACHED
O. FOR FURTHER INFORMATION CALL			
Julian Wooten -	5003/2083		▼ YES NO
8. DESCRIPTION OF WORK AND JUSTI	IFICATION (Including location, ty	ype, size, quantity, etc.)	
Description of w	1½ inch c Wells wil 1 hand pu		or sample collection
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(See Part IV on Reverse Side)

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PART IV-REMARKS

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APPROVED, Will be accomplished as soon as practicable on Job Order #

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NATURAL RESOURCES AND ENVIRONMENTAL AFFAIRS DIVISION BASE MAINTENANCE DEPARTMENT MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA 28542

From: Director, NREA Division

To:

Subj:

1.

Oèl + grease apparatus Phenol Portable flow meter End of Year Funding

NATURAL RESOURCES AND ENVIRONMENTAL AFFAIRS DIVISION BASE MAINTENANCE DEPARTMENT MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA 28542

From: Director, NREA Division To:



How many Water plants Steve AZAR- Fed. Res. how to Set up Register > Population for Water Haut > Written plan for Moneton Funded to do monitory ander Misc -

NATURAL RESOURCES AND ENVIRONMENTAL AFFAIRS DIVISION BASE MAINTENANCE DEPARTMENT MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA 28542

From: Director, NREA Division To:

Subj:

1.



Naval Environmental Protection Support Service



NAVY ENVIRONMENTAL SUPPORT OFFICE

June 1976

Naval Construction Battalion Center, Port Hueneme, California 93043

8.1-011A

APPLICABILITY OF NATIONAL INTERIM PRIMARY DRINKING WATER STANDARDS TO NAVY SHORE FACILITIES

The Safe Drinking Water Act of 1974¹ requires primary and secondary standards to be established for public water systems. The Federal Environmental Protection Agency (EPA) has promulgated National Interim Primary Drinking Water Standards (NIPDWS) at Title 40 Code of Federal Regulations, Part 141 (40 CFR 141)². The standards are effective on 24 June 1977.

PRECEPT

The compliance standards apply to naval shore facilities within the United States that own and/or operate water supply sources and potable water treatment systems. Compliance with monitoring and reporting requirements is weighted equal to compliance with maximum contaminant levels. Federal facilities are required to report measurement and analysis results to EPA Regional Administrators.

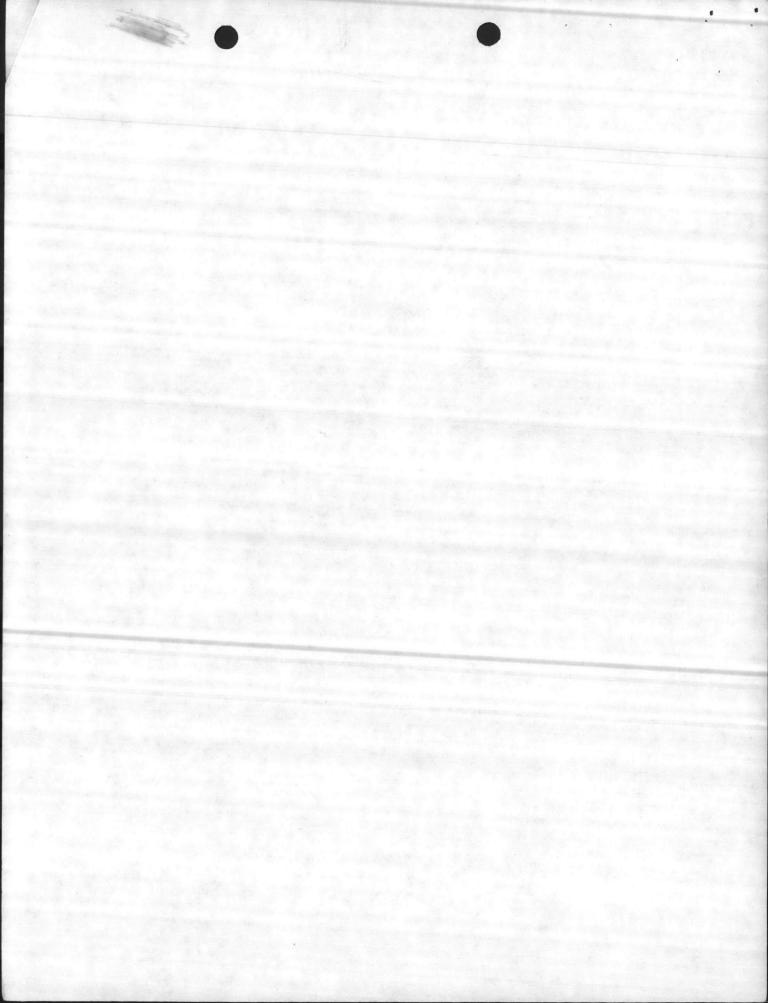
ANALYSIS

Affected Shore Activities

The Navy Real Property Inventory (RPI) file reveals 114 naval activities within the United States reporting water supply sources (catchments, wells, and reservoirs). Of these, 18 report no treatment facilities, 96 report having treatment plants. There are also an additional 45 activities reporting treatment plants that do not report water supplies. Some of these may be receiving either treated or untreated water from non-navy supplies. Table 1 displays these findings for naval activities and government-owned contractor operated (GOCO) facilities within the United States. Foreign activities are also included in Table 1 although such activities are not within the scope of the Safe Drinking Water Act.

The new Federal drinking water regulations classify public water systems as either community water systems or non-community water systems. A public water system that regularly serves 25 residents is defined as a

This document has no legal standing; it is intended for information only.



community water system. All other systems are non-community water systems. In the worst case condition, all Navy owned potable water systems will qualify as community water systems.

Table 1. Navy Activities with Potable Water Supplies and Treatment Systems

	Activities With Water Supply Sources Only ¹	Activities Operating Potable Water Treatment Plants Only ²	Activities With Both Treatment Plants and Supplies ³	Total Activities With Potable Water Function Other Than Just Distribution
Navy operated, U.S.	18	45	96	159
Navy operated, foreign	3	9	20	32
GOCOs	4	8	3	15
Total qualifying activities	25	62	119	206

¹Based on RPI categories 84150 (wells), 84151 (catchments), and 84152 (reservoirs) as of May 1975

Treatment plants and operators

The RPI file also reveals that a total of 228 treatment plants are reported at 141 activities in the United States. These plants are manned by 364 plant operators. Table 2 displays the number of plans and operators for Navy and GOCO activities within the U. S. and for foreign based activities. It assumes only one Navy operator at the GOCO and foreign facilities.

New Measurement and Analysis Requirements

The standards establish maximum contaminant levels for four categories of contaminants: inorganic chemicals, organic chemicals (pesticides), turbidity, and microbiological. The specific contaminants and maximum levels are identified in table 3. The initial analysis and periodic sampling required for each contaminant category is displayed in Table 4. Sampling is only required if the initial characterization of the water supply reveals "out-of-limit" contaminant levels. Sampling frequency and duration would apparently be determined by EPA rather than the states for Navy activities.

²Based on RPI categories 84109 (potable treatment building), 84110 (potable water treatment facility), 84115 (nuclear water treatment), and 84125 (desalinization plant) as of May 1975

³Based on any combination of RPI categories from footnotes ¹ and ²

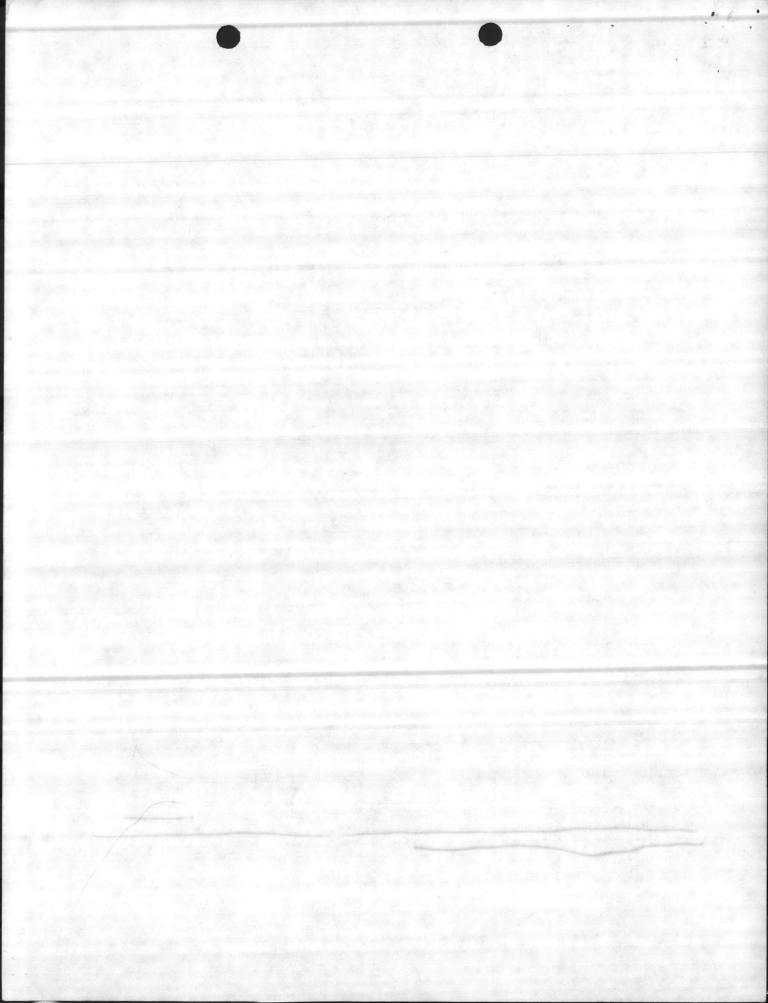


Table 2. Potable Water Treatment Plants and Operators

	Number of Treatment Plants	Number of Operators	
Navy operated, U.S.	228	3641	
Navy operated, foreign	48	48	
GOCOs	16	16	
TOTAL	292	428	

Derived from Navy-wide list of training requirements for potable water plant operators

Current Navy Measurement and Analysis Requirements

Navy shore establishments are currently encouraged by Navy Instruction to sample water supplies for more than the NIPDWS parameters, but only 9 of the 17 NIPDWS water supply parameters are routinely included. The current annual analyses routinely include 8 of the 10 substances in the inorganic chemicals category but none of the 6 organic chemicals. A turbidity check is also routinely performed at water supply intakes. Routine sampling is performed in the distribution system for coliform and/or residual chlorine.

CONTACT

Additional information may be obtained from George D. Wandrocke (NESO Code 251B), AUTOVON 360-4984 or Commercial 805-982-4984 or the Environmental Program Offices (Code 114/104) at the NAVFAC Engineering Field Divisions.

REFERENCES

¹PL 93-523, Safe Drinking Water Act, 16 December 1974

240 CFR 141, National Interim Primary Drinking Water Standards, 24 Dec 1975 (40 Federal Register 59565)

³NAVFACINST 5450.19B, The Sanitary/Environmental Engineering Program; Engineering Field Division responsibilities for, 15 October 1974

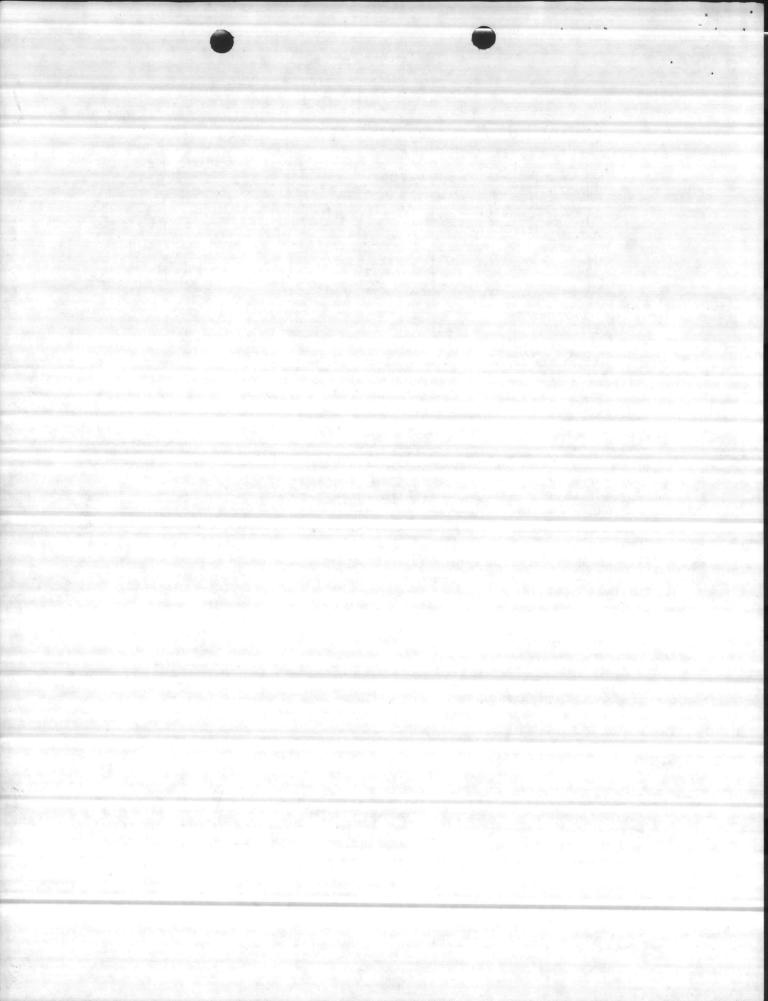


Table 3. Maximum Contaminant Levels for Community Water Systems

Contaminant Category	Contaminant	Level		
	Arsenic	0.05 mg/1		
	Barium	1. mg/1		
	Cadmium	0.010 mg/1 '		
	Chromium	0.05 mg/1		
	Lead	0.05 · mg/1		
Inorganic	Mercury	0.002 mg/1		
Chemicals	Selenium	0.01 mg/1		
	Silver	0.05 · mg/1		
	Nitrate (as N)	10. mg/l		
	Fluoride	2.4 1.4 mg/11		
	Endrin	0.0002 mg/1		
		0.002 mg/1		
Organic	Lindane			
Chemicals	Methoxychlor			
(Pesticides)	Toxaphene	0.005 mg/1		
(2,4-D	0.1 mg/1		
	2,4,5-TP Silvex	0.01 mg/1		
Turbidity	Turbidity ²	1. T.U. (Monthly Avg)		
		5. T.U. (2 Day Avg)		
		Membrane filter technique ³ 1/100 ml/month (arith avg) and either 4/100 ml/sample (<20 samples/month)		
		4/100 ml/5% of samples (>20 samples/month)		
		Fermentation tube technique ³ A. 10 ml portions ⁴ none/10% of portions/month and either		
Microbiological	Coliform	none in 3 or more portions (<20 samples/month)		
	2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	none in 3 or more of 5% of the portions (>20 samples/month)		
		'B. 100 ml/portions' none/60% of portions/month and either		
		none in 5 or more portions (<20 samples/month) or		
		none in 5 or more of 20% of the portions (>20 samples/month)		
		Plate count method ⁵ MPN = 500/ml		

¹Dependent on temperature

²Applies only to water taken from surface water sources

³⁵ tube test (5 portions/sample)

Either membrane filter technique or fermentation tube technique may be used

⁵Applies to all samples

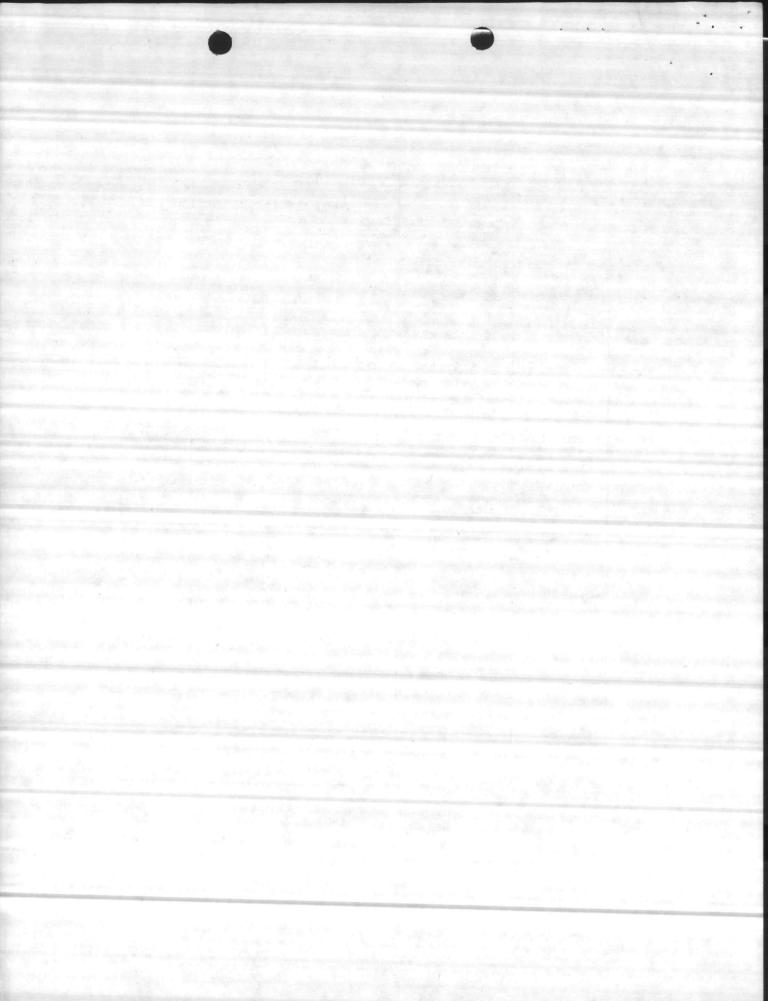


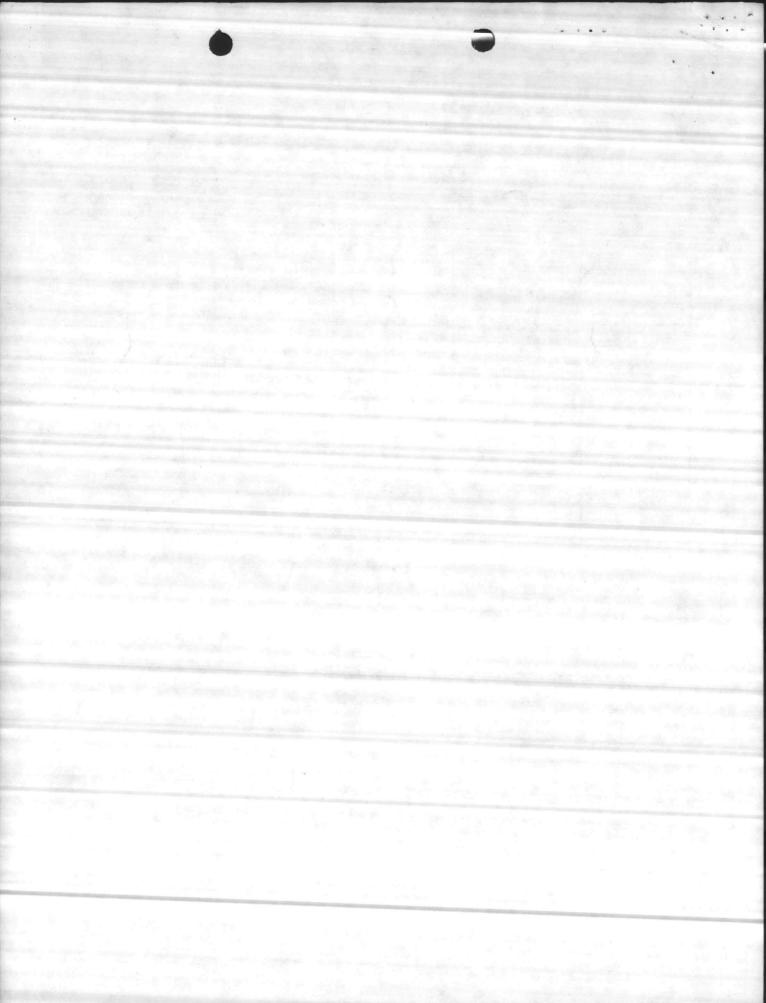
Table 4. Data Requirements for Community Water Systems

Contaminant Category	Number of Contaminants With Substantive Limits	Source Analysis and Characterization		"Out of Compliance"
		Surface Waters	Ground Waters	Monitoring Frequency
Inorganic Chemicals	101	Initial by 6/78 Repeat Annually	Initial by 6/79 Repeat Tri- annually	3 additional analyses/ out-of-compliance con- taminant within 1 month additional analyses repeated as determined ²
Organic Chemicals (Pesticides)	6	Initial by 6/78 Repeat Tri- annually	To be deter- mined	3 additional analyses/ out-of-compliance con- taminant within 1 month additional analyses repeated as determined ²
Turbidity	1	1 sample/day	None required	Additional sample to be taken within 1 hour of out-of-compliance sample
Microbiological (Coliform)	1	Population from 25 to 4100 up to 1/week ^{3,4} Population from 4101 to 28000 up to 1/day ³		2 samples/day

1 Includes fluoride, nitrate, and 8 heavy metals

If water source is a protected groundwater source with no history of contamination, sample rate may be reduced to 1/quarter for served populations of up to 1000.

²Continue for as long as limit is exceeded or until compliance action is negotiated ³Sample frequency is uniformly proportional to population served; cited frequency value corresponds to upper population value in cited range

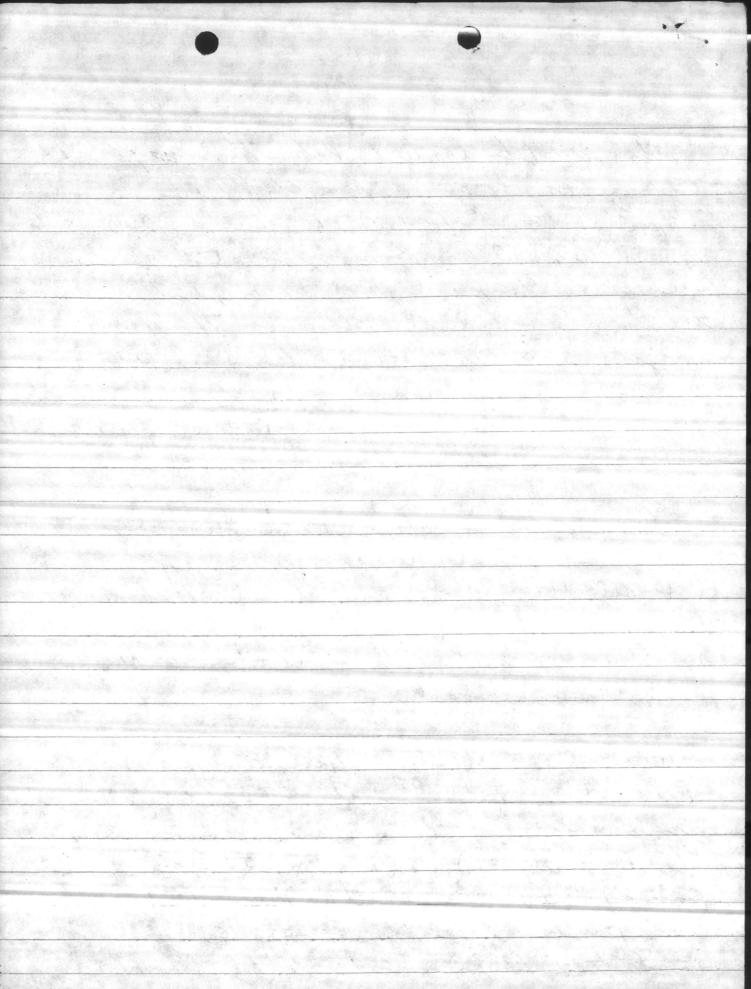


Present July 1976

the quality Control Saboratory to presently meeting set its goals and objectives as required by the waste water xPDUS permits, Other Bose generated requirements are for the most part accomplished as the work schedul allows. The two major problems foring the QCL today are the need for a technicion grode level adjustment and approach problems to house the QCL under one roof.

Everyone familiar with our present technicion grade level quota agrees that all the technicums should be graded the Same, this would make for a smoother operational rotational shift and leave scheduling.

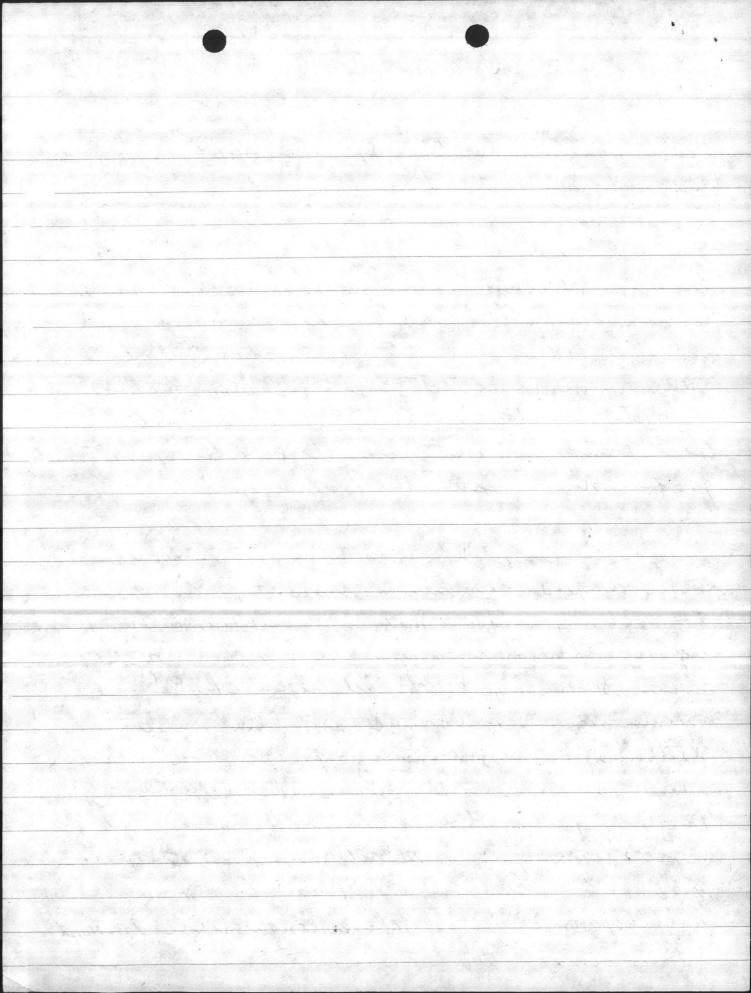
adequate laboratory familities are
desperatly needed. The 9CL (Bldy 683)
is already over coorded and inodequate.
the 9CL (Bldy 762) has adequate failities
took as presently utilized but does
not pusses enough tooms space to
tout pusses enough a combined laboratory.





additional laboratory spore could be provided by adding on to the noral Regional field medical laboratory's physiology Department in the event that it clases. again everyone again a personel and equipment could be achevied by such a more. He physiology department's laboratory is larage enough to accomidate the expected increase in the laboratory function for the next the two to thee years.

for the period July 1976 to July 1977 & Can
forsee a few demonds on request ploud on
the PCL. Preventine medicine will most likely
request additional sampling for natural bithery
places such as & South East treet ski warm
swimmy area. NREA will pust likely request
additional creek monitoring for problem pollution
areas such as the two creeks flowing by
the land fill. The lititles Divison will
request additional monitoring for problem
potable
request additional monitoring for growsler
wells. The wilson's list of paramaters for each
well (approx 100) will take a considerable amount



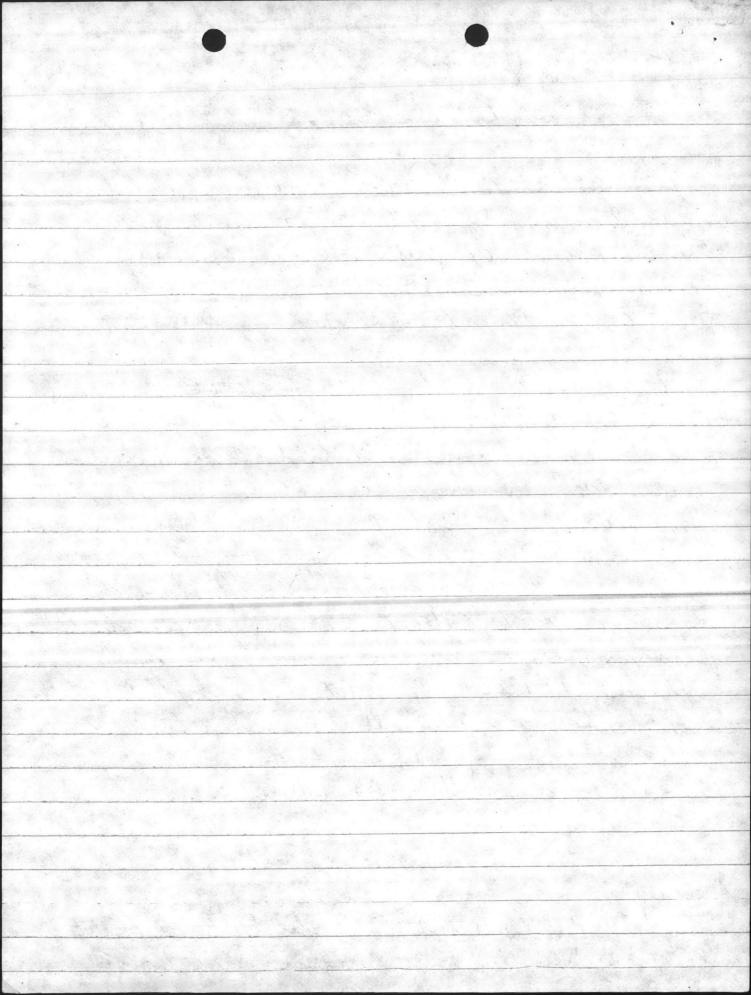
Water Programs July 1977

The water monitoring program will expand in July 1977 to enclude all source points of pollution on the buse. This has been defined as any discharges not connected to the sonitor Sliver.

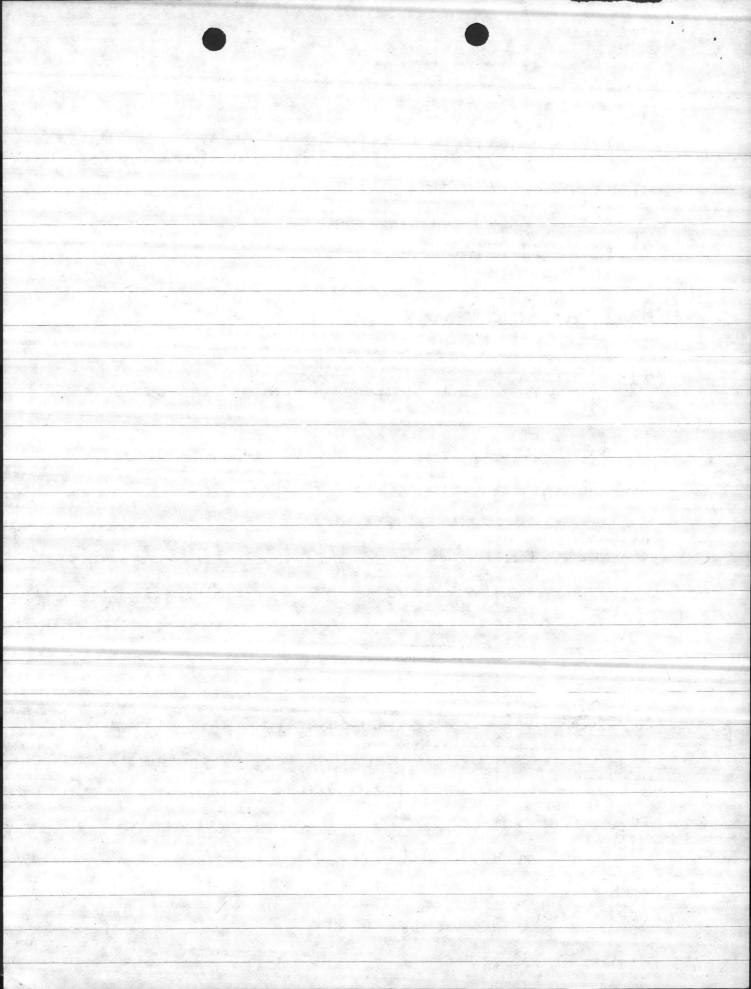
the impact on the Qch to the con only be detirmated that until these source points have been idinified and a determination make the or who will collect the Samples. Obyoush additional present will be needed to accomplish the laborator work that will be generated (1-3 fechnions?). If the Qch is required to Collect the Samples additional personal will be needed as well as a Vehicial to have to all these Sample locations. Once the source points are idenified, a determination of laborator technicions con be made using the EPA quidlines.

The Source points That need to to idenified

(1) Potable and industrial evature treatment facilities including filters, softeners and demineralizers



- (2) Cooling water, cooling town blow down, and cleaning wastes.
 - (3) Boiler blowdowns
 - Dehicle and equipment cleaning pocilities
 - (5) Painting and corrosion control facilities
 - (6) Vehiele and Equipment maintenance and Storage areas
 - (9) Petroleum, o'll and lubricant (POL) storage and handless areas
 - (8) Batton maintenance
 - (9) Rot Photographic lakoratories
 - (10) fire fighter taining areas
 - (11) Swimming pools
 - (12) Storm Sewers



I have not seen the above thated steen scource points listed. NPDG Permit # NC0003239 required that by June 30, 1975 Camp Lycune was To Submit listing of existing sources including type, location, discharge volume and receiving water " If the list has been completed, the of persone wed to sure a determination needs

type some point the QCL meeder the following equipment it does not possess;

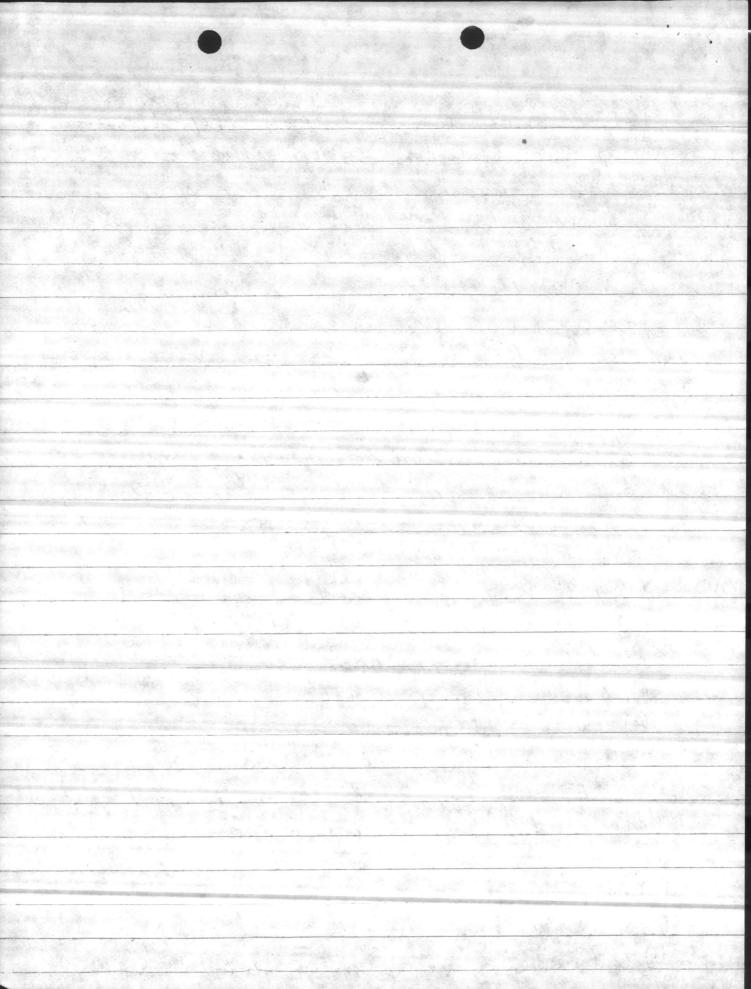
(1) Partable Flow miter (2) atomic absorption spectrophotometer for determination of chromism, Fine, and copper. 31 oil and grease appratus

(4) phenol determination appratus

all other test listed in the permit as follows

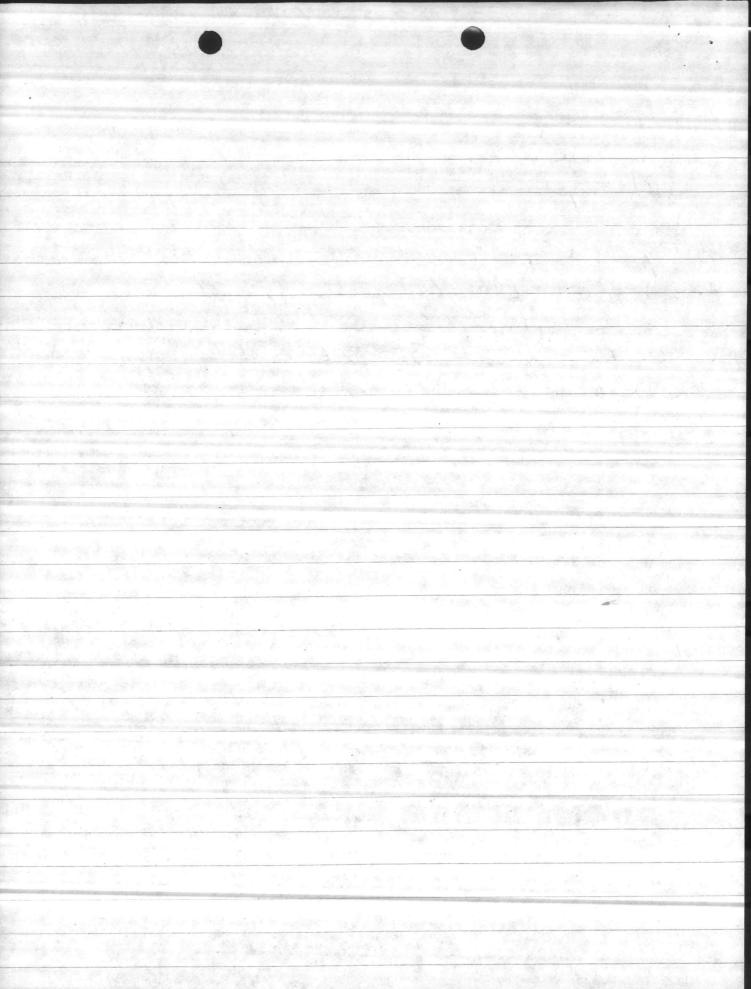
(3) suspended Solids

(4) Chlorine Risidual Campermetric titrator is on order)



(5) feed californ Borterin (6) temperature

By July 1977 the GCL Should have moved to a combined laboratory facility. The The number of physical scrience technicions with the will be 4 to 7. The QCL will have spent approxitamily \$10,000 for new equipment to perform the test required by the permits.



July 1978

Degining in July 1978 the Saft Drinking Water Act will become operational. I teliane its impost at the present time, I think it's impart will not greatly affect theoperation of the QCL. I think took the QCL will be required to do the following;

NO

Daily analysis of

(1) fluoride

(2) chlorine residual

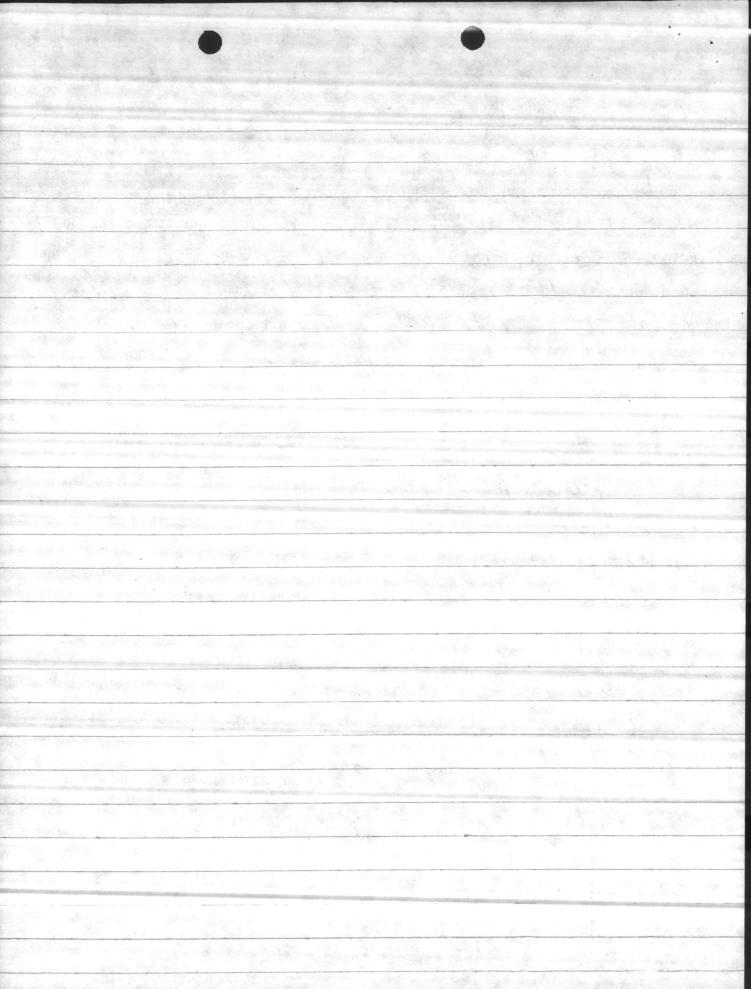
(3) Flow

(4) turbidity

(1) total analysis
(1) total form Bosteris

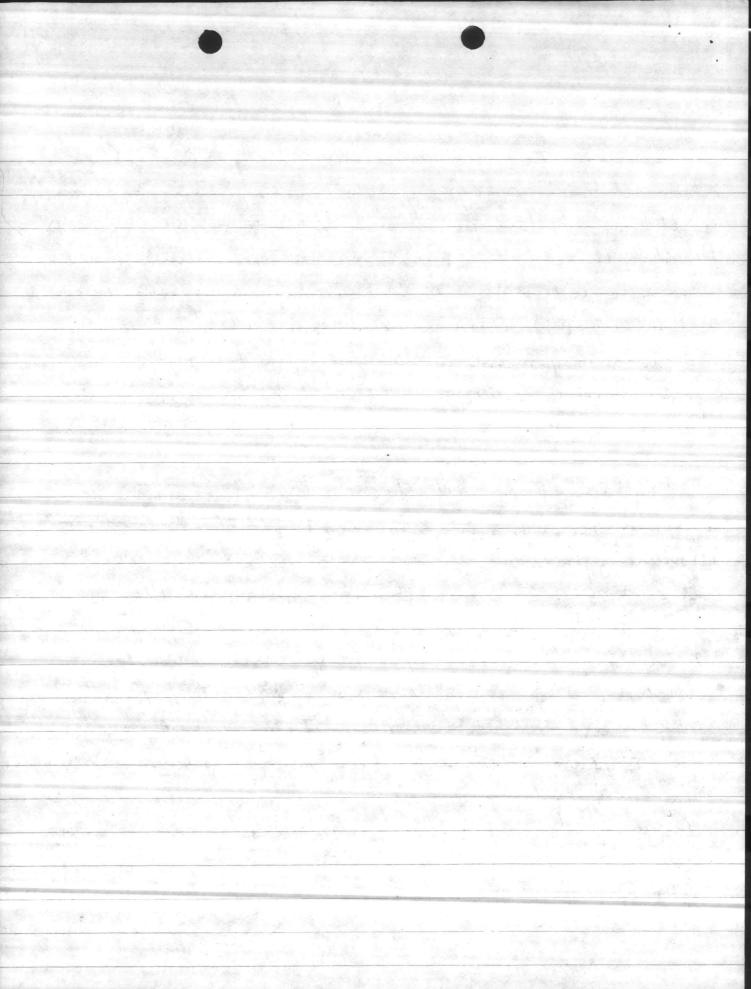
(2) full chemical analysis (Itherik et may remain much us our present writer chemical cenalysis.)

· Montfly on quatered analysis (1) the full list of 10 inorganic chemicals
(2) the full list of 60 organic Chemicals (there are pesticides)



If the QCL is required to fartest the above listed group of chemicals new equipment will have to be purchased. The takes QCL will by this time (If it has a AA spectrophotometer) will be able to test all the inorganic chemicals but Not the arganic chemicals. Organic chemical analysis is quite expensive. The Equipment needed for arganic analysis could easily run be

Should be running smoothly. The Base stanted monitoring program to will be furnishing all data viguested by EPA. after the Clean water Act is as placed placed in Operation, I inticipate no further demands for analysis by water programs except possibilty prescibilty additional paramaters might be to performed tats like phosphate analysis may be imposed when the water water Plants convert to leitary treatment (1983), to By July 1978, maxim growth of the water program should be achieved.



air Programs

1976

presently no requirement exist to monitor air quality that lomp rejune. During 1974

some the litelatain director had discussions with

N.C. Air quality personal about starting a

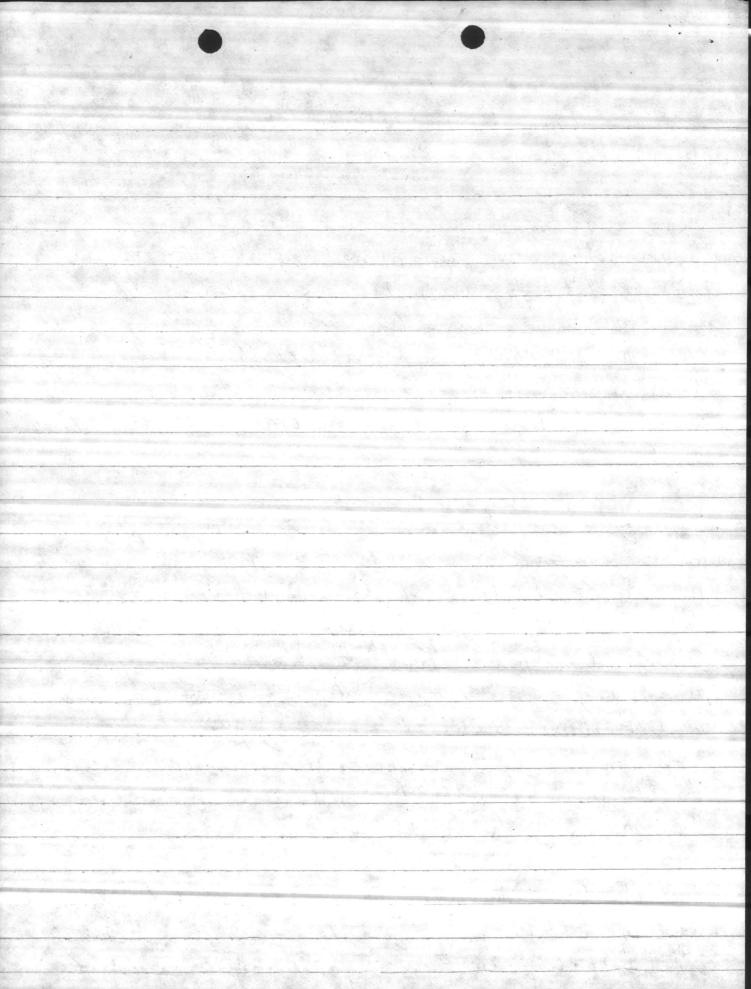
monitoring program for sulfur direction and priority.

The gas shortage of 1974 stemed to stop this

program.

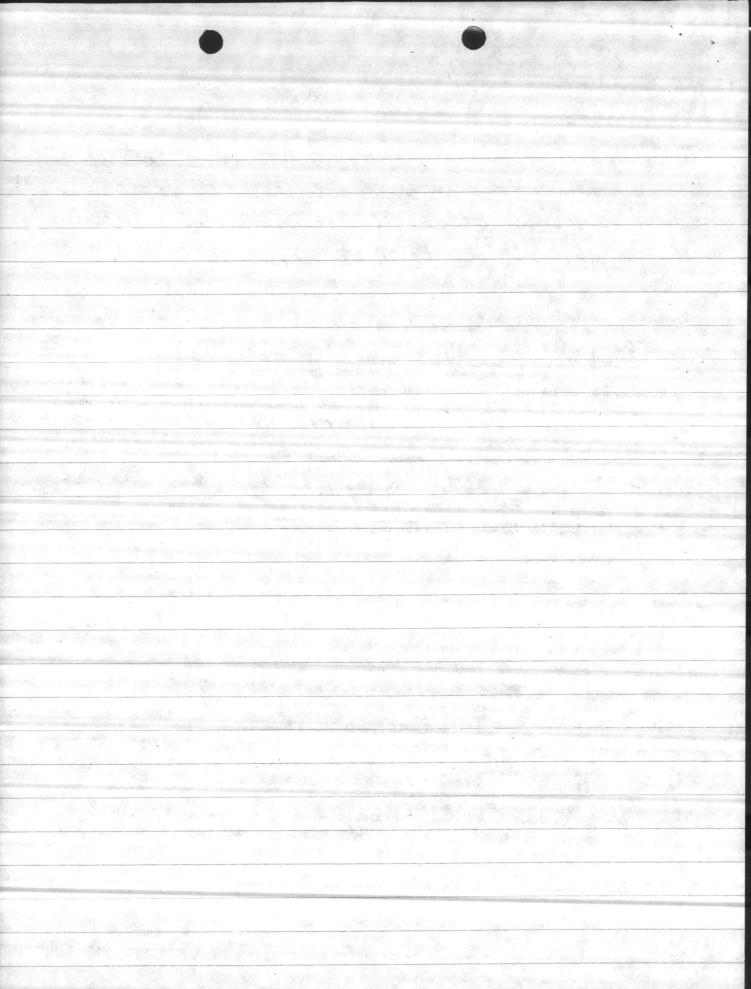
Sheliere, however in the next few years a pair monitory program will be implaninited at \$5 Comp beginne. The Get will most likely monitor a few selected air quality parameters how truling list sulfur dioxide, Particulate matter, Hydrocarbons, carbon monoxide, photochemical oxidents, and mitrogen oxides. Most likely sulfur dioxide will be monitored since this has previous been discussed.

spripment to per test for sulfur dioxide the Sample Callection equipment would be



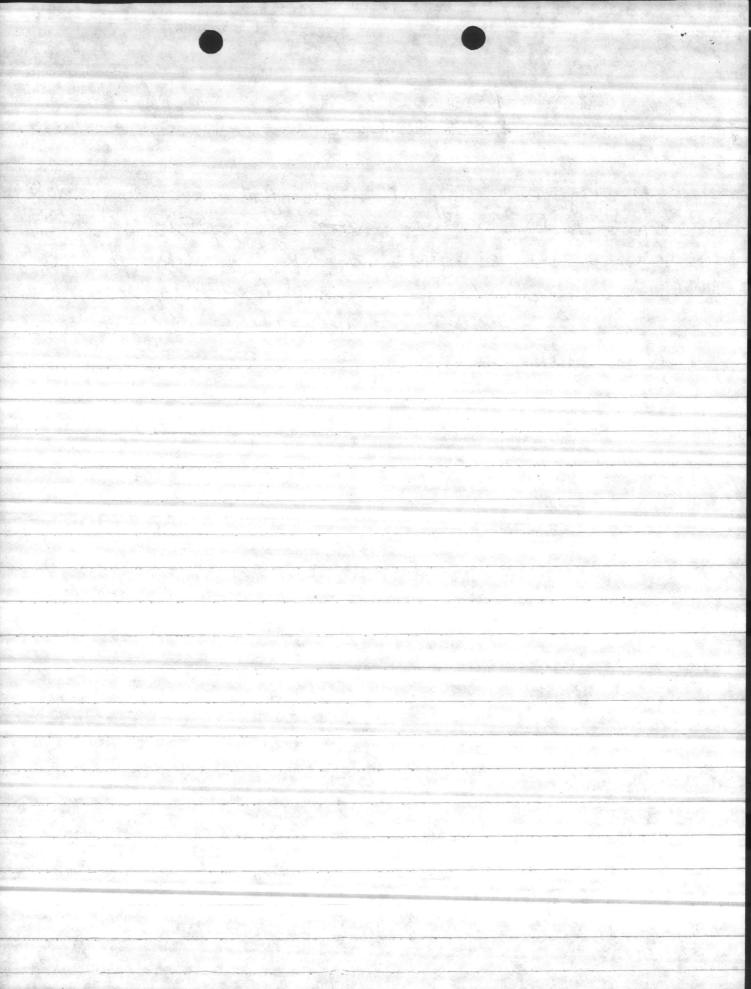
and some special glass were twoold a would be all that is needed to start the Sa a Sulfan dioxide monitory program. The lost tar should be to less than # 1000.

an monitory, Additional personel and equipment would be reided. I doubt the though, that this will hoppen, I pudiet that we will monitory only for Sulfur digiod, particulate mater, and hydrocarbons.



Pesticides

Complejene may at some future date possible be required to monitor and for pesticides of the Clean water Act does specify certian pesticides analysis of in drinking water. We may be required to monitor place such as the River, wallone creek, etc.

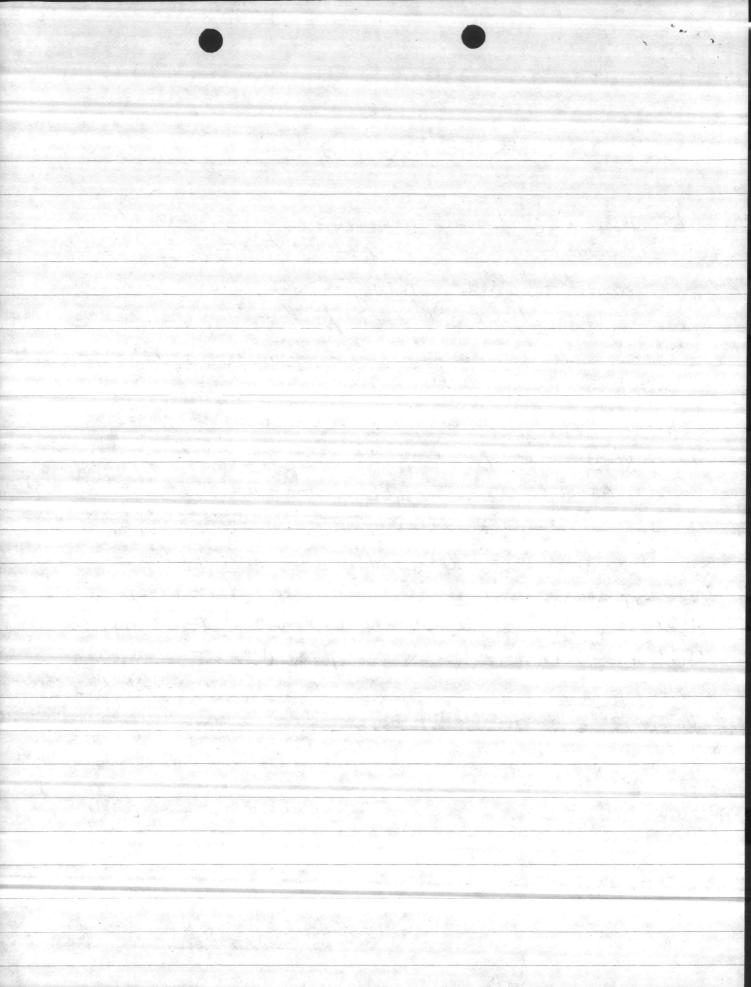


Sanitary land Fill

No present out side requirements exist toda to monitor the senitary land fill, the the the open of the two creeks flowing by the land fill but this is presently a liminited monitory program requested by the NREA Divisor.

The may issue a requisionent to monitor the fand fill leachate (water passing through the land fill containing dissolved and finely suspended solid metter and micropial waste products). The typical passenting water quality paramaters would be requested such as ptt, dissolved metals, phosphate, chloride, nit myen, BOD, COD, and Suspended Solids.

We presently only monitor for BOD, coliform Briteria and Dissolved oxygen.



Calander of Events

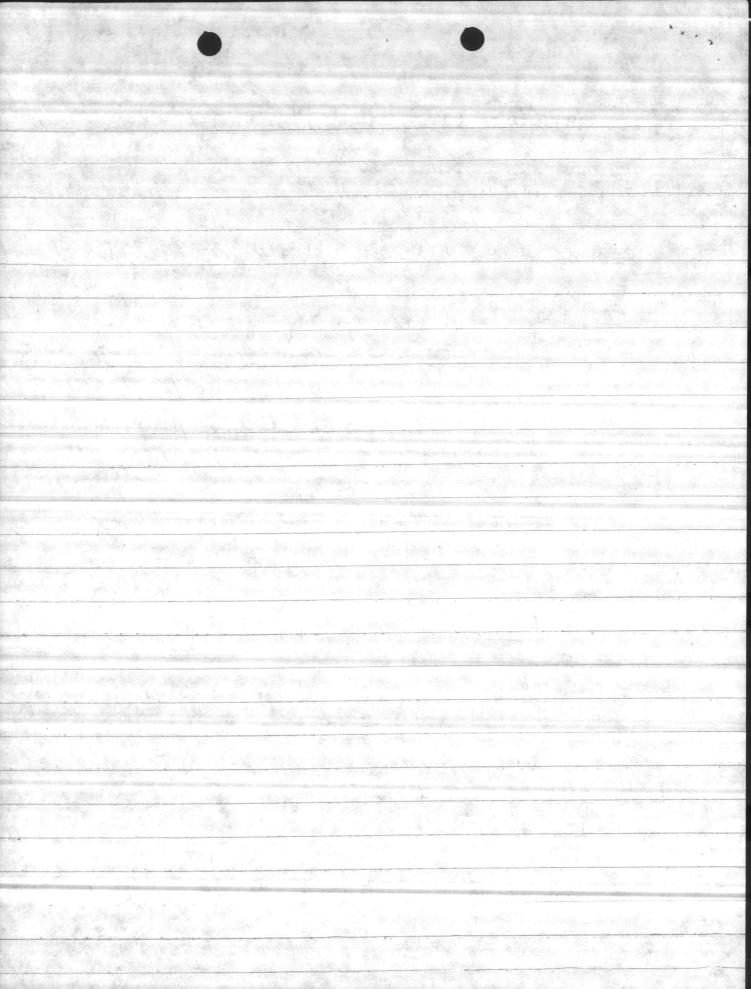
July 1976 - June 1977

Continuation 6. of existing Water monitoring programs Addition: (1) combination of laboratories (2) grøde level adjustments (3) exponsion of Bo Natural Bathing Places monitoring programs. (9) New Equipment (for 1977) (5) traing For personal (9) Hartautomation of waste water Sampling. Continuation! existing programs

July 1972 - June 1978

on Bise (NPDES # NC000 3239)

- (2) New Technicions
- (31 New equipment
- (4) to vechile
- (6) Automate waste water Sampling callection



July 1978 - June 1979

Continuation; existing programs

Addition: (1) Saft Dringing water Act -

(2) possible air programs

(3) possible pestigide program

(4) personel training

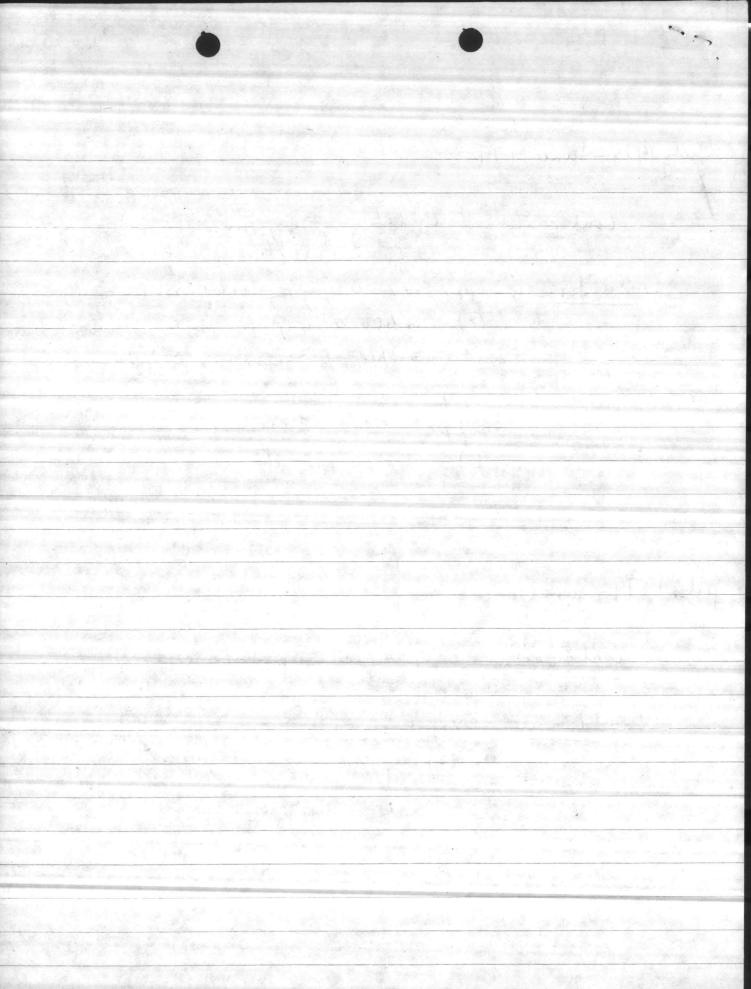
(5) possible personil addition

(6) New equipment

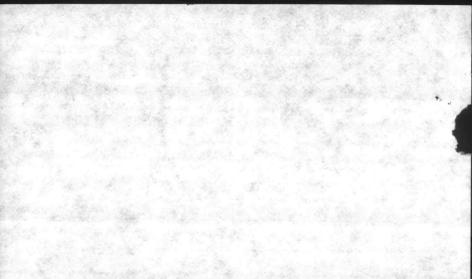
July 1979 - June 1980

Continuation: of existing programs

Addition (1) training
(2) up dating equipment



Twylah, . File Waste Water .. for owr dufo. J. J.W.



IN REPLY REFER TO 2512:KEK:iep Serial 5124 19 Nov 1976

From: Commanding Officer, Naval Construction Battalion

Center, Port Hueneme, CA 93043

To: Distribution List

Subj: Navy Controlled Waste Inventory System for Treatment Plants and Municipal Connections (NACWIS-TP/MC)

Ref: (a) NCBC PorHue ltr Ser 2313 of 19 May 1976

(b) FY-77 Execution Plan for NEPSS (NESO 20.1-012)(NOTAL)

(c) NEPSS SOP 1.10 of 6 Oct 1975 (NOTAL)

Eml: (1) NACWIS Detailed Master Listings for Treatment Plants and Municipal Connections (Form 9593/F3050R01) for Atlantic Division activities

(2) NACWIS Treatment Plant and Municipal Connections Extract Report (Form 9493/F3045R02) for Atlantic

Division activities

- (3) NACWIS Station Master Load Form (blue) (Form 9593/F3030R01) and Treatment Plant/Municipal Connection Load Form (Form 9593/F3030R03) (blue)
- 1. Reference (a) requested addressees to verify and complete missing data in the draft Navy Controlled Waste Inventory System of Navy and Marine Corps treatment plants and municipal connections (NACWIS-TP/MC). Submission of this data and information was necessary to establish a viable, accurate, and responsive inventory of Navy and Marine Corps treatment plants and municipal connections.
- 2. In conformance with reference (b), enclosures (1) through (3) incorporate all data and information received by The Navy Environmental Support Office (NESO) for the NACWIS-TP/MC in response to reference (a). NESO extends its appreciation to all contributors to this Navy product.
- 3. To maintain an up-to-date NACWIS-TP/MC, addressees are requested to report additions, deletions or corrections for treatment plant and municipal connection information to LANTNAVFACENGCOM (Code 114). As review and update of the NACWIS TP/MC is scheduled for July 1977, it is requested that such information be submitted to NESO on or before 1 June 1977.



PLANT ACCOUNT OFFICE MCB. CAM

DEC 3 10 35 AH '76

ACCOUNTING DIVISION MCB, GAMP LEJEUNE, N.C. 28542 Nov 32 3 36 PM 76

DEC 3 11 46 AM "76

PLANT ACCOUNT OFFICE MCB, CAMP FIEUNE, N.C.

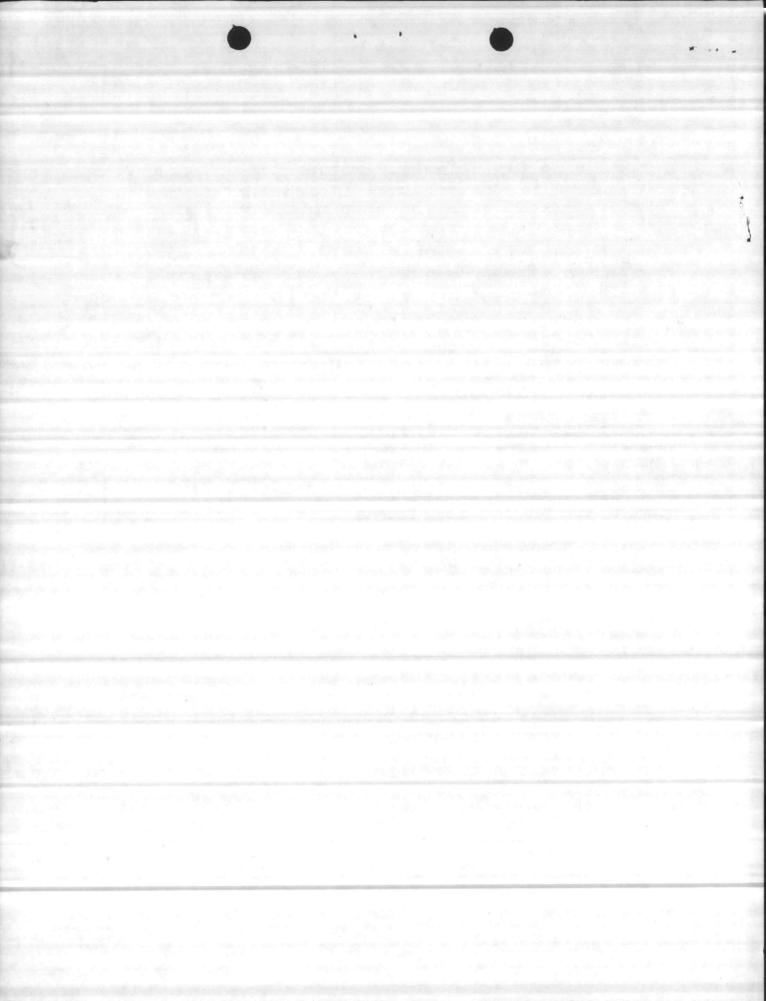
- 4. For purposes of clarification, holders of reference (c) are requested to replace references to "yellow" forms with "blue" forms the present color of this NACWIS station master load form.
- 5. NESO contacts for NACWIS-TP/MC are Mr. Karl Kneeling, or Mrs. Mary Johnson, Code 2512, AUTOVON 360-4062 or 360-5749.

JOHN A. LUCAS, JR.

By direction

Distribution List:
LANTNAVFACENGCOM (114)
Navy and Marine Corps activities in
LANTNAVFACENGCOM (w/encl (1) Only)

Copy to: (w/o encls) NAVFACENGCOM (1041) NAVFACENGCOM (1042)



NAVAL ENVIRONMENTAL PROTECTION SUPPORT SERVICE CONTROLLED WASTE (NACWIS) DETAILED MASTER LISTING TREATMENT PLANTS

DATE 28 OCT 76 PAGE 498

67.439

8.397

1.200

77.036

SPECIAL AREA - GA

PLANT DISCHARGE NO. - 001

PLANT O&M COSTS: FY - 76

PERSONNEL - .

SERV/SURCHARGE - \$

TOTAL O&M COSTS - \$

MAINTENANCE -

LABORATORY -

CONTRACT RENEWAL DATE - MAR79

LATITUDE - N-34-39-00

LONGITUDE - W-077-21-00

RESO - 7 LANTDIV

UIC - M67001 ACTIVITY -CAMP LEJEUNE NC MCB

CAMP LEJEUNE N C LOCATION -

DESCRIPTION - CAMP GEIGER STP-PLANT # - TPO1

APPLIC. PCP #W270A UNDER UIC 62573

DATE PCP #

42

IMPROVED - SEP76 W095B

DOWNSTREAM STATION - SSO1

RESPONSIBLE AGENCY - EPA REGION 4

TREATMENT PLANT TYPE - SECONDARY PERMIT/CONTRACT ACCESSION #

NPDES - NC0020907 L1-10-02075

TREATMENT CLASS - TRICKLING FILTER - STANDARD OTHERS -

DISCHARGE CATEGORY - RIVER/STREAM

DISCHARGE MEDIUM NAME - NEW RIVER

FOPULATION SERVED -

DESIGN FLOW (GPD) - 1.600,000

CURRENT FLOW (GPD) - 400.000

ULTIMATE DISPOSAL - LANDFILL

DISINFECTION: CHLORINATION

SOLIDS TREATMENT & DISPOSAL: DIGESTION - ANAEROBIC DEWATERING/INCINERATION - SLUDGE DRYING BED WASTEWATER CHARACTERISTICS:

DOMESTIC 100% INDUSTRIAL 0% COMMERCIAL 0%

CONSTRUCTION:

BUILT -

CONTRIBUTING PROCESSES:

KEYWORD DESCRIPTION

8.1.4.14 HOUSING (DOMESTIC) WASTES

PLANT OPERATORS:

1

2

2

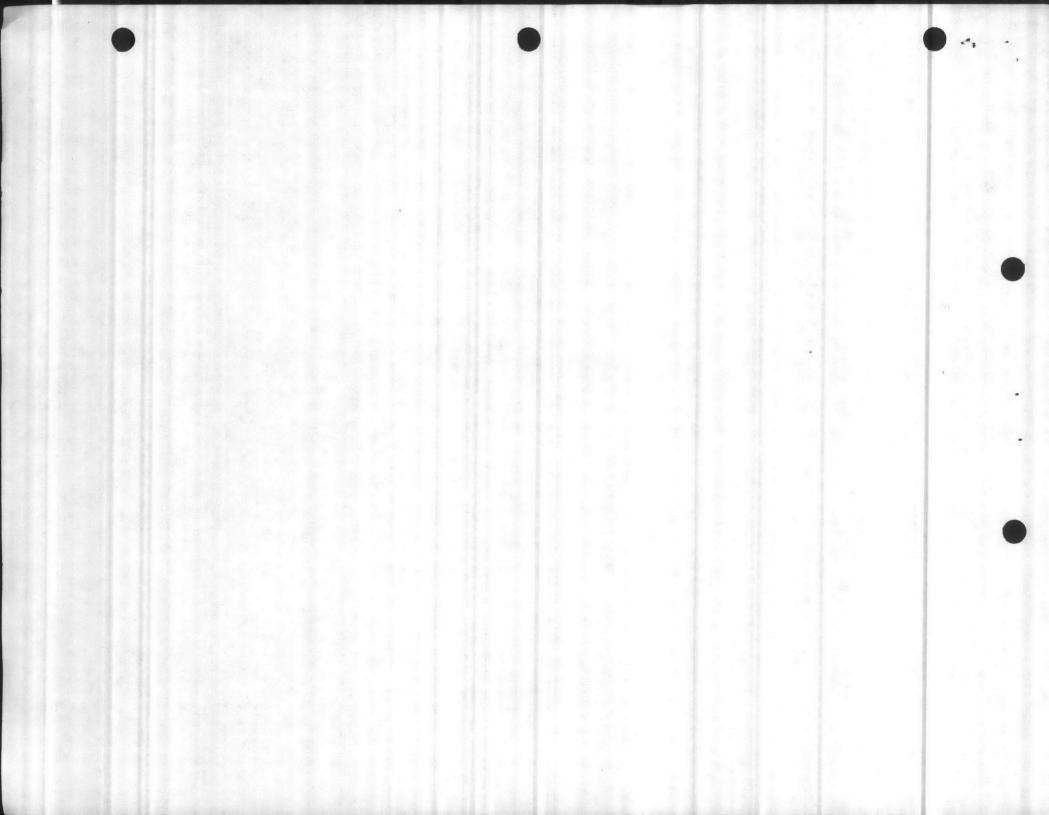
GRADE NO.

A

NONE

TOTAL

M67001 TP01



NAVAL ENVIRONMENTAL PROTECTION SUPPORT SERVICE CONTROLLED WASTE (NACWIS) DETAILED MASTER LISTING TREATMENT PLANTS

DATE 28 OCT 76 PAGE 499

87.176

CONTRACT RENEWAL DATE - MAR79

RESO - 7 LANTDIV

PLANT # - TPO2

UIC - M67001 CAMP LEJEUNE NC MCB ACTIVITY -

LOCATION -CAMP LEJEUNE N C

DESCRIPTION - TARAWA STP LATITUDE - N-34-39-00

PCR W270A COMPLETED JUL 74 UNDER UIC 62573

DOWNSTREAM STATION - SSO2 LONGITUDE - W-077-20-00

RESPONSIBLE AGENCY - EPA REGION 4

TREATMENT PLANT TYPE - SECONDARY PERMIT/CONTRACT ACCESSION # NPDES - NC0020923 L1-10-02074 PLANT DISCHARGE NO. - 001

TREATMENT CLASS - TRICKLING FILTER - STANDARD OTHERS -

DISCHARGE CATEGORY - RIVER/STREAM

DISCHARGE MEDIUM NAME - NORTHEAST CREEK

POPULATION SERVED -CONSTRUCTION: PLANT OPERATORS: 6.430 PLANT O&M COSTS: FY - 76 .

DATE PCP # GRADE NO. PERSONNEL - . 77.120 BUTIT -B DESIGN FLOW (GPD) - 1,250,000 53 3 8.856 MAINTENANCE -

IMPROVED - JUL74 NONE LABORATORY -1.200

CURRENT FLOW (GPD) -OCT76 W095B 750,000 TOTAL SERV/SURCHARGE - \$ TOTAL O&M COSTS - \$

DISINFECTION: CHLORINATION

SOLIDS TREATMENT & DISPOSAL: WASTEWATER CHARACTERISTICS: DIGESTION - ANAEROBIC DOMESTIC 100%

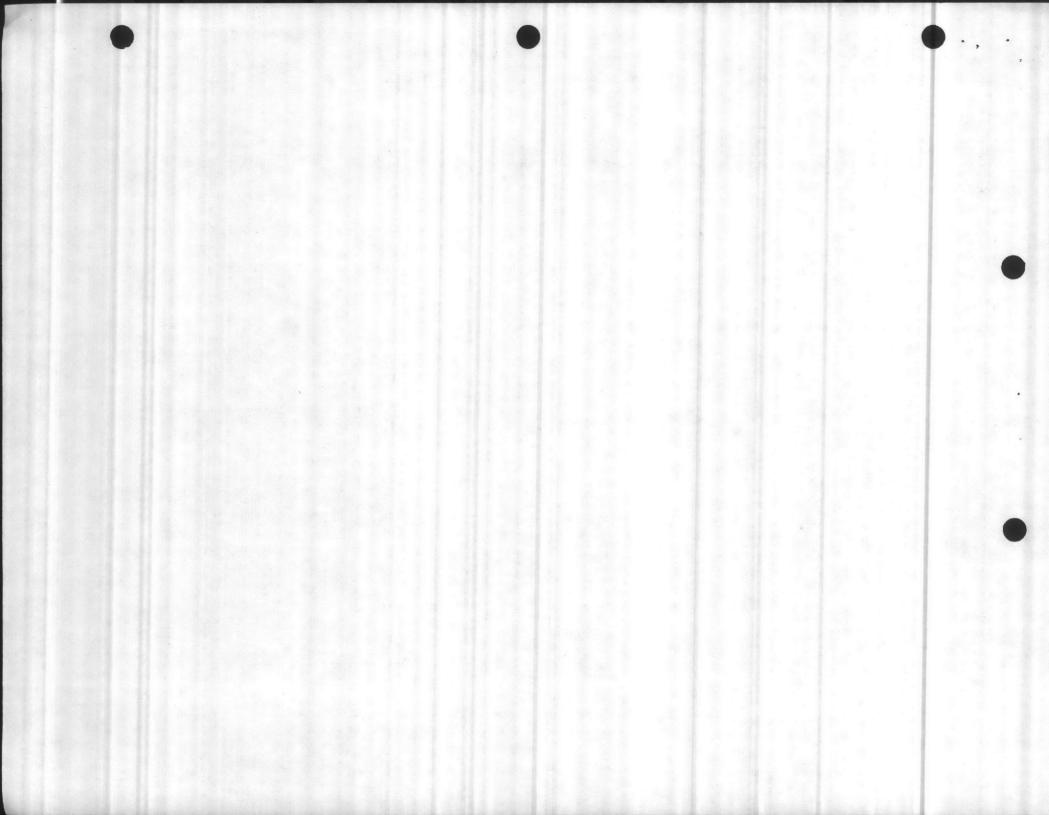
DEWATERING/INCINERATION - SLUDGE DRYING BED INDUSTRIAL 0% ULTIMATE DISPOSAL - LANDFILL COMMERCIAL 0%

CONTRIBUTING PROCESSES:

KEYWORD DESCRIPTION 8.11.16 BOILER BLOWDOWN

> 8.1.4.14 HOUSING (DOMESTIC) WASTES 8.13.14 SWIMMING POOL FILTER BACKWASH

8.13.1.1 VEHICLE WASHRACKS



NAVAL ENVIRONMENTAL PROTECTION SUPPORT SERVICE CONTROLLED WASTE (NACWIS) DETAILED MASTER LISTING TREATMENT PLANTS

DATE 28 OCT 76 PAGE 500

2.092

3.702

6.084

300

RESO - 7 LANTDIV

UIC - M67001 ACTIVITY -

CAMP LEJEUNE NC MCB LOCATION -CAMP LEJEUNE N C

PLANT # - TPO3

DESCRIPTION - MONTFORD PT STP

DOWNSTREAM STATION - SSO3

RESPONSIBLE AGENCY - EPA REGION 4

TREATMENT PLANT TYPE - SECONDARY

TREATMENT CLASS - TRICKLING FILTER - STANDARD

DISCHARGE CATEGORY - RIVER/STREAM

DISCHARGE MEDIUM NAME - NORTHEAST CREEK

POPULATION SERVED -

DESIGN FLOW (GPD) - 1,000,000

CURRENT FLOW (GPD) -370.000

DISINFECTION: CHLORINATION

SOLIDS TREATMENT & DISPOSAL: DIGESTION - ANAEROBIC DEWATERING/INCINERATION - SLUDGE DRYING BED ULTIMATE DISPOSAL - LANDFILL

PERMIT/CONTRACT ACCESSION # NPDES - NC0020915

OTHERS -

L1-10-02076

PLANT DISCHARGE NO. - 001

CONTRACT RENEWAL DATE - MAR79

SPECIAL AREA - FA

LONGITUDE -

LATITUDE - N-34-39-00

CONSTRUCTION .

DATE PCP # BUILT -

42 IMPROVED - SEP76 W095B

PLANT OPERATORS: GRADE NO.

TOTAL 0 PLANT O&M COSTS: FY - 75. PERSONNEL - . MAINTENANCE . -LABORATORY -

SERV/SURCHARGE - \$ TOTAL O&M COSTS - \$

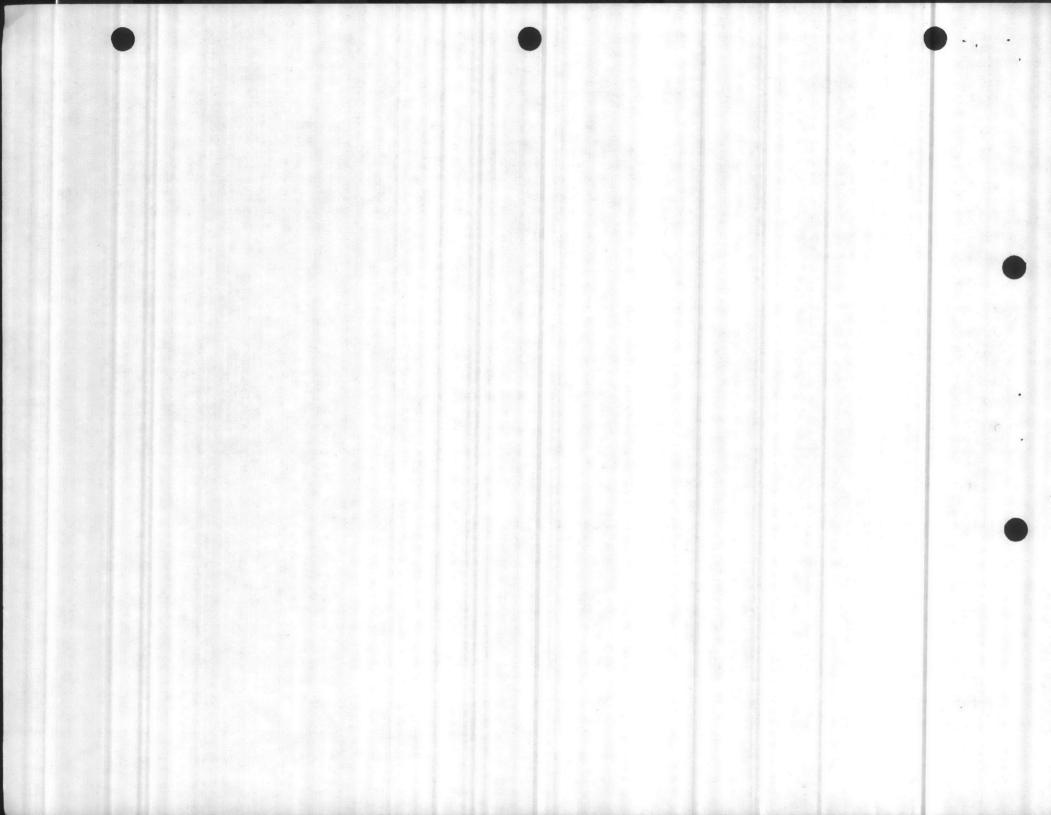
WASTEWATER CHARACTERISTICS:

DOMESTIC 100% INDUSTRIAL 0% COMMERCIAL 0%

CONTRIBUTING PROCESSES:

KEYWORD DESCRIPTION

8.1.4.14 HOUSING (DOMESTIC) WASTES



NAVAL ENVIRONMENTAL PROTECTION SUPPORT SERVICE CONTROLLED WASTE (NACWIS) DETAILED MASTER LISTING TREATMENT PLANTS

DATE 28 OCT 76 PAGE 501

\$ 202.408

.

1.200

SPECIAL AREA - DA

CONTRACT RENEWAL DATE - MAR79

PLANT O&M COSTS: FY -. 75 .

TOTAL O&M COSTS - \$ 247.847

PERSONNEL - .

LABORATORY - . S

SERV/SURCHARGE - \$

MAINTENANCE -

LATITUDE - N-34-39-00

LONGITUDE - W-077-21-00

RESO - 7 LANTDIV

UIC - M67001 ACTIVITY - CAMP LEJEUNE NC MCB

LOCATION - CAMP LEJEUNE N C

PLANT # - TPO4 DESCRIPTION - HADNOT POINT STP

DOWNSTREAM STATION - SSO4

RESPONSIBLE AGENCY - EPA REGION 4

TREATMENT PLANT TYPE - SECONDARY PERMIT/CONTRACT ACCESSION #
NPDES - NC0020877 L1-10-02072

NPDES - NC0020877 L1-10-02072 PLANT DISCHARGE NO. - 001
TREATMENT CLASS - TRICKLING FILTER - STANDARD OTHERS -

DISCHARGE CATEGORY - RIVER/STREAM.

DISCHARGE MEDIUM NAME - NEW RIVER

POPULATION SERVED -

DESIGN FLOW (GPD) - 5,100,000

CURRENT FLOW (GPD) - 4,550,000

CISINFECTION: CHLORINATION

SOLIDS TREATMENT & DISPOSAL:
DIGESTION - ANAEROBIC
DEWATERING/INCINERATION - SLUDGE DRYING BED
ULTIMATE DISPOSAL - LANDFILL

CONSTRUCTION: PLANT OPERATORS:

DATE PCP # GRADE NO.

BUILT - 42 B 7

IMPROVED - SEP76 W095B C 2

D 4 NONE 7 TOTAL 20

WASTEWATER CHARACTERISTICS: DOMESTIC 100%

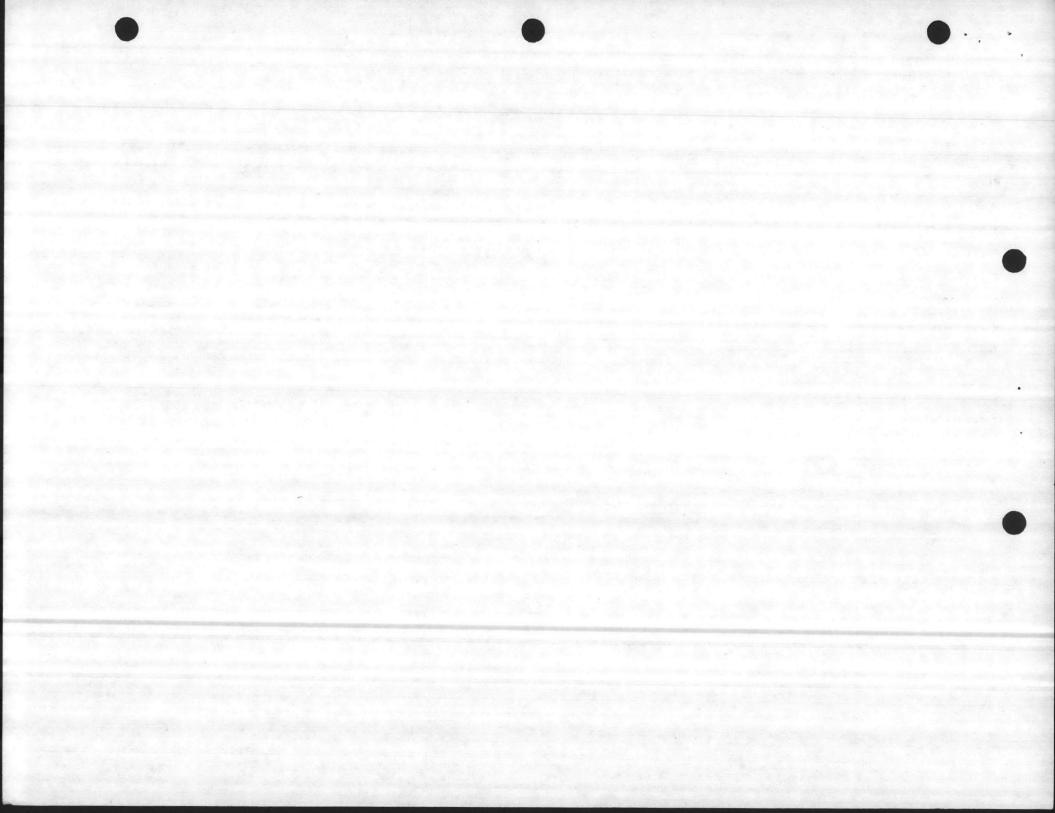
INDUSTRIAL 0% COMMERCIAL 0%

CONTRIBUTING PROCESSES:

KEYWORD DESCRIPTION

8.1.4.14 HOUSING (DOMESTIC) WASTES

M67001 TP04



NAVAL ENVIRONMENTAL PROTECTION SUPPORT SERVICE CONTROLLED WASTE (NACWIS) DETAILED MASTER LISTING TREATMENT PLANTS

DATE 28 OCT 76 PAGE 501

RESO - 7 LANTDIV

UIC - M67001 ACTIVITY -

CAMP LEJEUNE NC MCB LOCATION -CAMP LEJEUNE N C

PLANT # - TPO4

DESCRIPTION - HADNOT POINT STP

DOWNSTREAM STATION - SSO4

RESPONSIBLE AGENCY - EPA REGION 4

TREATMENT PLANT TYPE - SECONDARY

TREATMENT CLASS - TRICKLING FILTER - STANDARD

DISCHARGE CATEGORY - RIVER/STREAM

DISCHARGE MEDIUM NAME - NEW RIVER

POPULATION SERVED -

DESIGN FLOW (GPD) - 5,100,000

CURRENT FLOW (GPD) - 4.550,000

ULTIMATE DISPOSAL - LANDFILL

DISINFECTION:

CHLORINATION

SOLIDS TREATMENT & DISPOSAL: DIGESTION - ANAEROBIC DEWATERING/INCINERATION - SLUDGE DRYING BED

PERMIT/CONTRACT ACCESSION # NPDES - NC0020877

OTHERS -

L1-10-02072

PLANT DISCHARGE NO. - 001

CONTRACT RENEWAL DATE - MAR79

SPECIAL AREA - DA

LATITUDE - N-34-39-00

LONGITUDE - W-077-21-00

CONSTRUCTION: PLANT OPERATORS:

DATE PCP # GRADE NO. BUILT -42 B 7 IMPROVED - SEP76 W095B C 2

D 4 NONE 7 TOTAL 20 PLANT O&M COSTS: FY -. 75 . \$ 202.408 PERSONNEL - . MAINTENANCE . -44.239 LABORATORY -\$ 1.200 SERV/SURCHARGE - \$

TOTAL O&M COSTS - \$ 247.847

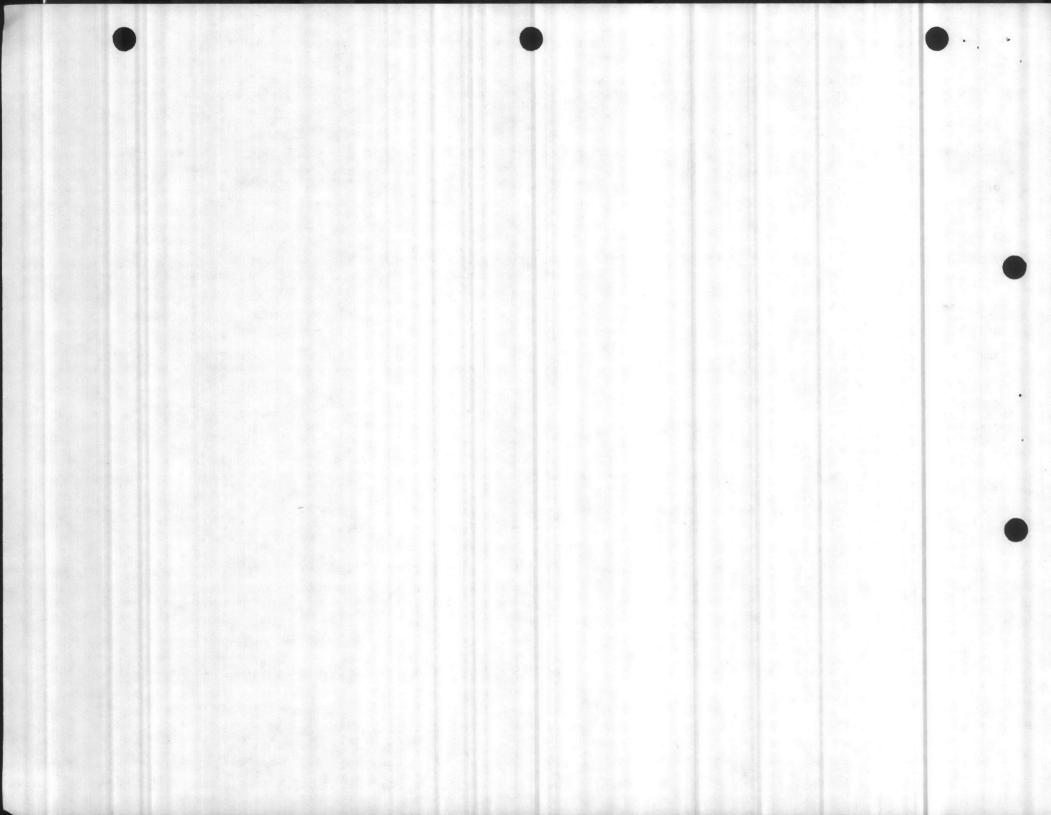
WASTEWATER CHARACTERISTICS:

DOMESTIC 100% INDUSTRIAL COMMERCIAL 0%

CONTRIBUTING PROCESSES:

KEYWORD DESCRIPTION

8.1.4.14 HOUSING (DOMESTIC) WASTES



NAVAL ENVIRONMENTAL PROTECTION SUPPORT SERVICE CONTROLLED WASTE (NACWIS) DETAILED MASTER LISTING TREATMENT PLANTS

DATE 28 OCT 76 PAGE 502

RESO - 7 LANTDIV

UIC - M57001

ACTIVITY -CAMP LEJEUNE NC MCB LOCATION -CAMP LEJEUNE N C

PLANT # - TPO5

DESCRIPTION - RIFLE RANGE STP

DOWNSTREAM STATION - SSO5

RESPONSIBLE AGENCY - EPA REGION 4

TREATMENT PLANT TYPE - SECONDARY

TREATMENT CLASS - TRICKLING FILTER - STANDARD

DISCHARGE CATEGORY - RIVER/STREAM

DISCHARGE MEDIUM NAME - NEW RIVER

POPULATION SERVED -1.080

DESIGN FLOW (GPD) -525.000

CURRENT FLOW (GPD) -300,000

DISINFECTION:

CHLORINATION

SOLIDS TREATMENT & DISPOSAL:

DIGESTION - ANAEROBIC

DEWATERING/INCINERATION - SLUDGE DRYING BED

ULTIMATE DISPOSAL - LANDFILL

SPECIAL AREA - HA

LATITUDE - N-34-39-00

LONGITUDE - W-077-21-00

PERMIT/CONTRACT ACCESSION #

NPDES - NC0020885

OTHERS -

IMPROVED - SEP76 W095B

L1-10-02073

PLANT DISCHARGE NO. - 001

CONTRACT RENEWAL DATE - MAR79

CONSTRUCTION: PLANT OPERATORS:

DATE. PCP # GRADE NO. BUILT -70 W095A A

В 3 NONE

TOTAL

PLANT O&M COSTS: FY - 76.

PERSONNEL - . 28.048 MAINTENANCE -2.990

. \$ LABORATORY -300

SERV/SURCHARGE - \$

TOTAL O&M COSTS - \$ 31.338

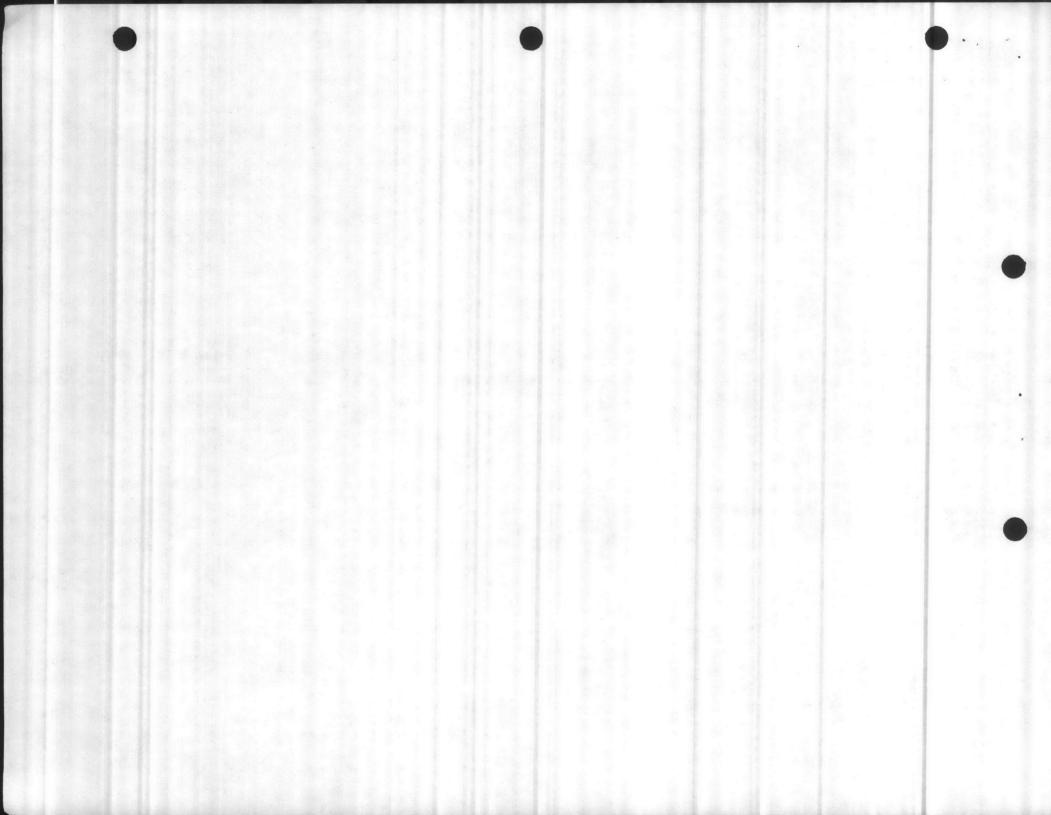
WASTEWATER CHARACTERISTICS:

DOMESTIC 100% INDUSTRIAL 0% COMMERCIAL 0%

CONTRIBUTING PROCESSES:

KEYWORD DESCRIPTION

8.1.4.14 HOUSING (DOMESTIC) WASTES



NAVAL ENVIRONMENTAL PROTECTION SUPPORT SERVICE CONTROLLED WASTE (NACWIS) DETAILED MASTER LISTING TREATMENT PLANTS

DATE 28 OCT 76 PAGE 503

26,428

31.348

4.620

300

SPECIAL AREA - IA

CONTRACT RENEWAL DATE - MAR79

PLANT O&M COSTS: FY - 75

PERSONNEL - .

MAINTENANCE -

SERV/SURCHARGE - \$
TOTAL O&M COSTS - \$

LABORATORY -

LATITUDE - N-34-39-00

LONGITUDE - W-077-21-00

\$

RESO - 7 LANTDIV

UIC - M67001 ACTIVITY - CAMP LEJEUNE NC MCB

PLANT # - TPO6 DESCRIPTION - COURTHOUSE BAY STP

DOWNSTREAM STATION - SSO6

RESPONSIBLE AGENCY - EPA REGION 4

TREATMENT PLANT TYPE - SECONDARY

PERMIT/CONTRACT ACCESSION #

NPDES - NC0020893 L1-10-02059 PLANT DISCHARGE NO. - 001

TREATMENT CLASS - TRICKLING FILTER - STANDARD OTHERS -

DISCHARGE CATEGORY - RIVER/STREAM

DISCHARGE MEDIUM NAME - INTERCOASTAL WATERWAY

기가 살아가 하면 되어 가게 되었다. 그래요 그 아이들은 사람들은 사람들이 하는 아이를 다 하는 것이 없는 것이다.

2.440

DESIGN FLOW (GPD) - 525.000

CURRENT FLOW (GPD) - 300.000

DISINFECTION: CHLORINATION

POPULATION SERVED -

SOLIDS TREATMENT & DISPOSAL:
DIGESTION - ANAEROBIC
DEWATERING/INCINERATION - SLUDGE DRYING BED
ULTIMATE DISPOSAL - LANDFILL

WASTEWATER CHARACTERISTICS:

DATE PCP #

42

IMPROVED - SEP76 W095B

DOMESTIC 100%
INDUSTRIAL 0%
COMMERCIAL 0%

CONSTRUCTION:

BUILT -

CONTRIBUTING PROCESSES:

KEYWORD DESCRIPTION

8.1.4.14 HOUSING (DOMESTIC) WASTES

PLANT OPERATORS:

1

2

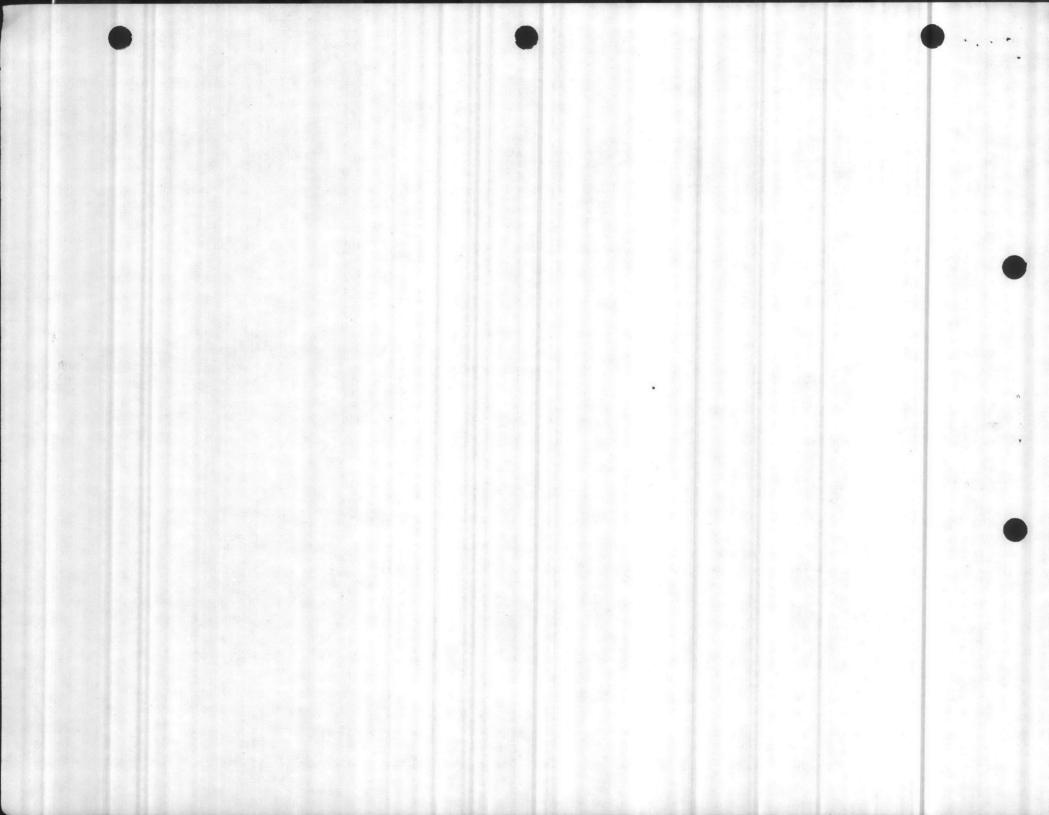
GRADE NO.

A

TOTAL

NONE

7 LANTDIV M67001 TP06



NAVAL ENVIRONMENTAL PROTECTION SUPPORT SERVICE CONTROLLED WASTE (NACWIS) DETAILED MASTER LISTING TREATMENT PLANTS

DATE 28 OCT 76 PAGE 504

RESO - 7 LANTDIV

UIC - M67001

ACTIVITY -CAMP LEJEUNE NC MCB LOCATION -CAMP LEJEUNE N C

PLANT # - TPO7

DESCRIPTION - ONSLOW BEACH STP

DOWNSTREAM STATION - SSO7

RESPONSIBLE AGENCY - EPA REGION 4

TREATMENT PLANT TYPE - SECONDARY

TREATMENT CLASS - TRICKLING FILTER - STANDARD

DISCHARGE CATEGORY - OCEAN

DISCHARGE MEDIUM NAME - INTERCOASTAL WATERWAY

POPULATION SERVED -710

DESIGN FLOW (GPD) -200,000

CURRENT FLOW (GPD) -96,000

DISINFECTION: CHLORINATION

SOLIDS TREATMENT & DISPOSAL: DIGESTION - ANAEROBIC DEWATERING/INCINERATION - SLUDGE DRYING BED ULTIMATE DISPOSAL - LANDFILL

PERMIT/CONTRACT ACCESSION #

NPDES - NC0020869

OTHERS -

L1-10-02071 PLANT DISCHARGE NO. - 001

CONTRACT RENEWAL DATE - MAR79

LATITUDE - N-34-39-00

LONGITUDE - W-077-21-00

CONSTRUCTION: PLANT OPERATORS:

DATE PCP # GRADE NO. BUILT -42 C 1

IMPROVED - SEP76 W095B NONE TOTAL PLANT O&M COSTS: FY - 75 PERSONNEL - .

14.689 MAINTENANCE -2.740 LABORATORY - . \$ 300

SERV/SURCHARGE - \$

TOTAL O&M COSTS - \$ 17.729

WASTEWATER CHARACTERISTICS:

DOMESTIC 100% INDUSTRIAL COMMERCIAL 0%

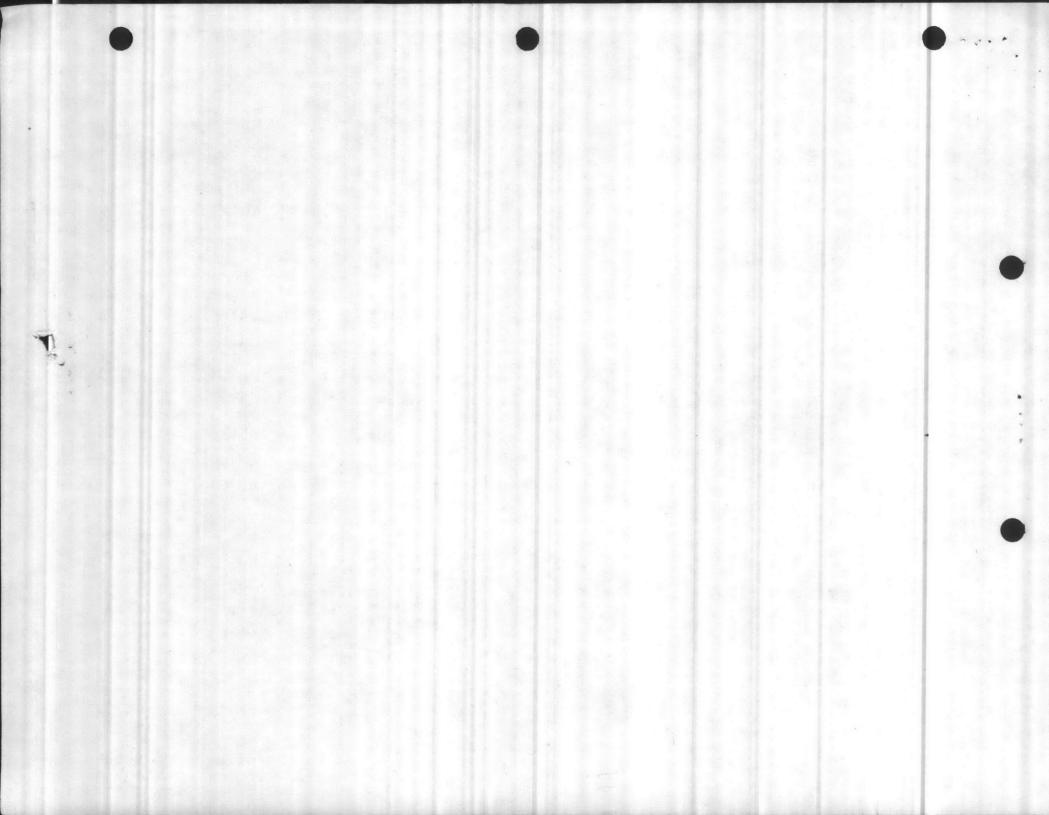
CONTRIBUTING PROCESSES:

KEYWORD DESCRIPTION

8.11.16 BOILER BLOWDOWN

8.1.4.14 HOUSING (DOMESTIC) WASTES 8.13.14 SWIMMING POOL FILTER BACKWASH

8.13.1.1 VEHICLE WASHRACKS



Base Maintenance Officer

Assistant Chief of Staff, Facilities

Pollution Condition of Bearhead Creek

- 1. Evidence of overt pollution in Bearhead Creek was essentially negative during the period of 17-24 October 1973. Representatives of Regional Preventive Medicine, Utilities Division, and Natural Resources and Environmental Affairs Division conducted the investigation of this estuary as ordered by the Commanding General in the response to LCdr (Ret) ALTHAUSER's letter dated 11 October 1973.
- 2. To determine the type and class of the surface water of Bearhead Creek contact was made with the North Carolina Department of Natural and Economic Resources, Office of Water and Air Resources, Water Quality Division. The stream is considered as a Glass C salt water estuary originating in Camp Lejeune and discharging into Wallace Creek. Water Quality Standards applicable to the Surface Waters of North Carolina were used as a guide in determining our results.
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J.J.W.

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- 3. Five sampling points were established on 17 October and were utilized during the investigation as a standard. Results were determined from the following observations.
- a. Bacteriological The Millipore technique was used to determine possible contamination by the Coliform Group of Bacteria. Both Total Coliform and Feeal Coliform densities were below standards set by the state of North Carolina. Our test indicated no source of raw sewage contamination.

b. Chemical Analysis

- (1) Dissolved Oxygen recorded as an average of 7.2 mg/1 with no samples below the minimum set forth for Class C surface waters.
- (2) Biological Oxygen Demand indicated surplus oxygen after five days.
- (3) PH Recordings ranged from 7.4 at the streams mouth to 7.0 at a point upstream immediately below Holcomb Boulevard.
- (4) Sodium Chloride determination fluctuated with tidal movement as determined by the lower water level on 17 October and records of 16,170 mg/1 at the mouth to 9,735 mg/1 upstream and the higher water level on 24 October with recordings of 17,985 mg/1 at mouth to 11,220 mg/1 upstream.

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R.R. #1, Box 261 Hubert, N.C. 28539 11 Oct. 73

Commanding General Marine Corps Base Camp Lefeure, N.C.

Dear Sir:

I respectfully request information regarding the deplorably polluted condition of Bearhead (reek.

Bearhead (reek, as you know, originates and terminates within the environs of M.C.B., Camp LeJeune. Consequently, this esturarine tributary of Wallace (reek is not influenced by the civilian populace or water shed outside base boundaries.

With corrective active undertaken to eliminate base produced raw sewage from entering this waterway, the stream made a nather marked necovery. Bacteriological surveys indicated the stream improved from a condition of naw sewage indices to a class (level, in a little less than two years. In 1971, and coincidental with the State Attorney Generals interest with M.C. B. 's contribution to the New River pollution problem, it was demonstrated that Bearhead (neek had become a good large mouth bass producer. Further, this tributary was one of the few that did not become silted following heavy rainfall periods, easily explanable because the watershed was not arid, was not torn up by marine training machinery and remained in a natural state, undisturbed by man.

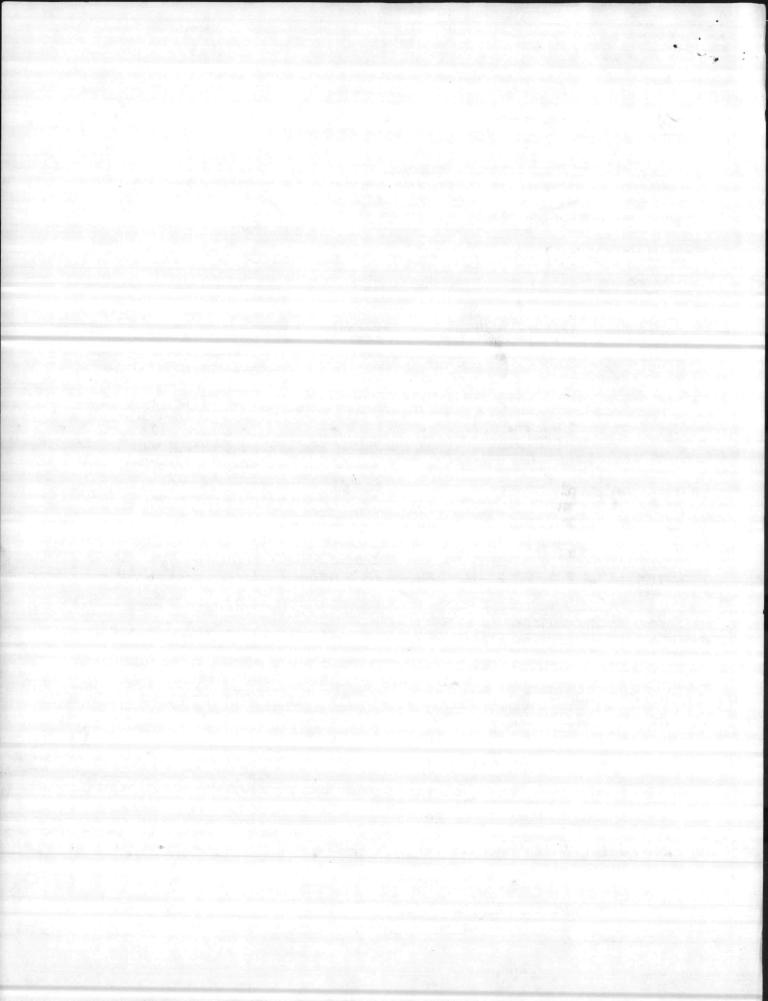
Now, this tribuatry is heavily silted with turbulent muck, and the surface is covered with oil slick from the blvd. to its emanating point at Wallace (reek. The water is foul and has a heavy stench of decay.

What has happened to allow this backslide of environmental pollution? Is there a possibility that construction of drainage along N.C. 24 is a contributing factor?

Robert V. Althouser

LCUR MSC USN (Ret.) R.S.

copy to: Editor, Daily News Jacksonville, N.C. County Health Dept. Jacksonville, N.C.



Memorandum

DATE: 29 Oct 1973

FROM: Natural Resources and Environmental Affairs Division

TO: Base Maintenance Officer

SUBJ: Pollution Condition of Bearhead Creek

Encl: (1) Graph - Bearhead Creek Sampling Points

(2) Graph - Total Coliform(3) Graph - Fecal Coliform

- (4) Excerpt of-Rules, Regulations, Classifications and Water Quality Standards Applicable to the Surface Waters of North Carolina
- 1. Evidence of overt pollution in Bearhead Creek was essentially negative during the period of 17-24 October 1973. Representatives of Utilities Division, Regional Preventive Medicine, and Natural Resources and Environmental Affairs Division conducted the investigation of this estuary as ordered by the Commanding General in the response to LCdr (Ret) ALTHAUSER's letter dated 11 October 1973.
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- 4. Sodium Chloride determination fluctuated with tidal movement as determined by the lower water level on 17 October and records of 16,170 mg/1 (Sample Point 1) to 9,735 mg/1 (Sample Point 5) and the higher water level on 24 October with recordings of 17,985 mg/1 (Sample Point 1) to 11,220 mg/1 (Sample Point 5).
- c. Atomospheric Conditions Sunny to light overcast with no precipitation during investigation. Average water temperature of 65°F. Daily, times of observations and sample collections were between 0930 and 1200 with the tide level increasing daily.

d. Observations

- 1. Turbidity No quantitative tests were considered necessary due to observed clarity to three feet.
- 2. Oil Evidence No evidence of oil contamination was observed in Bearhead Creek. Evidence of oil was observed in one storm ditch located above Holcomb Boulevard which drains into Bearhead Creek during heavy run off.
- 3. Odors Some evidence of organic odors were detected at sample site # 4. Considered not unusual to this area.
 - 4. Silt Some evidence of siltation was observed.
 - 5. Aquatic Life Fish and water birds were observed repeatedly.

JULIAN I. WOOTEN, Ecologist

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SECTION 1

Natural Resources and Environmental Affairs Division

Base Maintenance Officer

Pollution Condition of Bearhead Creek

Encl:

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- (2) Graph Total Coliform
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JULIAN I. WOOTEN, Ecologist

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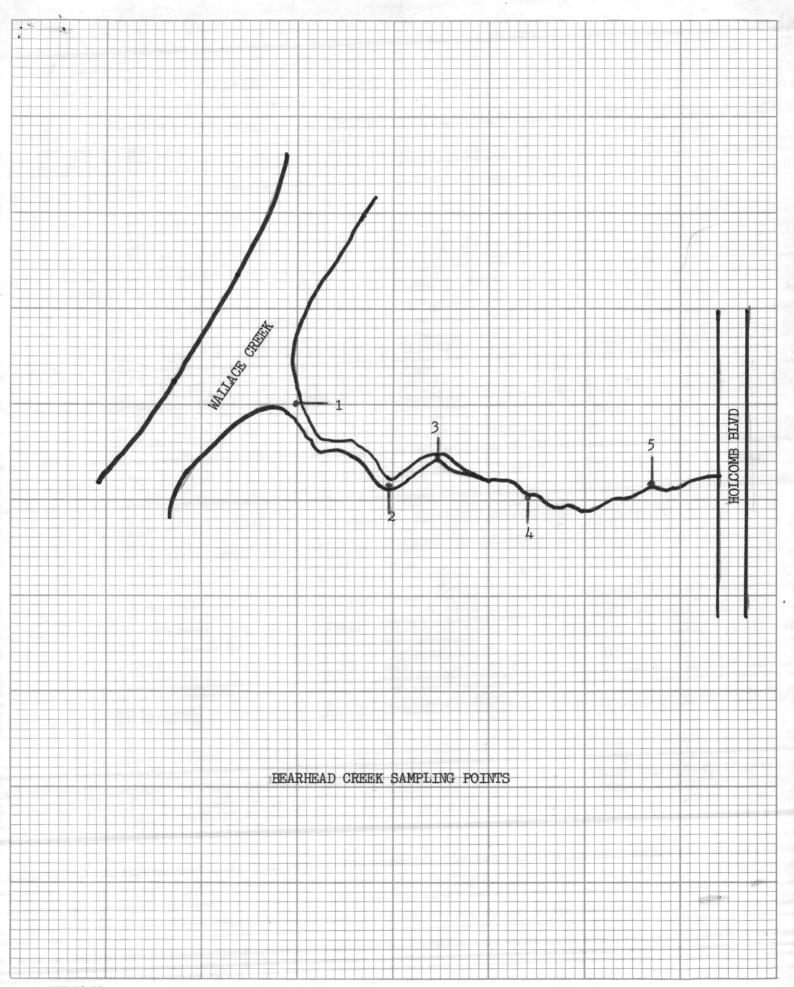
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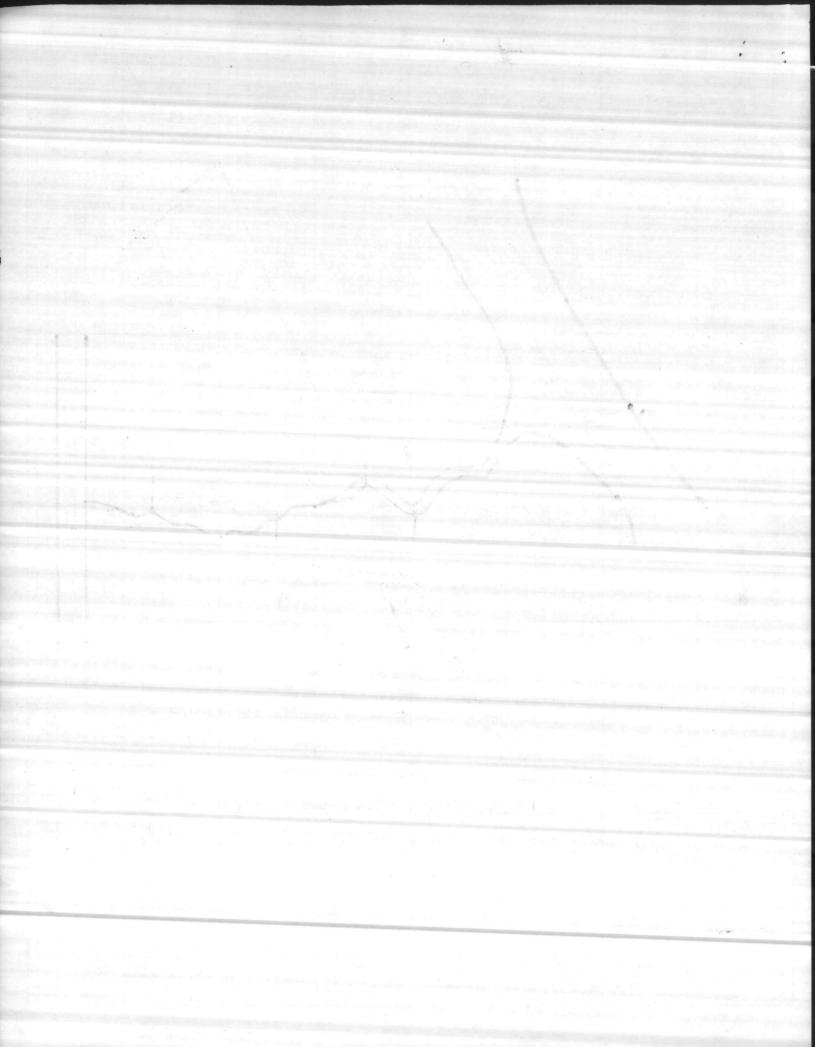
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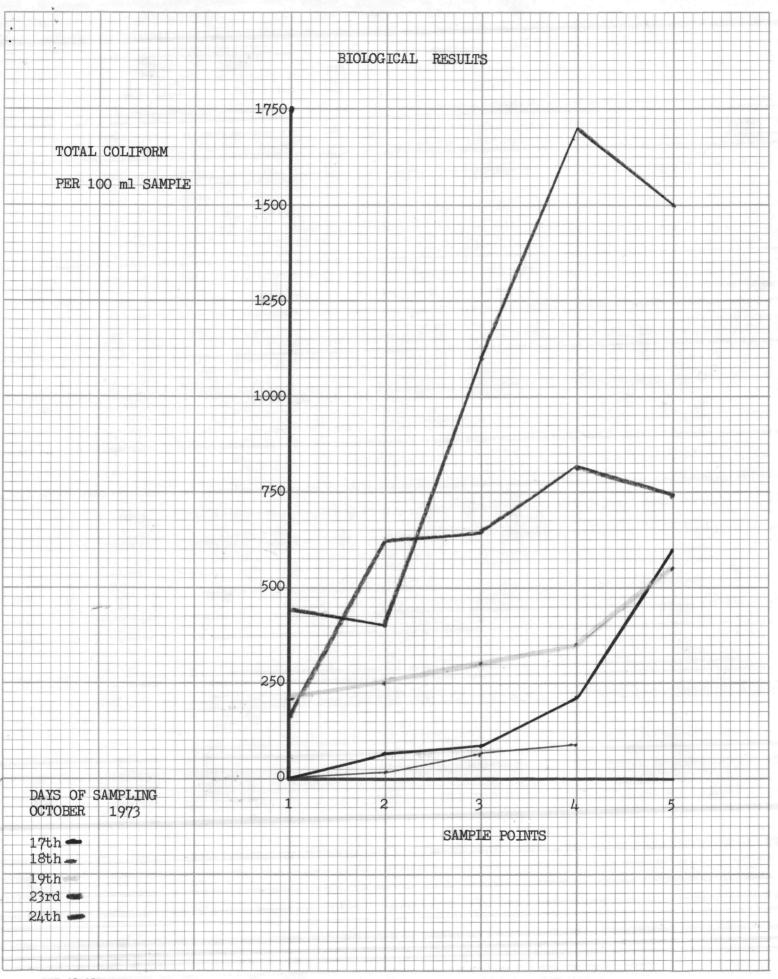
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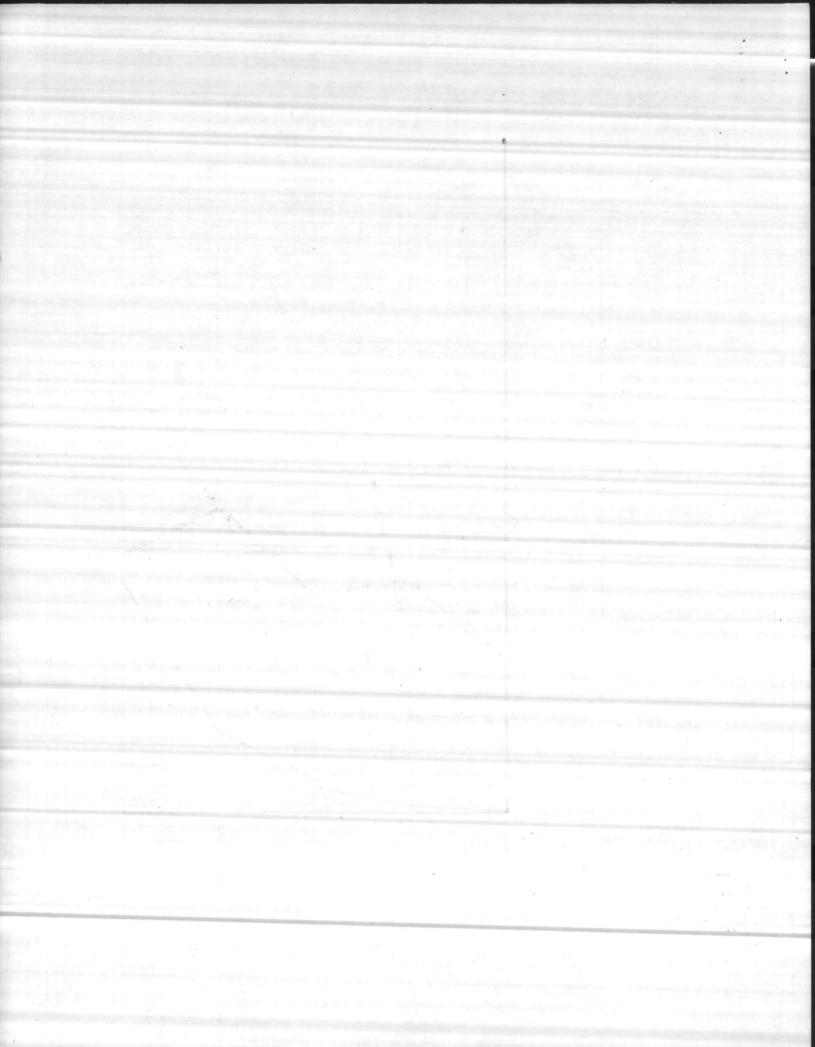
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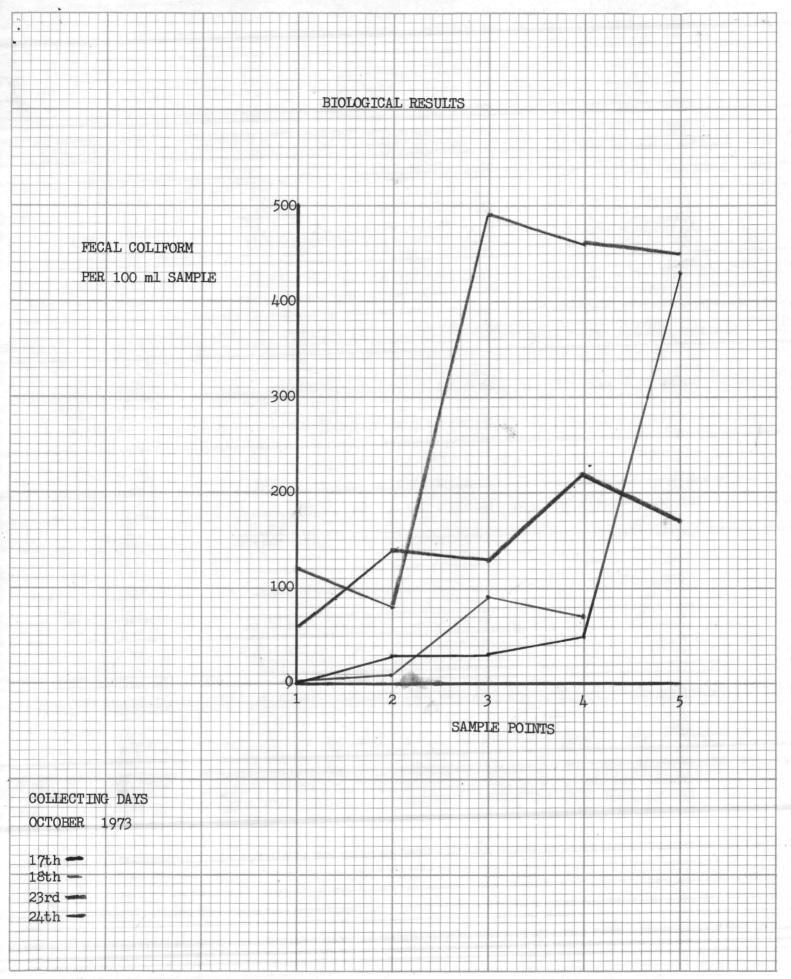
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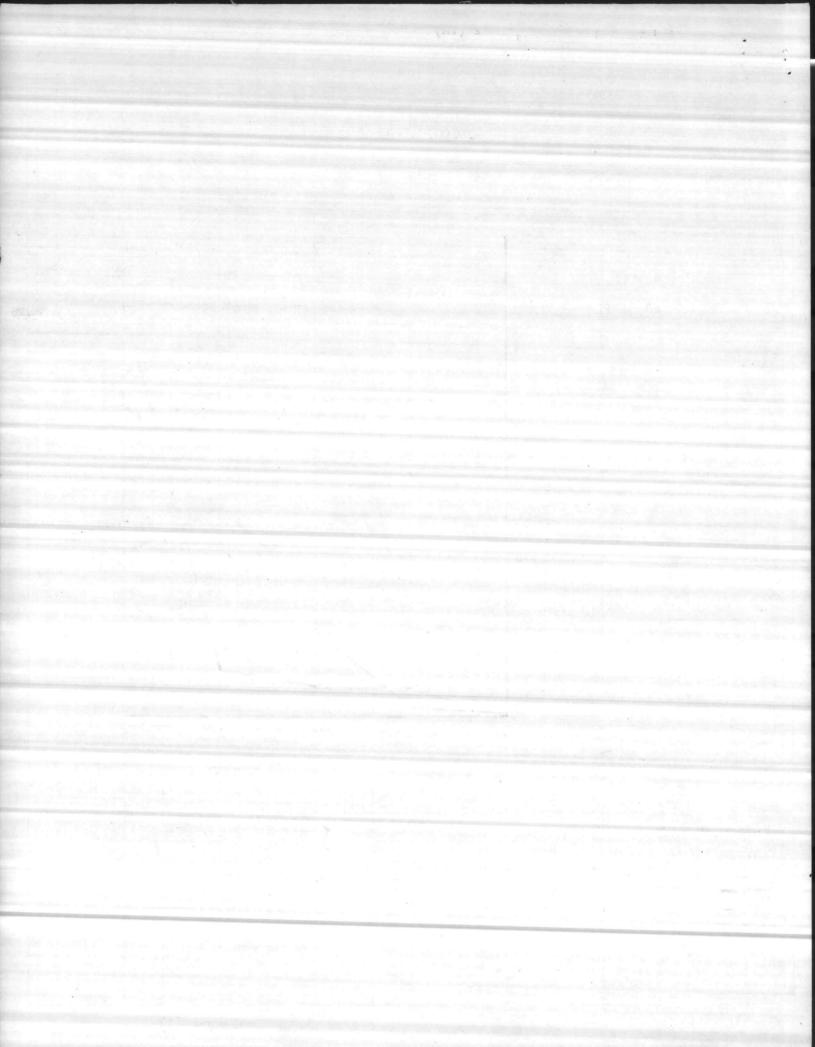












e. Organisms of coliform group.

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f. Temperature.

Fecal coliforms not to exceed a log mean of 1,000/100 ml (MPN or MF count) based upon at least five consecutive samples examined during any 30-day period; nor exceed 2,000/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

Not to exceed 5°F, above the natural water temperature, and in no case to exceed 84°F. for mountain and upper piedmont waters and 90°F, for lower piedmont and coastal plain waters. The temperature of natural trout waters shall not be significantly increased due to the discharge of heated liquids and shall not exceed 68°F.; however, the temperature of put-and-take trout waters may be increased by as much as 3°F. but the maximum may not exceed 70°F.



RULES, REGULATIONS, CLASSIFICATIONS
AND
WATER QUALITY STANDARDS APPLICABLE
TO THE
SURFACE WATERS OF NORTH CAROLINA

7. Class C Waters

- a. Best Usage of Waters: Fishing, boating, wading and any other usage except for bathing or as a source of water supply for drinking, culinary or food-processing purposes.
- b. Conditions Related to Best Usage: The waters will be suitable for fish and wildlife propagation. Also, suitable for boating, wading, and other uses requiring waters of lower quality.
 - 8. Quality Standards Applicable to Class C Waters

Items

Specifications

a. Floating solids; settleable solids; sludge deposits.

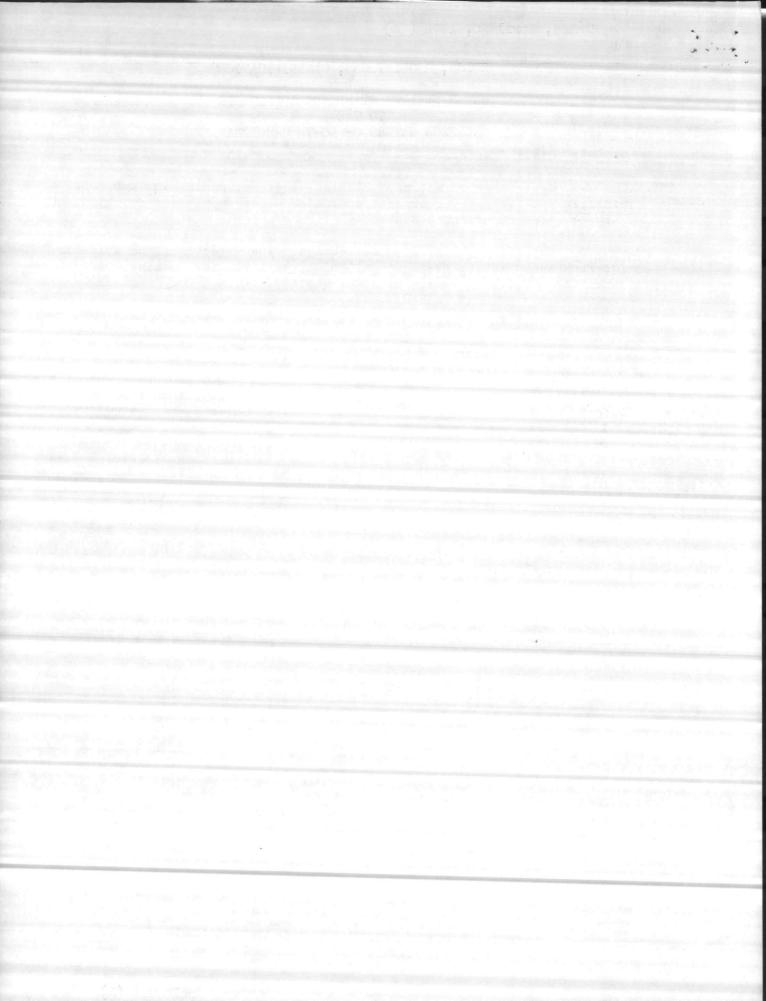
Only such amounts attributable to sewage, industrial wastes or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, make the waters unsafe or unsuitable for fish and wildlife, or impair the waters for any other best usage established for this class.

Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5, except that swamp waters may have a low of 4.3.

c. Dissolved oxygen.

Not less than 6.0 mg/l for natural trout waters; 5.0 mg/l for put-and-take trout waters; not less than a daily average of 5.0 mg/l with a minimum of not less than 4.0 mg/l for non-trout waters, except that swamp waters may have lower values if caused by natural conditions.

d. Toxic wastes; oils; deleterious substances; colored or other wastes. Only such amounts, whether alone or in combination with other substances or wastes as will not render the waters injurious to fish and wildlife or adversely affect the palatability or same, or impair the waters for any other best usage established for this class.



RULES, REGULATIONS, CLASSIFICATIONS

AND

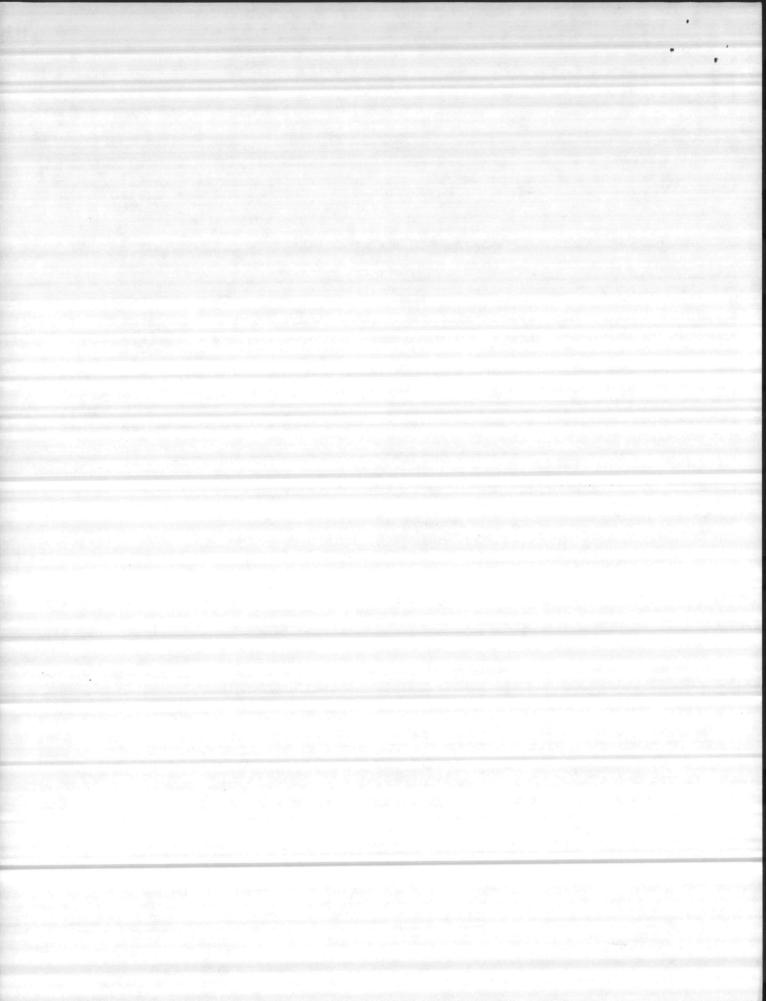
WATER QUALITY STANDARDS APPLICABLE

TO THE

SURFACE WATERS OF NORTH CAROLINA



Adopted By
BOARD OF WATER AND AIR RESOURCES
DEPARTMENT OF WATER AND AIR RESOURCES
Releigh, North Carolina



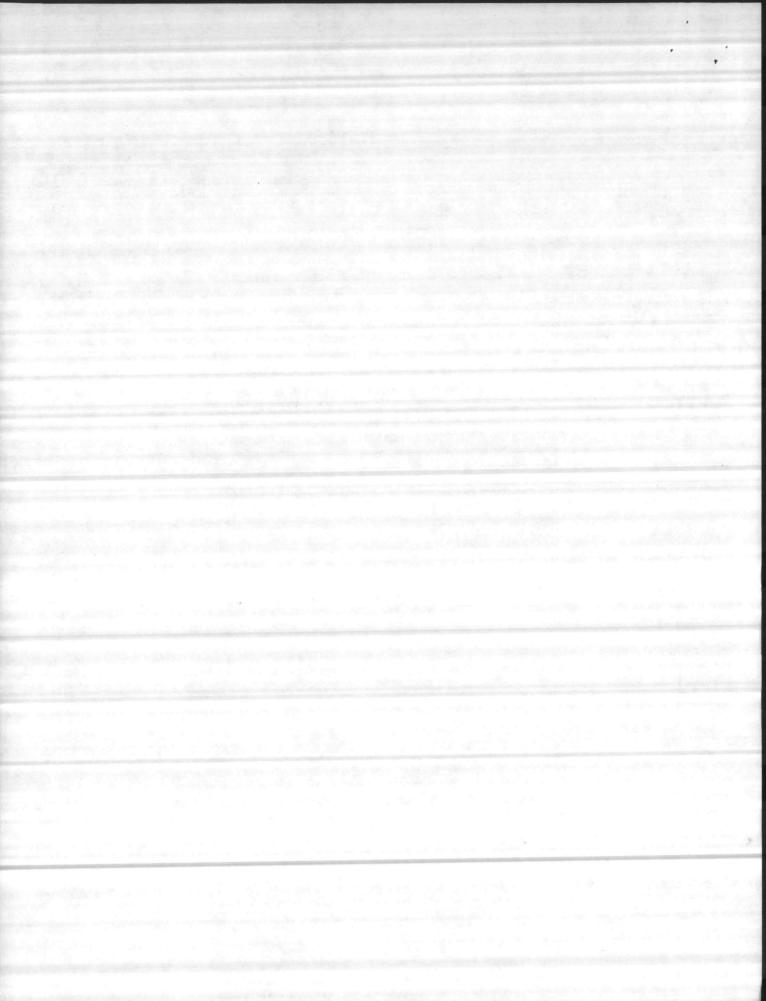
BROTTADT TREATS CLASSIF CEASING

NORTH CAROLINA

BOARD OF WATER AND AIR RESOURCES

S: Vernon Stevens, Jr., Chairman
P. Greer Johnson, Vice Chairman
P. D. Davis
J. Nelson Gibson, Jr.
Wayne Mabry
Hugh L. Merritt
Lee L. Powers
J. Aaron Prevost
W. Grady Stevens
Raymond S. Talton
Joseph E. Thomas
Glenn H. Tucker
H. W. Whitley

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DOARD OF WATER AND ATE RESOURCES
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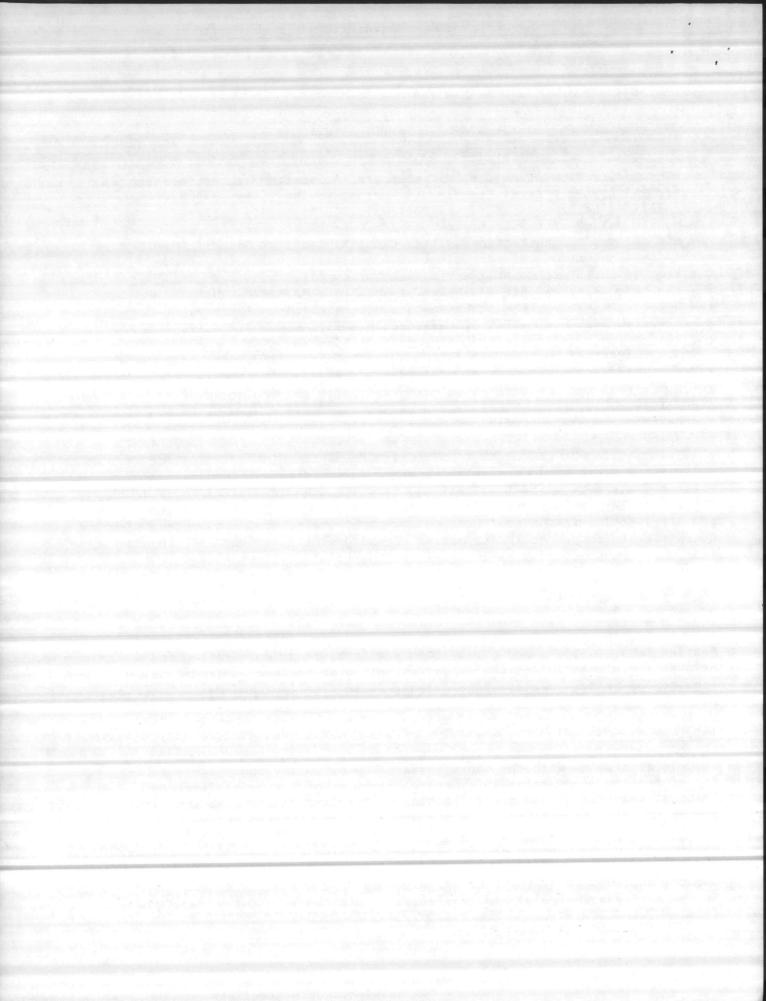
RULES, REGULATIONS, CLASSIFICATIONS AND WATER QUALITY STANDARDS APPLICABLE TO THE SURFACE WATERS OF NORTH CAROLINA.

The Declaration of Policy, as set forth in Section 211, Article 21, Chapter 143 of the General Statutes of North Carolina (Chapter 606, Session Laws of 1951) as amended, reads as follows: "It is hereby declared to be the public policy of this State to provide for the conservation of its water and air resources. Furthermore, it is the intent of the General Assembly, within the context of this Article to achieve and to maintain for the citizens of the State a total environment of superior quality. Recognizing that the water and air resources of the State belong to the people, the General Assembly affirms the State's ultimate responsibility for the preservation and development of these resources in the best interest of all its citizens and declares the prudent utilization of these resources to be essential to the general welfare. It is the purpose of this Article to create an agency which shall administer a program of water and air pollution control and water resource management. It is the intent of the General Assembly, through the duties and powers defined herein, to confer such authority upon the Board of Water and Air Resources as shall be necessary to administer a complete program of water and air conservation, pollution abatement and control and to achieve a coordinated effort of pollution abatement and control with other juy sdictions. Standards of water and air purity shall be designed to project human health, to prevent injury to plant and animal life, to prevent domage to public and private property, to insure the continued enjoyment of the natural attractions of the State, to encourage the expansion of employment opportunities, to provide a permanent foundation for healthy industrial development and to secure for the people of North Carolina, now and in the future, the beneficial uses of these great natural resources,"

In accordance with the declaration of policy and under authority of Article 21, Chapter 143, General Statuces of North Carolina (Chapter 606, Session Laws of 1951), and pursuant to public hearings duly called and held at the places and on the dates designated in notices published as required by Statute, Rules, Regulations, Classifications and Water Quality Standards Applicable to the Surface Waters of North Carolina were adopted by the State Stream Sanitation Committee of North Carolina, on November 15, 1953.

In accordance with the above declaration of policy and under authority of Article 21, Chapter 143, General Statutes of North Carolina, as amended, and pursuant to public hearing duly called and held at the place and on the date designated in notice published as required by Statute, the Rules, Regulations, Classifications and Water Quality Standards Applicable to the Surface Waters of North Carolina amended and adopted by the Board of Water and Air Resources, on January 30, 1968, are hereby amended and adopted by the Board of Water and Air Resources as set forth in the accompanying rules and regulations, this the 13th day of October, 1970.

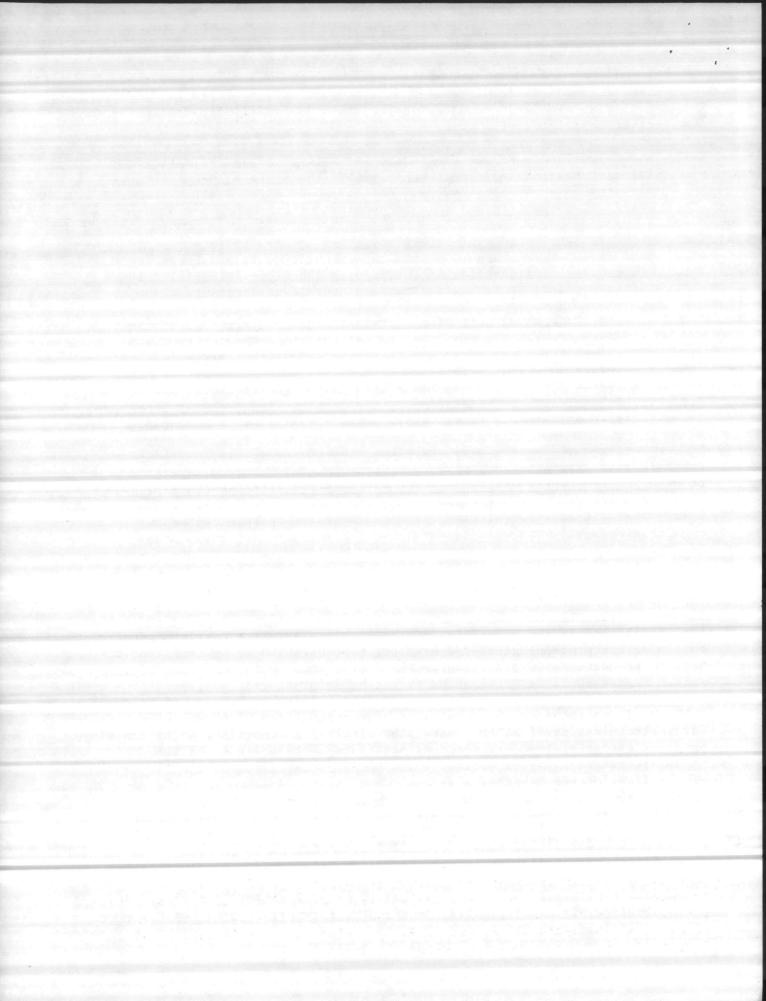
BOARD OF WATER AND AIR RESOURCES



CLASSIFICATIONS AND WATER QUALITY STANDARDS

RULE NO. I. - The Board of Water and Air Resources, prior to classifying and assigning standards of water quality to any specifically designated waters of the State, will proceed as follows:

- 1. The Board will designate and define the specific limits of each separate major watershed within the State to be studied for the purpose of classifying and assigning water quality standards to the waters or segments of waters therein.
- 2. The Board will direct its staff to have studies made of the designated waters to obtain the essential data and facts required for consideration in determining the proper classification of such waters or segments of waters under consideration.
- 3. The Board will direct its staff to have a report of the findings of such studies prepared and distributed or otherwise made available so far as practicable to all parties having specific interests in the classification of the designated waters. Such report shall contain recommendations as to classification of such waters or segments thereof, together with the standards of water quality which apply to the various classifications recommended.
- 4. The Chairman of the Board, or the Board, will designate one or more of its members as Hearing Examiner or Examiners to conduct a public hearing on the matter of classifying and assigning standards of water quality to the waters under consideration and will specify the date, time and place for holding each public hearing.
- 5. The Board will give due notice of such hearing or hearings in accordance with the requirements of General Statute 143-214.1.
- 6. The Hearing Examiner or Examiners will, as soon as practicable after the completion of the hearing, submit a complete report of the proceedings of the hearing, together with recommendations to the Board for disposition of the matter under consideration. The report shall be accompanied by a transcript of testimony presented at such public hearing, together with exhibits, a summary of relevant information from the results of stream studies conducted by the technical staff of the Board, and final recommendations as to classification of the designated waters or segments thereof and the standards of water quality which should be applied to each classification recommended.
- 7. The Board, after due consideration of the hearing records and the final recommendations of the Hearing Examiner or Examiners, will adopt its final action with respect to the assignment of classifications applicable to the identified waters under consideration and will publish such action, together with the effective date for the application of the provisions of General Statute 143-215.1 and General Statute 143-215.2, as amended, as a part of the Board's official regulations.



- 8. The final action of the Board with respect to the assignment of classification with its accompanying standards shall contain the Board's conclusions relative to the various factors given in General Statute 143-214.1(d), and shall specifically state:
- a. The best usage in the interest of the public for such specifically identified waters or segments thereof, in accordance with the provisions of the Statute.
- b. The class or classes to which such specifically designated waters in the watershed or watersheds shall be assigned.
- c. The standards of water quality which shall be assigned to each classification to which the specifically identified water or segments thereof are assigned.
- RULE NO. II. The series of classifications and water quality standards applicable to each such classification, as adopted by the Board of Water and Air Resources, will be used by the Board for the purpose of assigning an appropriate classification to each separately identified water or segment thereof which the Board believes to be of sufficient importance to justify classification or control.
- RULE NO. III. Tests or analytical procedures to determine conformity or nonconformity with standards will, insofar as practicable and applicable, be made in accordance with the methods given in the latest edition of "Standard Methods for the Examination of Water and Wastewater", published by the American Public Health Association, American Water Works Association, and Water Pollution Control Federation or the latest edition of "Methods for Chemical Analysis of Water and Wastes", published by the Federal Water Quality Administration, or where other tests or analytical procedures have been found by the Department to be more applicable and satisfactory, same may be used upon adoption by the Board as a rule pursuant to General Statute 143-215.4(b). Latest edition as used in this rule means that edition of the applicable publication which has been most recently published with reference to the date at which a test or analytical procedure is carried out, and applies prospectively to editions issued subsequent to the adoption of this rule.
- RULE NO. IV. In determining the safety or suitability of Class A-I Waters for use as a source of water supply for drinking, culinary or food-processing purposes after approved disinfection, the Board will be guided by the physical, chemical and bacteriological standards specified in the 1962 edition of the "Public Health Service Drinking Water Standards" and one requirements of the State Board of Health as set forth in Section 5, "Protection of Unfiltered Public Water Supplies", of the Rules and Regulations Providing for the Protection of Public Water Supplies, as adopted October 6, 960, and amended May 9, 1962, August 26, 1965, and October 12, 1967.
- RULE NO. V. In determining the safety or suitability of Ciass A-II Waters for use as a source of water supply for drinking, culinary or food-processing purposes after approved treatment, the Board will be guided by the physical, chemical and bacteriological standards specified in the 1962 edition of the "Public Health Service Drinking Water Standards."

RULE NO. VI. - In assigning the B or SB classification to waters intended for bathing, the Board will take into consideration the relative proximity of sources of pollution and will recognize the potential hazards involved in locating swimming areas close to sources of pollution and will not assign this classification to waters, the bacterial quality of which is dependent solely upon adequate disinfection, and where the interruption of such treatment would render the water unsafe for bathing.

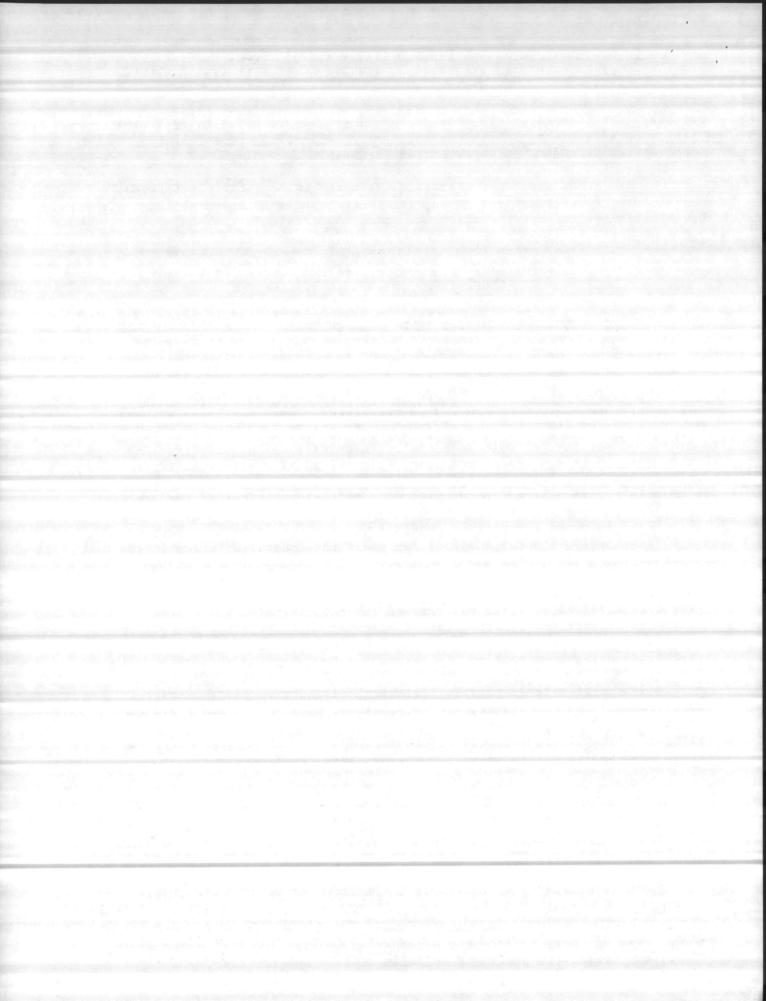
RULE NO. VII. - The series of classifications and water quality standards and the rules and regulations pertaining thereto shall be known as the "Classifications and Water Quality Standards Applicable To The Surface Waters of North Carolina".

REGULATIONS APPLICABLE TO CLASSIFICATIONS AND WATER QUALITY STANDARDS

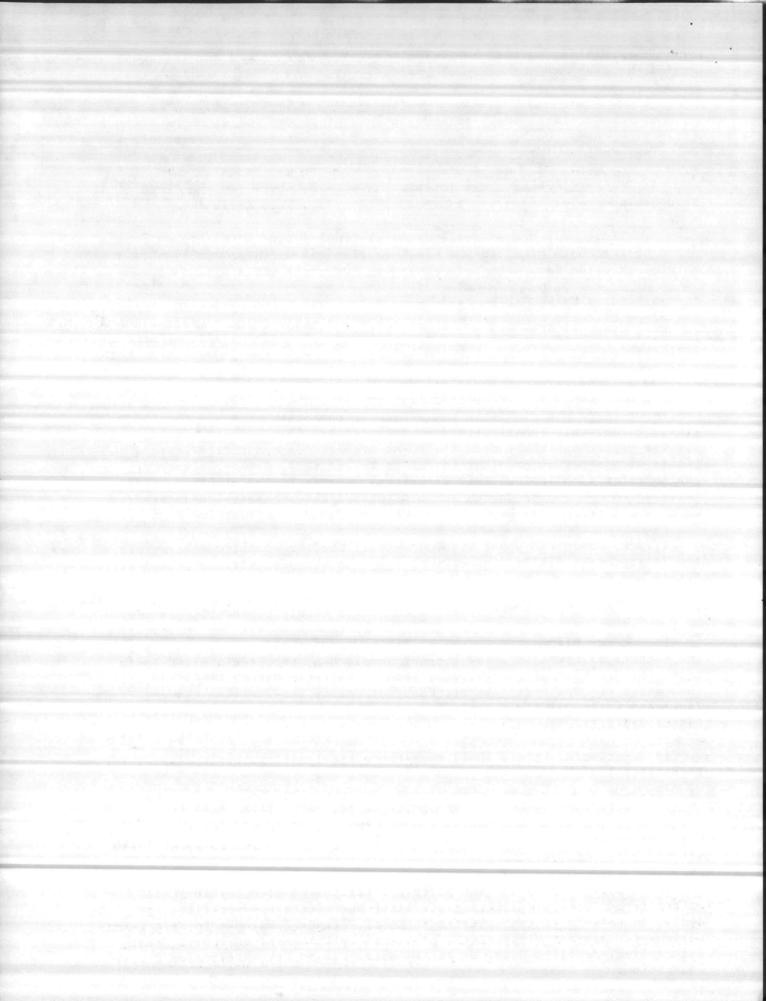
REGULATION NO. I. - Waters whose existing quality is better than the established standards as of the date on which such standards become effective will be maintained at high quality; provided that the State of North Carolina has the authority to approve any project or development, which would constitute a new or an increased discharge of effluent to high quality water, when it has been affirmatively demonstrated that a change is justifiable to provide necessary economic or social development, and provided further, that the necessary degree of waste treatment to maintain high water quality will be required where physically and economically feasible. Present and anticipated use of such waters will not be precluded under the conditions of the aforesaid. In implementing this policy, the Federal Water Quality Administration will be kept informed and will be provided with such information as it will need in discharging its responsibilities under the Federal Water Pollution Control Act.

REGULATION NO. II. - DEFINITIONS. The definition of any word or phrase used in these regulations shall be the same as given in Article 21, Chapter 143 of the General Statutes of North Carolina, as amended. The following words and phrases, which are not defined in said Article, shall be construed to have the following meanings:

- 1. Source of water supply for drinking, culinary or food-processing purposes shall mean any source, either public or private, the waters from which are used for human consumption, or used in connection with the processing of milk, beverages, food or other purposes which require water meeting the "Public Health Service Drinking Water Standards".
- 2. Approved treatment, as applied to water supplies, means treatment accepted as satisfactory by the health authorities responsible for exercising supervision over the sanitary quality of water supplies.
- 3. Bathing shall include swimming, diving, skiing and similar uses but shall be regarded as a best usage only for waters in which such uses are or may be expected to be subjected to effective sanitary supervision and control.
- 4. Fishing shall include the propagation of fish and such other aquatic life as is necessary to provide a suitable environment for fish.



- 5. Shellfish culture shall include the use of waters for the propagation, storage and gathering of oysters, clams and other shellfish for market purposes.
- 6. Agricultural shall include the use of waters for stock watering, irrigation, and other farm purposes but not as sources of water supply for drinking, culinary or food-processing purposes.
- 7. Waste disposal shall include the use of waters for the disposal of sewage, industrial waste or other waste after approved treatment.
- 8. Tidal Salt Waters shall mean all tidal waters which are so designated by the Board of Water and Air Resources and which generally have a natural chloride ion content in excess of 500 parts per million,
- 9. Swamp Waters shall mean those waters which are so designated by the Board of Water and Air Resources and which are topographically located so as to generally have very low velocities and certain other characteristics which are different from adjacent stream draining steeper topography.
- 10. Offensive condition shall be construed to mean and include any condition or conditions resulting from the presence of sewage, industrial wastes or other wastes within the waters of the State or along the shorelines thereof which shall either directly or indirectly cause foul or noxious odors, unsightly conditions, or breeding of abnormally large quantities of mosquitoes or other insect pasts, or shall damage private or public water supplies or other structures, pasult in the development of gases which destroy or damage surrounding property, harbage or grasses, or which shall affect the health of any person residing or working in the area.
- 11. Mountain and Upper Piedmont Waters shall mean all of the waters of the Hiwassee; Little Tennessee, including the Savannah River drainage area; French Broad; Broad; New; and Watauga River Basins and those portions of the Catawba River Basin above Lookout Shoats Dam and the Yadkin River Basin above the Junction of the Forsyth, Yadkin and Davie County Lines.
- 12. Lower Piedmont and Coastal Plain Waters shall mean those waters of the Catawba River Basin below Lookout Shoals Dam; the Yadkin River Basin below the Junction of the Forsyth, Yadkin and Davie County Lines and all of the waters of Cape Fear; Lumber; Roanoke; Neuse; Tar-Pamlico: Chowan; Pasquotank; and White Oak River Basins, except tidal salt waters which are assigned "S' Classifications.
- 13. Estuarine Waters shall mean those tidal salt waters assigned "S" Classifications.
- 14. Best usage of waters as specified for each class shall be those uses as determined by the Board of Water and Air Resources in accordance with the provisions of Article 21, Chapter 143, General Statutes of North Carolina, as amended.
- 15. Parts per million and parts per billion as used herein shall be construed to mean milligrams per liter and micrograms per liter, respectively, as defined in the latest edition of "Standard Methods for the Examination of Water and Wastewater", published by the American Public Health Association, American Water Works Association, and Water Pollution Control Pederation.



REGULATION NO. III. " In cases where treated sawage, industrial wastes or other wastes are discharged directly into waters which are assigned a different classification than the waters into which such receiving waters flow, the standards applicable to the waters which receive such sewage, industrial wastes or other wastes shall be supplemented by the following:

"The quality of any waters receiving sewage, industrial waste or other waste discharges shall be such that no impairment of the best usage of waters in any other class shall occur by reason of such sewage, industrial waste or other waste discharges."

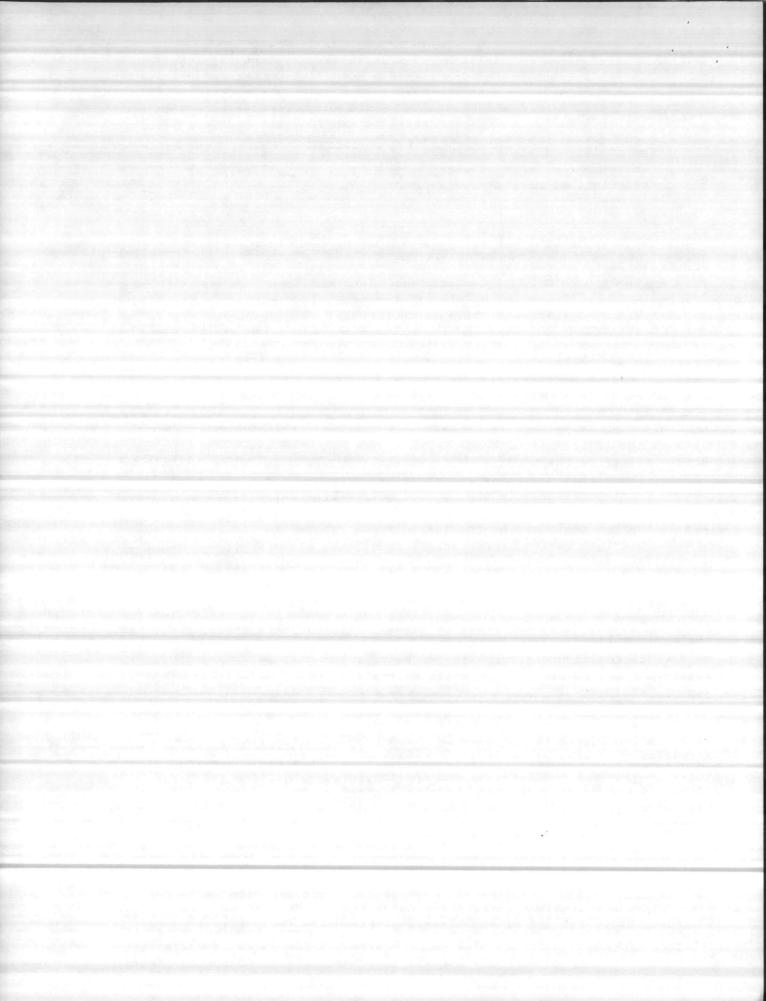
REGULATION NO. IV. - In making tests or analytical determinations of classified waters to determine conformity or nonconformity with the established standards, samples shall be collected outside the limits of prescribed mixing zones in such manner and at such times and locations as to be representative of the receiving waters after reasonable opportunity for dilution and mixture with the wastes discharged thereto. The limits of mixing zones will be defined by the Department on a case-by-case basis after consideration of the magnitude and character of the waste discharge and the size and character of the receiving waters. Such zones shall be restricted to as small an area and length as possible, and shall not prevent free passage of fish or cause fish mortality.

REGULATION NO. V. - Natural waters may on occasion have characteristics outside of the limits established by the standards. The standards adopted herein relate to the condition of waters as affected by the discharge of sewage, industrial wastes or other wastes. The specified standards will not be considered violated when values outside the established limits are caused by natural conditions. Where wastes are discharged to such waters, the discharger shall not be considered a contributor to substandard conditions provided maximum treatment in compliance with permit requirements is maintained and, therefore, meeting the established limits is beyond his control.

REGULATION NO. VI. - The governing flow, which shall be the criterion for the standards and for the design of waste treatment facilities, shall be the minimum average flow for a period of seven consecutive days that have an average recurrence of once in ten years. In cases where the stream is regulated, the governing flow shall be the instantaneous minimum flow.

REGULATION NO. VII. - In the interest of maintaining and enhancing water quality, secondary treatment or equally effective treatment and control shall be considered the minimum acceptable abatement action for all significant sources of sewage, industrial waste or other waste regardless of the assigned classification and applicable water quality standards, unless it can be demonstrated that the quality of the receiving waters will be maintained and enhanced by a lesser degree of treatment or control. Advanced waste treatment processes shall be required insofar as practicable in instances where a higher degree of treatment is required to maintain the assigned water quality standards.

REGULATION NO. VIII. - The maximum limits for toxic and other deleterious substances in receiving waters shall not exceed the values recommended in the most recent edition of the "Report of the National Technical Advisory Committee on Water Quality Criteria" where stated and in cases where such values are not included in the report, bioassays will be conducted according



to the standard techniques recommended therein to determine safe levels for such substances on the basis of the discharge and characteristics of the waters under consideration.

REGULATION NO. IX. - It is recognized that unusual conditions may exist making it impossible or impractical to bring the quality of the receiving waters into compliance with the general or specific requirements of the applicable water quality standards. For example, such a situation shall be deemed to exist where no adequate or practical method of disposal or treatment for a particular waste is presently known or where the public interest will be better served by granting a variance. Under such conditions and with justifiable proof, variances from such standards may be authorized for such period as the public interest may require or permit, with due consideration being given to, among other things, the time required to develop a more effective method of disposal or treatment. Variances will be granted only after hearing and written approval of the Board.

REGULATION NO. X. - In determining the best usage of waters and in agaigning classifications thereto, the Board shall consider the criteria specified in General Statute 143-214.1(d).

REGULATION NO. XI. - CLASSIFICATIONS FOR FRESH SURFACE WATERS AND WATER QUALITY STANDARDS APPLICABLE THERETO. The syndards of water quality for each separately identified water to which a classification is assigned shall be those specified for such classification in the following series of Classifications and Water Quality Standards.

1. Class A-I Waters:

- a. Best Usage of Waters: Source of water supply for drinking, culinary, or food-processing purposes or any other usage requiring water of lower quality.
- ily for waters having watersheds which are uninhabited and otherwise protected as required by the State Board of Health and which require only approved disinfection, with additional treatment when necessary to remove naturally present impurities, in order to meet the "Public Health Service Drinking Water Standards" and will be considered safe for drinking, culinary, and food-processing purposes.
 - 2. Quality Standards Applicable to Class A-I Waters

Items

Specifications

a. Floating solids; settleable solids; sludge deposits; taste or odor-producing substances.

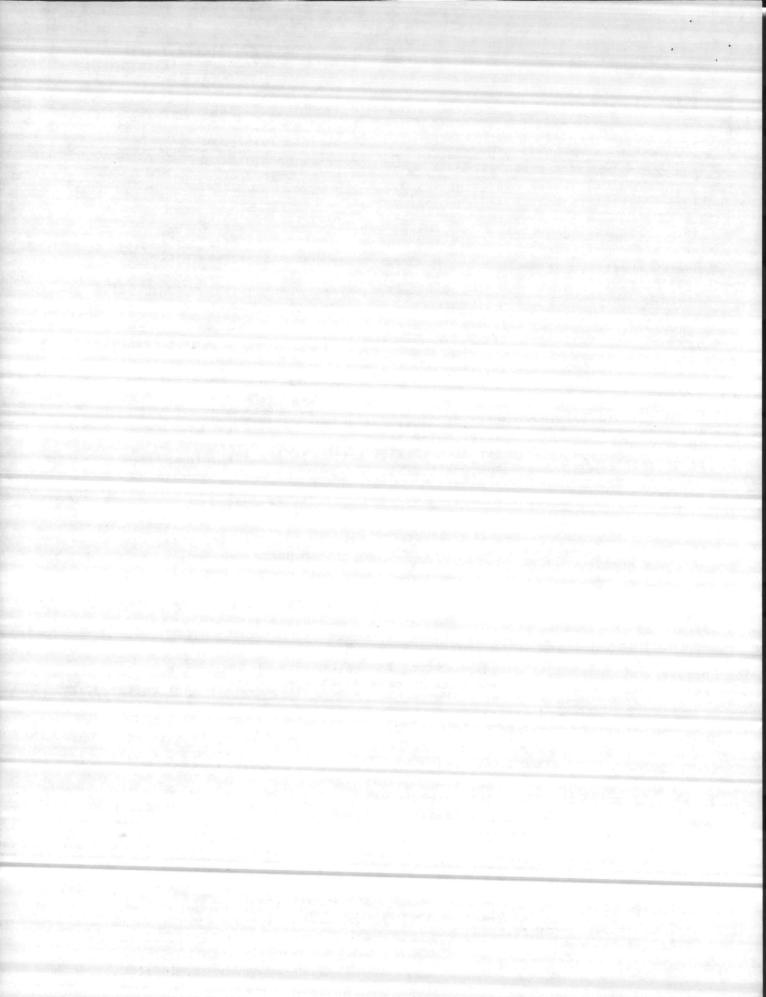
None attributable to sewage, industrial wastes or other wastes.

b. Sewage, industrial wastes, or other wastes.

None.

c. Toxic wastes; oils; deleterious substances; colored or other wastes.

None.



d. Organisms of coliform group.

Not to exceed 50/100 ml (either MPN or MF count) as a monthly average value.

e. Radioactive substances.

Gross beta activity (in the known absence of Strontium-90 and alpha emitters) not to exceed 1,000 pc/1 (picocuries per liter) at any time.

3. Class A-II Waters

- a. Best Usage of Waters: Source of water supply for drinking, culinary or food-processing purposes and any other best usage requiring waters of lower quality.
- b. Conditions Related to Best Usage: The waters, if subjected to approved treatment equal to coagulation, sedimentation, filtration and disinfection with additional treatment if necessary to remove naturally present impurities, will meet the "Public Health Service Drinking Water Standards" and will be considered safe for drinking, culinary or food-processing purposes.
 - 4. Quality Standards Applicable to Class A-II Waters

Items

Specifications

a. Floating solids; settleable solids; sludge deposits.

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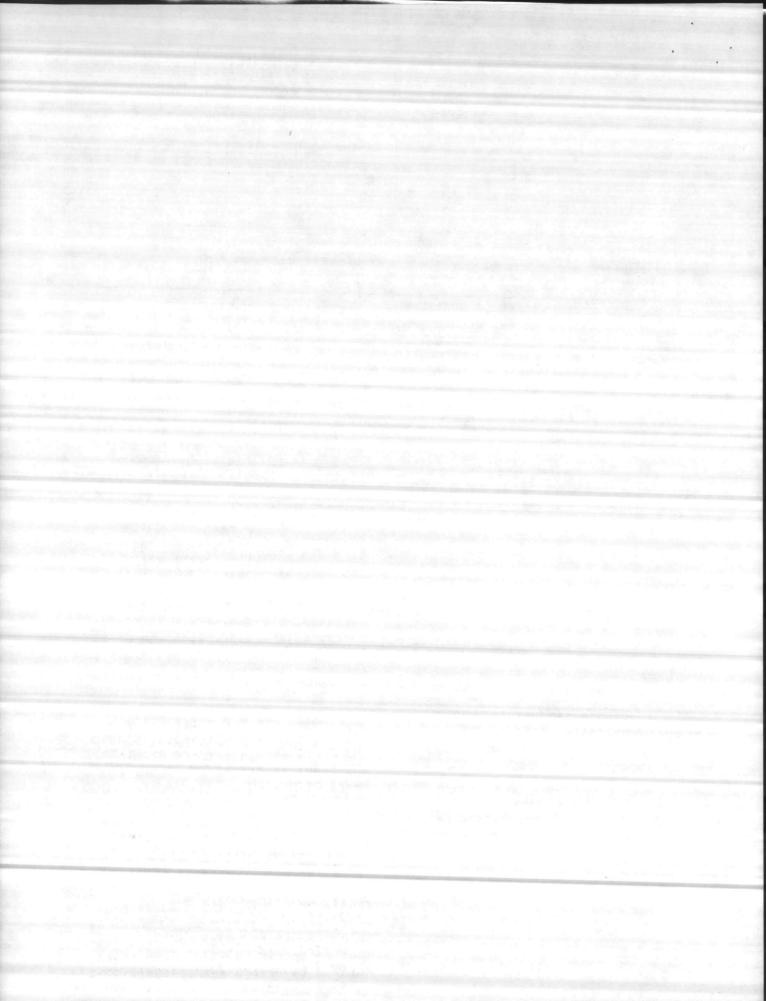
Only such amounts attributable to sewage, industrial wastes or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, make the waters unsafe or unsuitable as a source of water supply for drinking, culinary, or food-processing purposes, injurious to fish and wild-life, or impair the waters for any other best usage established for this class.

 Sewage, industrial wastes, or other wastes.

None which are not effectively treated to the satisfaction of the Board and in accordance with the requirements of the State Board of Health.

c. Odor-producing substances contained in sewage, industrial wastes, or other wastes.

Only such amounts, whether alone or in combination with other substances or wastes, as will not, after reasonable opportunity for dilution and mixture of same with receiving waters, cause taste and odor difficulties in water supplies which cannot be corrected by treatment as specified under "Conditions Related to Best Usage", impair



d. Phenolic compounds.

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- e. pH.
- f. Total hardness.
- g. Dissolved oxygen.

h. Toxic wastes; oils; deleterious substances; colored or other wastes.

1. Organisms of coliform group.

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the palatability of fish, or have a deleterious effect upon any best usage established for waters of this class.

Not greater than 0.001 mg/1 (phenols).

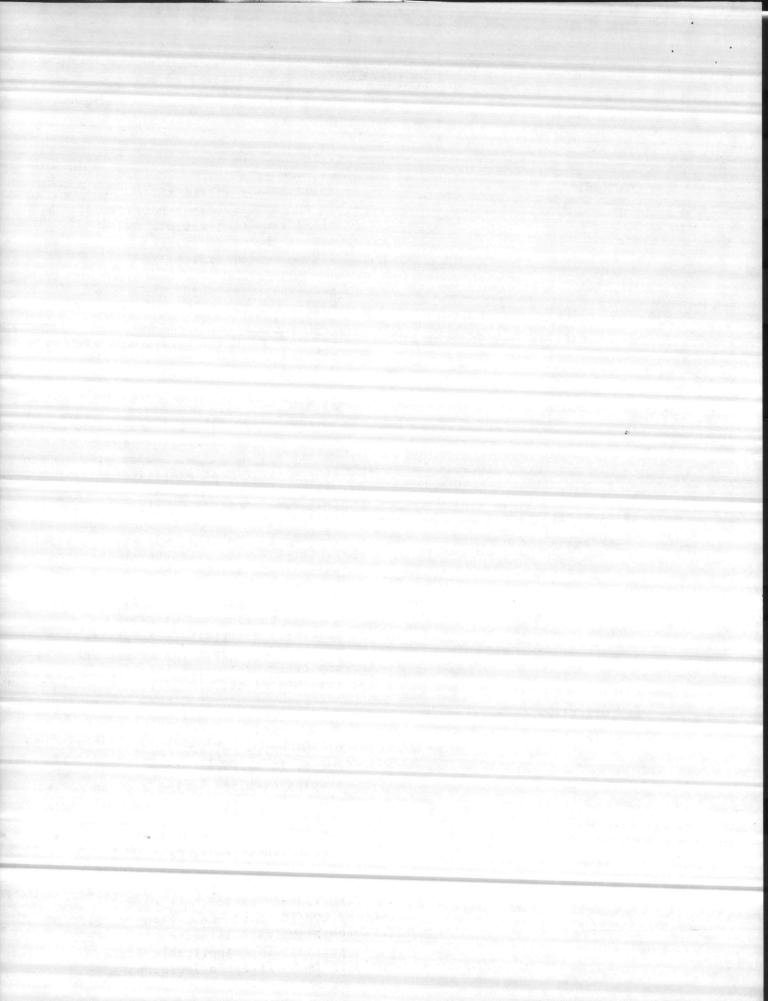
Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5 except that swamp waters may have a low of 4.3.

Not greater than 100 parts per million as CaCO3.

Not less than 6.0 mg/l for natural trout waters; 5.0 mg/l for put-and-take trout waters; not less than a daily average of 5.0 mg/l with a minimum of not less than 4.0 mg/l for non-trout waters, except that swamp waters may have lower values if caused by natural conditions.

pnly such amounts, whether alone pr in combination with other substances or wastes as will not render the waters unsafe or unsuitable as a soutce of water supply for drinking, culinary, pr food-processing purposes, injurious to fish and wildlife or adversely affect the palatability of same, or impair the waters for any other best usage established for this class.

Not to exceed 5, 300/100 ml as a monthly average value (either MPN or MF count); nor exceed this number in more than 20% of the samples examined during any one month; nor exceed 20,000/100 ml in more than 5% of such samples. Fecal Coliforms (MPN or MF count) not to exceed a log mean of 1,000/ 100 ml based on at least five consecutive samples examined during any 30-day period; nor exceed 2,000/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)



J. Temperature.

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Not to exceed 5°F. above the natural water temperature, and in no case to exceed 84°F. for mountain and upper piedmont waters and 90°F. for lower piedmont and coastal plain waters. The temperature of natural trout waters shall not be significantly increased due to the discharge of heated liquids and shall not exceed 68°F.; however, the temperature of put-and-take trout waters may be increased by as much as 3°F. but the maximum may not exceed 70°F.

k. Radioactive substances.

Gross beta activity (in the known absence of Strontium-90 and alpha emitters) not to exceed 1,000 picocuries per liter.

S. Class B Waters

- a. Best Usage of Waters: Bathing and any other best usage except as source of water supply for drinking, culinary or food-processing purposes.
- b. Conditions Related to Best Usage: The waters, under proper sanftary supervision by the controlling health authorities, will meet accepted standards of water quality for outdoor bathing places and will be considered safe and satisfactory for bathing purposes. Also, suitable for other uses requiring waters of lower quality.
 - 6. Quality Standards Applicable to Class H Waters

Items

Specifications

a. Floating solids; settleable solids, sludge deposits.

Only such amounts attributable to sewage, industrial wastes or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, make the waters unsafe or unsuitable for bathing, injurious to fish and wildlife, or impair the waters for any other best usage established for this class.

b. Sewage, industrial wastes, or other wastes.

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None which are not effectively treated to the satisfaction of the Board. In determining the degree of treatment required for such waste when discharged into waters to be used for bathing, the Board will take into consideration the quantity and quality of the sewage and wastes



c. Phenolic compounds.

Tim togations point and water an

- d. pH.
- e. Dissolved oxygen.

f. Toxic wastes; oils; deleterious substances; colored or other wastes.

g. Organisms of coliform group. (Applicable only during the months of May through September. During other months the coliform organism standard for Class "C" Waters shall apply.)

h. Temperature.

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involved and the proximity of such discharges to the waters in this class.

Not to exceed 0.001 mg/1 (phenols).

Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5, except that swamp waters may have a low of 4.3.

Not less than 6.0 mg/l for natural trout waters; 5.0 mg/l for put-and-take trout waters; not less than a daily average of 5.0 mg/l with a minimum of not less than 4.0 mg/l for non-trout waters, except that swamp waters may have lower values if caused by natural conditions.

Only such amounts, whether alone of in combination with other subsistances or wastes as will not render the waters unsafe or unsultable for bathing, injurious to fish and wildlife or adversely affect the palatability of same, or impair the waters for any other best usage established for this class.

Fecal coliforms not to exceed a log mean of 200/100 ml (either MPN or MF count) based on at least five consecutive samples examined during any 30-day period and not to exceed 400/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

Not to exceed 5°F. above the natural water temperature, and in no case to exceed 84°F. for mountain and upper piedmont waters and 90°F. for lower piedmont and coastal plain waters. The temperature of natural trout waters shall not be significantly increased due to the discharge of heated liquids and shall not exceed 68°F.; however, the temperature of put-and-take trout waters



may be increased by as much as 3°F, but the maximum may not exceed 70°F.

7. Class C Waters

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- a. Best Usage of Waters: Fishing, boating, wading and any other usage except for bathing or as a source of water supply for drinking, culinary or food-processing purposes.
- b. Conditions Related to Best Usage: The waters will be suitable for fish and wildlife propagation. Also, suitable for boating, wading, and other uses requiring waters of lower quality.
 - 8. Quality Standards Applicable to Class C Waters

Items

e. Fleating solids; settleable solids; sludge deposits.

b. pff.

c. Dissolved oxygen.

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d. Toxic wastes; eils; deleterious substances; colored or other wastes.

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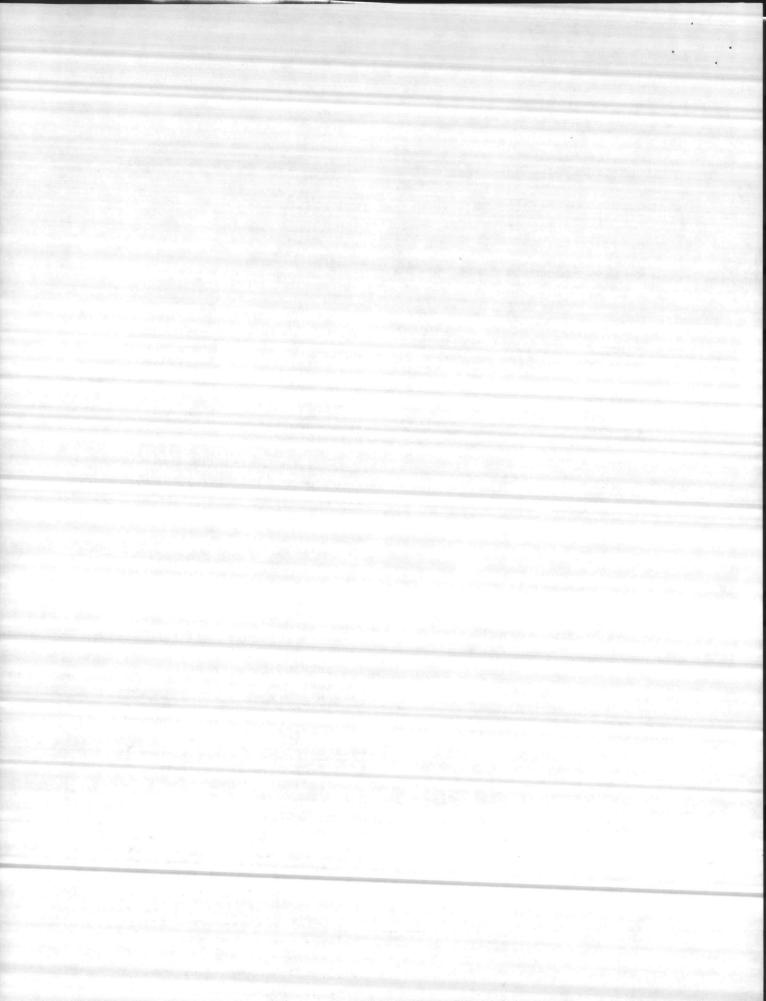
Specifications

Only such amounts attributable to sewage, industrial wastes or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, make the waters unsafe or unsuitable for fish and wildlife, or impair the waters for any other best usage established for this class.

Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5, except that swamp waters may have a low of 4.3.

Not less than 6.0 mg/l for natural trout waters; 5.0 mg/l for put-and-take trout waters; not less than a daily average of 5.0 mg/l with a minimum of not less than 4.0 mg/l for non-trout waters, except that swamp waters may have lower values if caused by natural conditions.

Only such amounts, whether alone or in combination with other substances or wastes as will not render the waters injurious to fish and wildlife or adversely affect the palatability of same, or impair the waters for any other best usage established for this class.



c. Organisms of coliform group.

Fecal coliforms not to exceed a log mean of 1,000/100 ml (MPN or MF count) based upon at least five consecutive samples examined during any 30-day period; nor exceed 2,000/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

f. Temperature.

Not to exceed 5°F, above the natural water temperature, and in no case to exceed 84°F, for mountain and upper piedmont waters and 90°F, for lower piedmont and coastal plain waters. The temperature of natural trout waters shall not be significantly increased due to the discharge of heated liquids and shall not exceed 68°F.; however, the temperature of put-and-take trout waters may be increased by as much as 3°F. but the maximum may not exceed 70°F.

9. Class D Waters

- a. Best Usage of Waters: Agriculture, industrial cooling and process water supply, fish survival, navigation, and any other usage, except fishing, bathing, or as a source of water supply for drinking, culinary or food-processing purposes.
- b. Conditions Related to Best Usage: The waters without treatment and except for natural impurities which may be present therein will be suitable for agricultural uses and will permit fish survival. The waters will also be usable after special treatment by the user as may be needed under each particular circumstance for industrial purposes, including cooling and process waters.
 - 10. Quality Standards Applicable to Class D Waters

Items

Specifications

a. Floating solids; settleable solids; sludge deposits.

Only such amounts attributable to sewage, industrial wastes or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, render the waters unsuitable for agriculture, industrial cooling purposes and fish survival, or cause an offensive condition.



b. pH.

c. Dissolved oxygen.

d. Toxic wastes; oils; deleterious substances; colored or other wastes.

e. Organisms of coliform group. (Applicable only to waters designated by the Board for irrigation of fruits and vegetables.)

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f. Temperature.

Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5, except that swamp waters may have a low of 4.3.

Not less than 3.0 mg/1.

Only such amounts attributable to sewage, industrial wastes or other wastes as will not render the waters unsuitable for agriculture, industrial cooling purposes, navigation, fish survival, or cause offensive conditions.

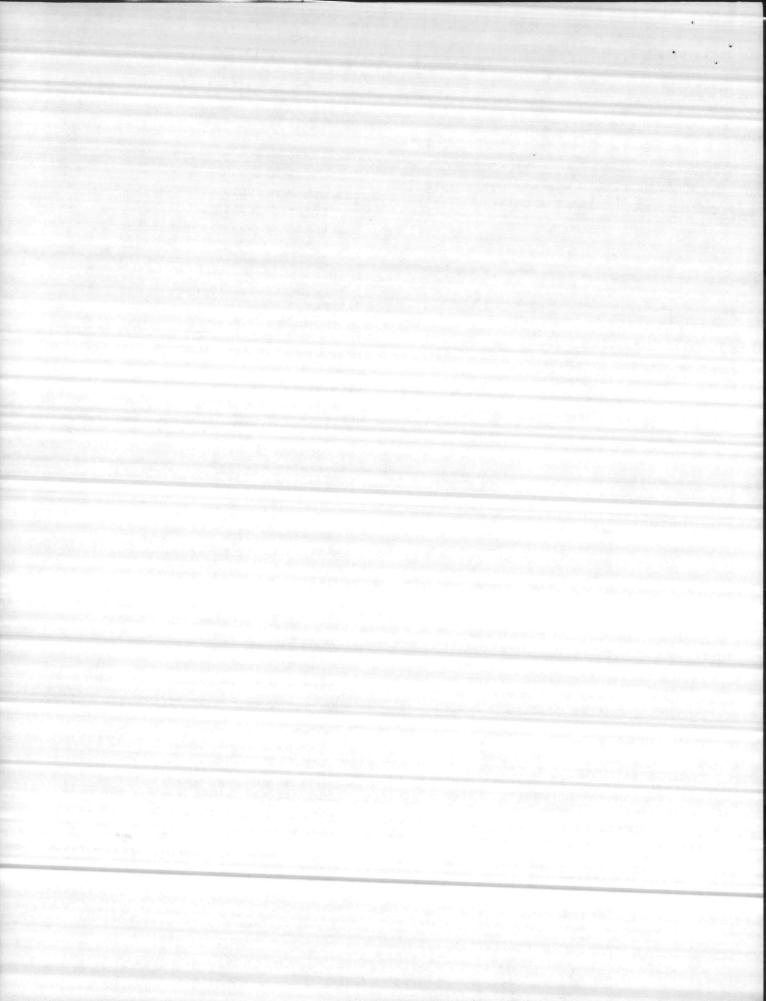
Fecal coliforms not to exceed a log mean of 1,000/100 ml (MPN or MF count) based upon at least five consecutive samples examined during any 30-day period; nor exceed 2,000/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

Not to exceed 5°F. above the natural water temperature and in no case to exceed 84°F, for mountain and upper piedmont waters and 90°F. for lower piedmont and coastal plain waters.

REGULATION NO. XII. - CLASSIFICATIONS FOR TIDAL SALT WATERS AND WATER QUALITY STANDARDS APPLICABLE THERETO. The standards of water quality for each separately identified water to which a classification is assigned shall be those specified for such classification in the following series of Classifications and Water Quality Standards.

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- 1. Class SA Waters:
- a. Best Usage of Waters: Shellfishing for market purposes and any other usage requiring waters of lower quality.
- b. Conditions Related to Best Usage: Waters will meet the sanitary and bacteriological standards given in the 1965 revision of the "National Shell-fish Sanitation Program Manual Of Operations: Part 1, Sanitation of Shellfish Growing Areas", recommended by the Public Health Service and will be considered safe and suitable for shellfish culture.



2. Quality Standards Applicable to Class SA Waters

Items

- a. Floating solids; settleable solids; sludge deposits.
- b. Sewage, industrial wastes, of other wastes.
 - c. pH.

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- d. Dissolved oxygen.
- e. Toxic wastes; oils; deleterious substances; colored or other wastes.

f. Organisms of coliform group.

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Specifications

None attributable to sewage, industrial wastes or other wastes.

None which are not effectively treated to the satisfaction of the Board and in accordance with the requirements of the State Board of Health.

Range between 6.8 and 8.5.

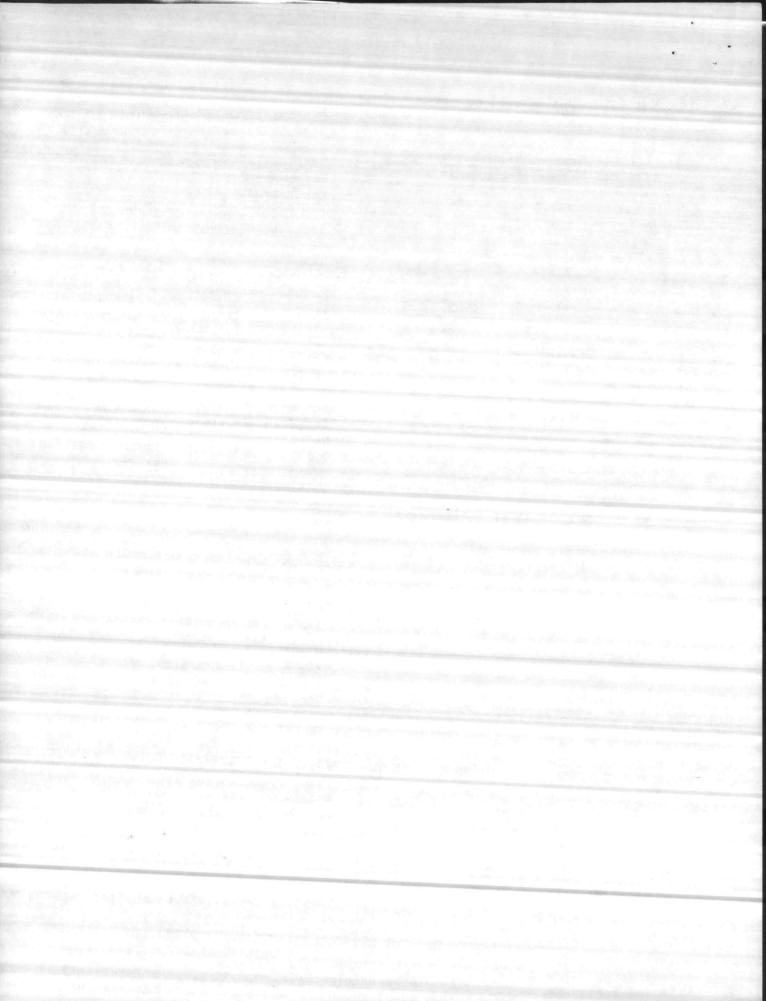
Not less than 5.0 mg/1, except that swamp waters may have a minimum of 4.0 mg/1.

Only such amounts, whether alone or in combination with other substances or wastes as will not make the waters unsafe or unsuitable for fish and shellfish or their propagation, impair the palatability of same, or impair the waters for any other best usage established for this class.

Total coliform group not to exceed a median MPN of 70/100 ml, and not more than 10% of the samples shall exceed an MPN of 130/100 ml for a 3-tube decimal dilution test (or 110/100 ml where a 3-tube decimal dilution is used) in those areas most probably exposed to fecal contomination during the most unfavorable hydrographic and pollution conditions.

Shall not be increased above the natural water temperature by more than 1.5°F. during the months of June, July, and August nor more than 4.0°F. during other months and in no case to exceed 90°F., due to the discharge of heated liquids.

- 3. Class SB Waters
- a. Best Usage of Waters: Bathing and any other usage except shellfishing for market purposes.
- b. Conditions Related to Best Usage: The waters, under proper sanitary supervision by the controlling health authorities, will meet accepted sanitary standards of water quality for outdoor bathing places and will be considered safe and satisfactory for bathing purposes.



Items

a. Floating solids; settleable solids; sludge deposits.

b. Sewage, industrial wastes, or other wastes.

c. pH.

d. Dissolved oxygen.

e. Toxic wastes; oils; deleterious substances; colored or other wastes.

f. Organisms of coliform group. (Applicable only during months of May through September. During other months the coliform organism standard for Class "SC" Waters shall apply.)

g. Temperature.

Specifications

None attributable to sewage, industrial wastes or other wastes.

None which are not effectively treated to the satisfaction of the Board. In determining the degree of treatment required for such waters when discharged into waters to be used for bathing, the Board will take into consideration the quantity and quality of the sewage and wastes involved and the proximity of such discharges to the waters in this class.

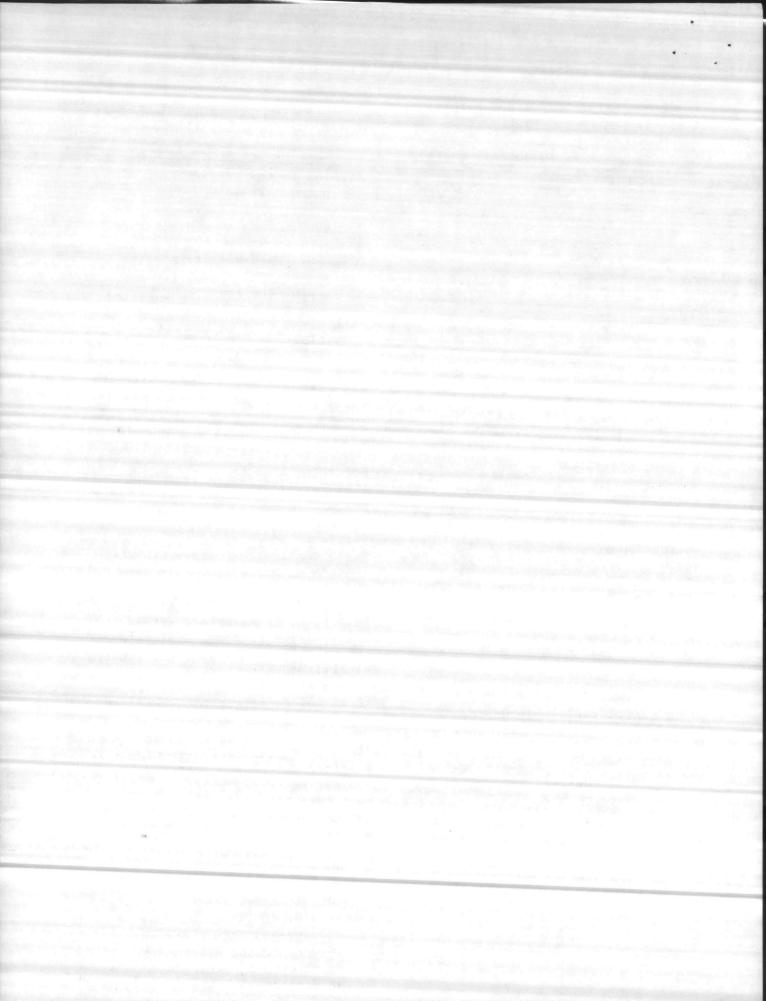
Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5, except that swamp waters may have a low of 4.3.

Not less than 5.0 mg/1, except that swamp waters may have a minimum of 4.0 mg/1.

Only such amounts, whether alone or in combination with other substances or wastes as will not make the waters unsafe or unsuitable for bathing, injurious to fish or shellfish, or adversely affect the palatability of same, or impair the waters for any other best usage established for this class.

Fecal coliforms not to exceed a log mean of 200/100 ml (either MPN or MF count) based on at least five consecutive samples examined during any 30-day period and not to exceed 400/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

Shall not be increased above the natural water temperature by more than 1.5°F. during the months of June, July, and August nor more than 4.0°F. during other months and in no case to exceed 90°F., due to the discharge of heated liquids.



- 5. Class SC Waters
- a. Best Usage of Waters: Fishing, and any other usage except bathing or shell ishing for market purposes.
- b. Conditions Related to Best Usage: The waters will be suitable for fishing and fish propagation. Also, suitable for other uses requiring waters of lower quality.
 - 6. Quality Standards Applicable to Class SC Waters

Items

Specifications

a. Floating solids; settleable solids; sludge deposits.

Only such amounts attributable to sewage, industrial waste or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, make the waters unsafe or unsuitable for fish, shell-fish and wildlife, or impair the waters for any other best usage established for this class.

b. pH.

Shall be normal for the waters in the area, which generally shall range between 6.0 and β .5, except that swamp waters may have a min-limum of 4.3.

c. Dissolved oxygen.

Not less than 5.0 mg/1, except that swamp waters may have a minimum of 4.0 mg/1.

d. Toxic wastes; oils; deleterious substances; colored or other wastes.

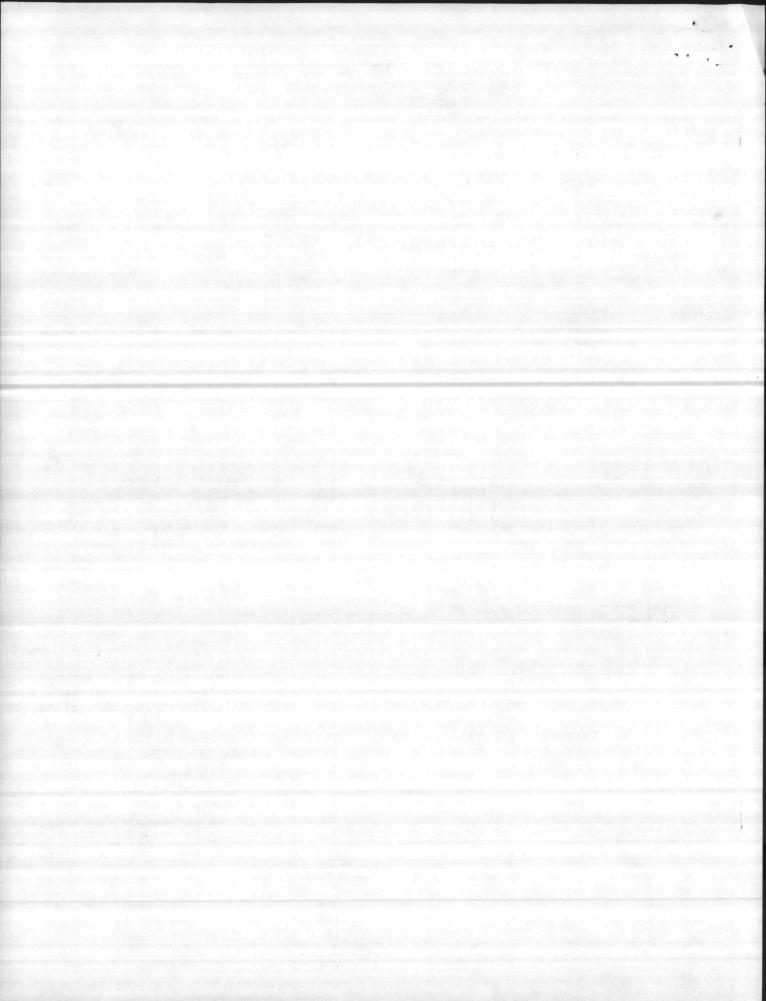
Only such amounts, whether alone of in combination with other subplances or wastes as will not pender the waters injurious to
plant and shellfish, adversely offect the palatability of same,
or impair the waters for any other best usage established for this class.

e. Organisms of coliform group.

Fecal coliforms not to exceed a log mean of 1,000/100 ml (MPN or MF count) based upon at least five consecutive samples examined during any 30-day period; nor exceed 2,000/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

f. Temperature.

Shall not be increased above the natural water temperature by more than 1.5°F. during the months of June, July, and August nor more than 4.0°F. during other months, and in no case to exceed 90°F., due to the discharge of heated liquids.



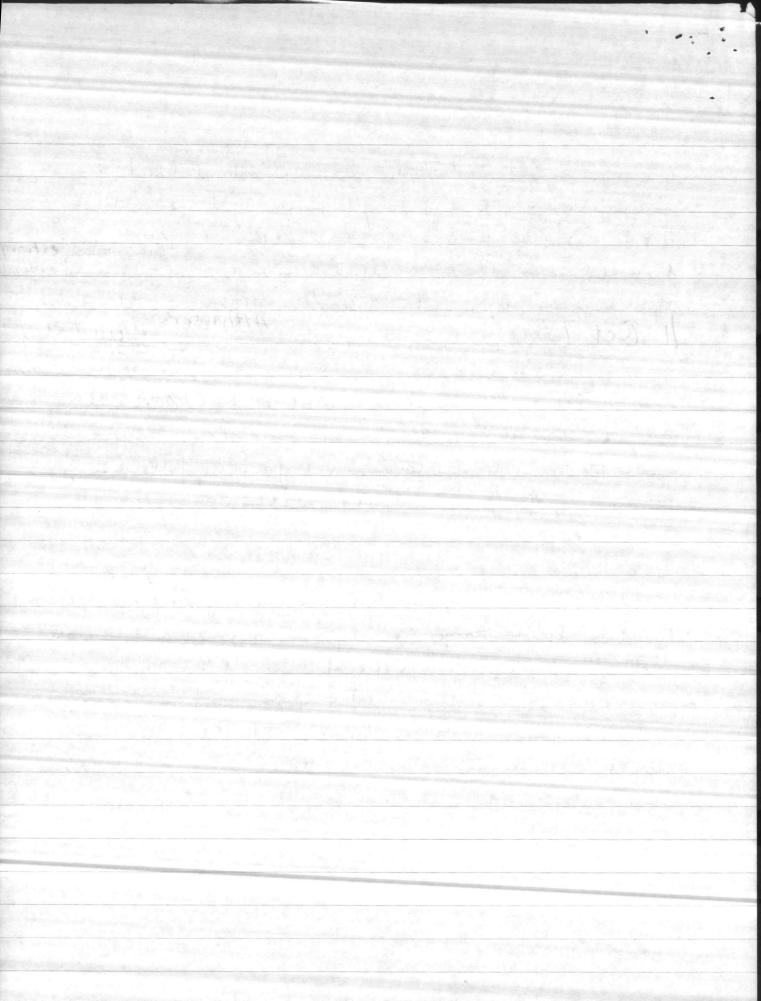
1. Evidence of overt polletion in Bearhead Creek was
essentially negative during the period of 17-24. October 1973.
Representatives of Utilities division, Regional Freentine Moderne & strong Wateral Resources Nominion conducted as severtigation as ordered by the C. G. impresponse to 1/Cdr/Ret Althouse's letter dated Althouser's Unstated as I Oct 73

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Fire invalidation of the severe etablished on 17 Ct and

38. Five sampling points were established on 17 Oct and utilized during the invistigation as a standard. Actions the exception of results were determined from the following Laboratory Analysis and absorbations:

2. In determining the type and class of surface with Bearhard Greek has previously been is, contact was made with the North Carolina Office of Water and Resources. It is considered as a valt water esterary originating in Comptepening and discharging into Wolface Crube. The State standards after this Plass surface water are authorised in enclosure (4) and were used as a quick in determining our results.



Milipore Dechniques was utilized as indicators of proble lead using standard Milipore Technical Enclosion (2)

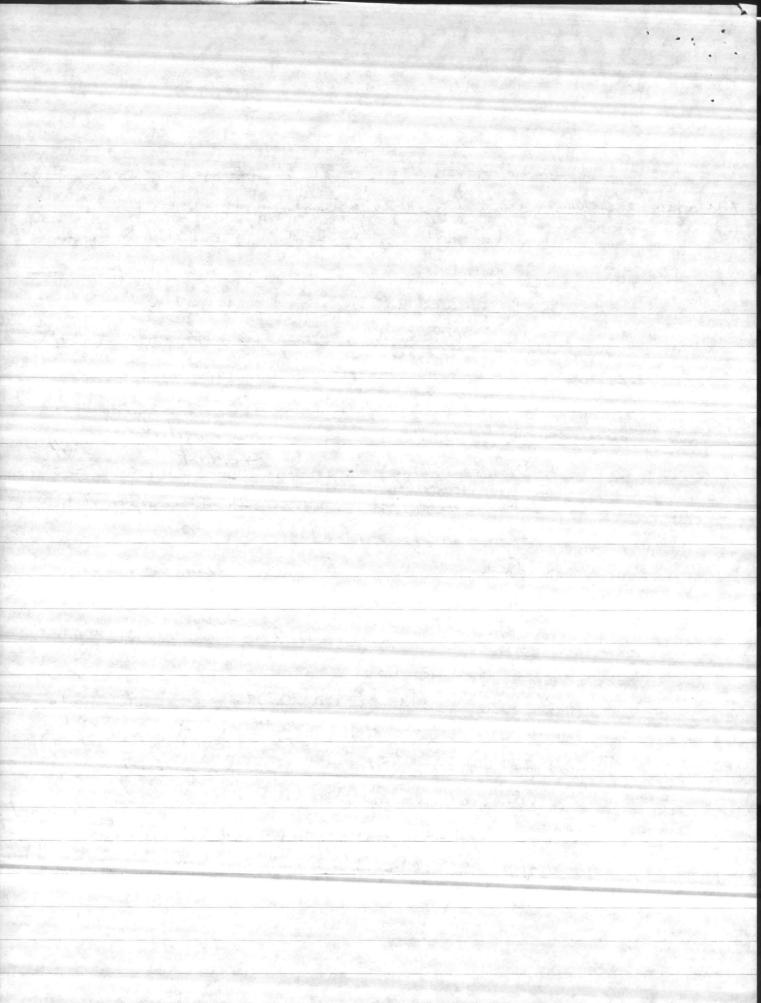
eventamenation. Teaults as illustrated in the more Coliforn and Enclosine (3) Freed Coliforn and were well within the limits set forth in enclosure (4).

Lucing the investigation period. Me evidence of contamenation was indicated.

- b. Chemical Analysis recorded

 1. Dissolved Odygen suple segorded as The PITTE

 As Culrage of 7,2 mg/1 with no eamples below
 the minimum set forth in end (4).
 - 2. Biological Oragen Domand indicated supplies oxygen after Edays. Sample 3. Ph recordings were 7.4 (Sample PHI) to 7.0 (Sample point 5).
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C. Atmospheri Inditions - Surrmy to lightforespect with

no phecipitation develing investigation.

Awage with temperature of 65° F.

Daily times of absentions and

sample calleting wate between 0930

and 1200 with the tide increasing

daily.

d. Observations

1. For Turbidity - No quantitative tests were considered necessary due to observed davity to 3 ft.

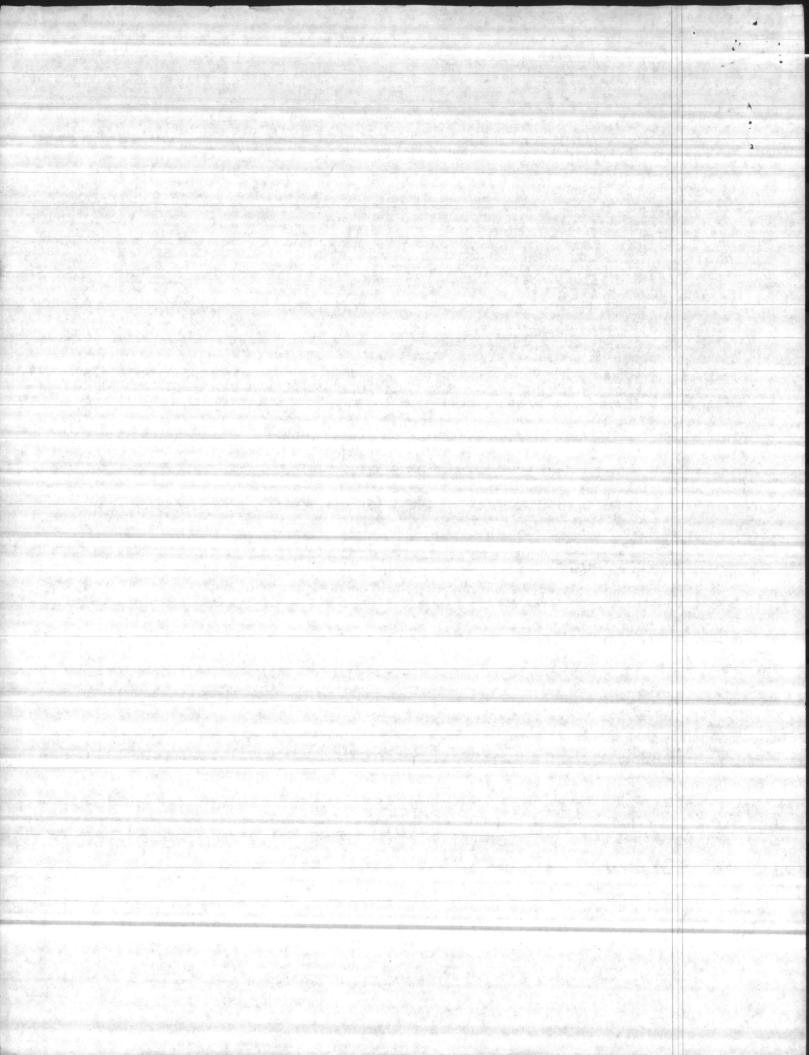
2. Oil Evidence - No evidence of oil slicks or vegething contamination were observed.

in Boarhead Creek. Evidence of storm oil was diesved in one storm ditel.

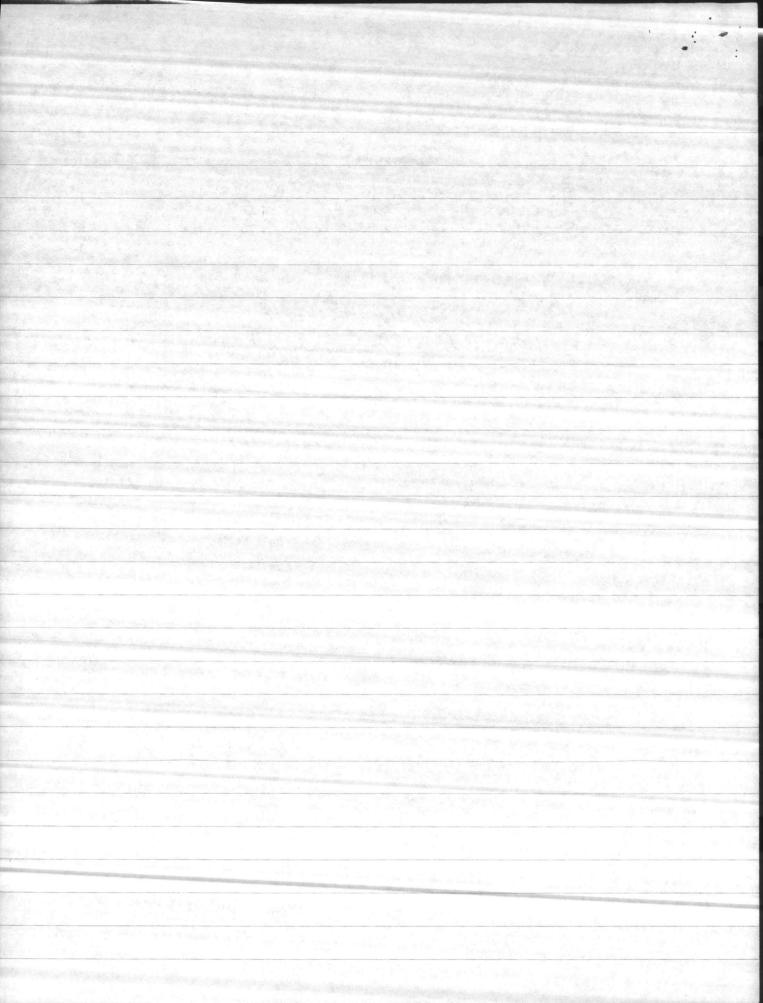
which drains into the Bearchek and hours then off.

3. Odors - Approximately that way I Odors Some evidence of Organic oders were Lebeted at approximately sample site #4. Considered not unusual to this area. The state of the s

4. Silt - Some widered of sittatio 5. Aqualie life - Fish and water birds were observed registedly.



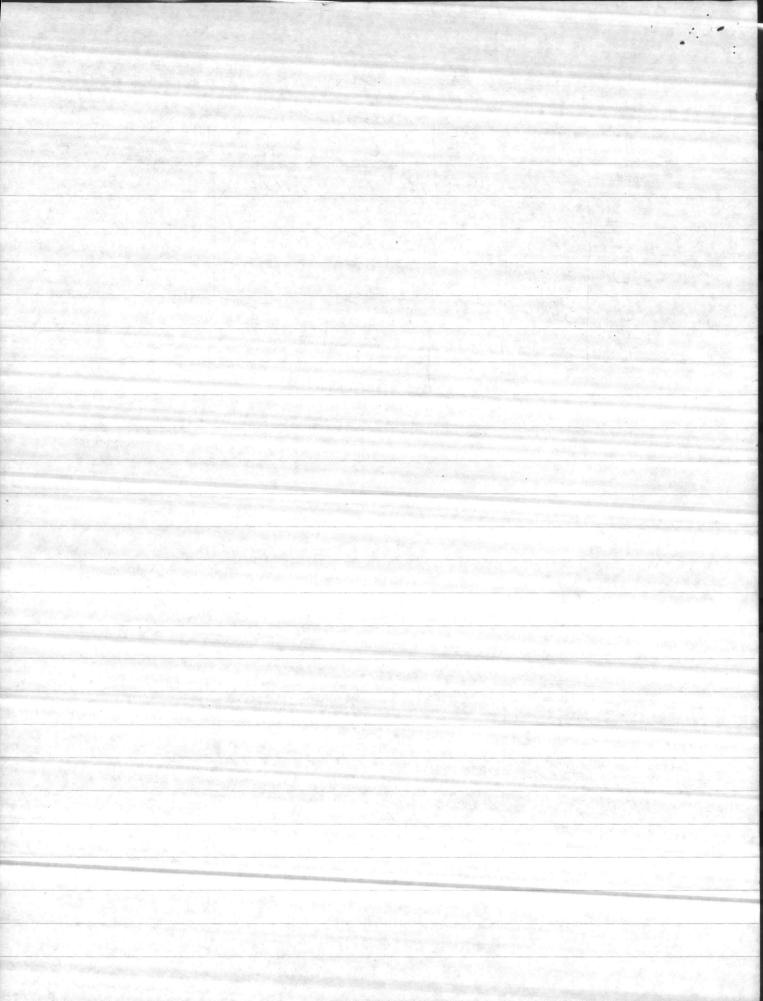
· 10 ml sample Blank 2,5 mls ppm 3/1 Se Whole, Ali PPM Nacl Unacl ms Ce_ me ! 17,985 10.9 17985 10,9 11.4 10900 17,160 17160 10.4 10,4 10400 10,9 15.015 15015 9100 9,6 911 9,1 8,2 13.530 8,2 8200 13530 11,220 6.8 6.8 7.3 6800 1/220 18,790 11.4 11.9 11.4 11400 18790 Bear Bealline literature relative error = 2% * 7,000 ppm or 29/e mach bethal for * aprof 5,0 PPM is the minim Do level for some fish * Herry Silt and material in Supersion will com Buton and Smother Brologen life which is needed to produce fist ford * Ellis, 1944



Ben Had Geek

last week

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R.R. #1, Box 261 Hubert, N.C. 28539 11 Oct. 73

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LCUR NSC USN (Ret.) R.S.

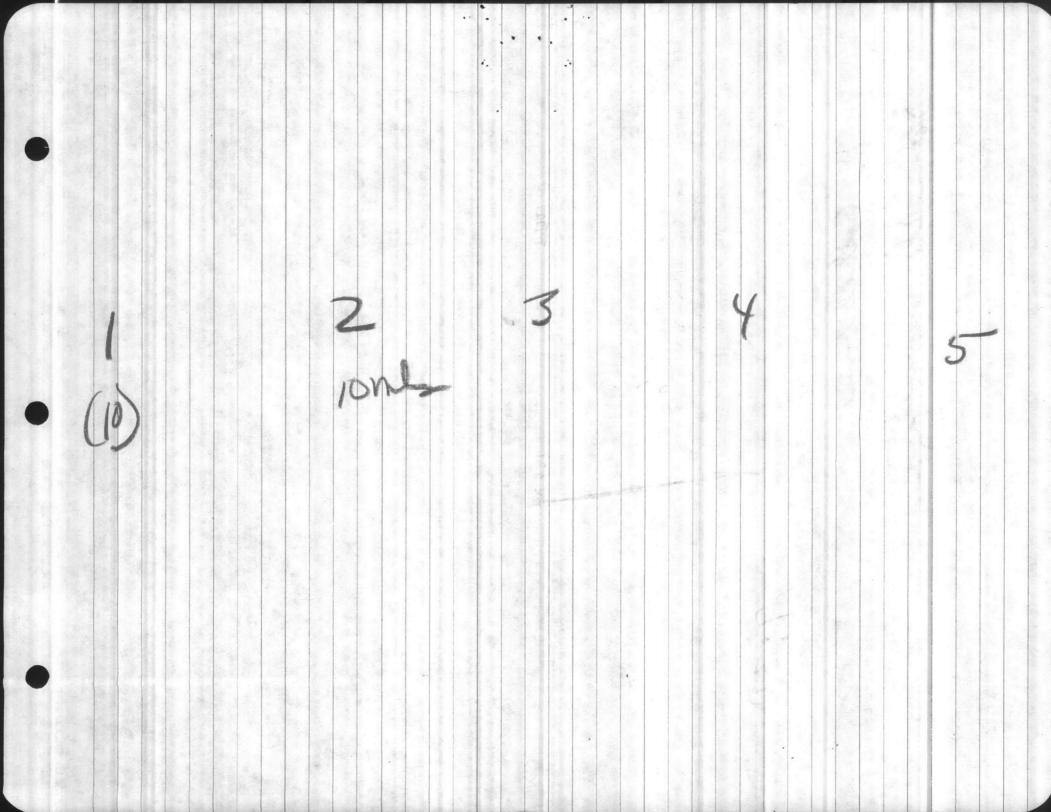
copy to: Editor, Daily News Jacksonville, N.(. (ounty Health Dept. Jacksonville, N.(.



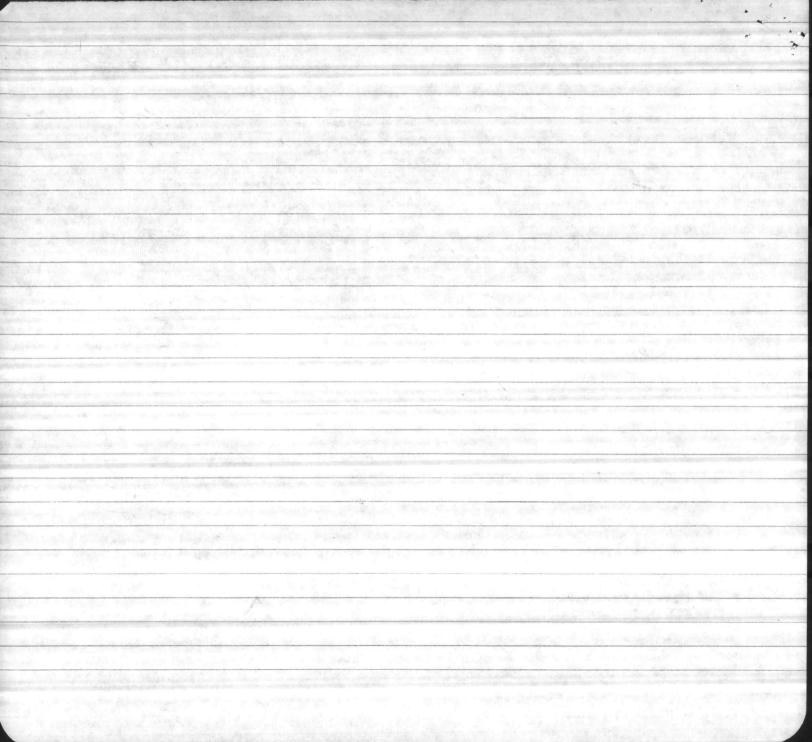
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Phry 10



19 Oct 1973 have some 5 day BOD's in the box that will come out Tuesday. requested by Col. Vom Dide & Mr. W. F. Miller 5. Day 50 D available 7.5 5.2 5.25 4.7 5.25 2.6 22 3.7 5.2 4.9 2.5 7. 7 2.3



Oct 17,73 Creek Somples D.O. 5.25 5.25 3.2 Date Sampled 14 oct 1973 Roy 100 ml

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With corrective active undertaken to eliminate base produced naw sewage from entering this waterway, the stream made a nather marked necovery. Bacteriological surveys indicated the stream improved from a condition of naw sewage indices to a class (Level, in a little less than two years. In 1971, and coincidental with the State Attorney Generals interest with M.C. B. 's contribution to the New River pollution problem, it was demonstrated that Bearhead (neek had become a good large mouth bass producer. Further, this tributary was one of the few that did not become silted following heavy rainfall periods, easily explanable because the watershed was not arid, was not torn up by marine training machinery and remained in a natural state, undisturbed by man.

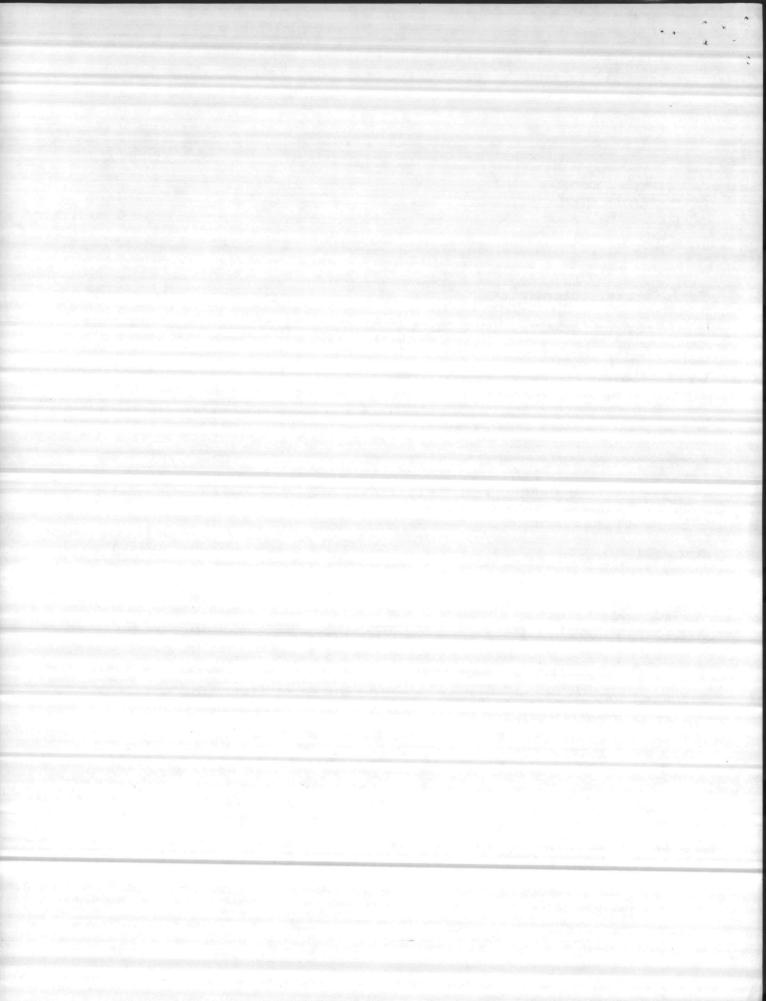
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Iemorandum

DATE: 29 Oct 1973

FROM: Natural Resources and Environmental Affairs Division

Base Maintenance Officer TO:

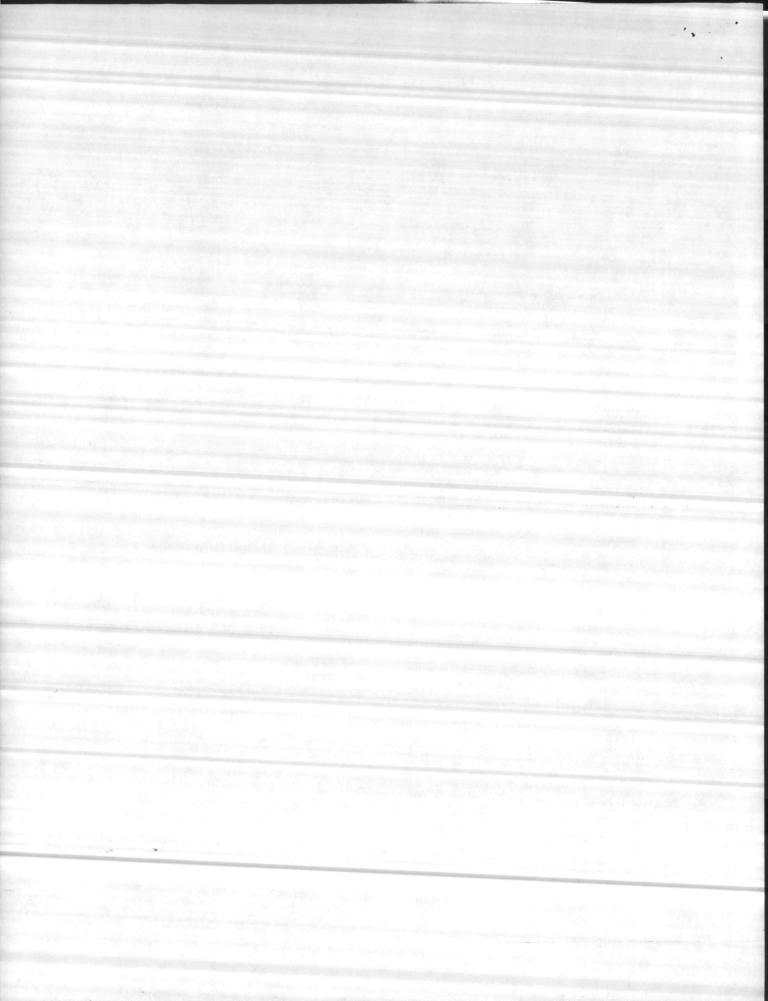
Pollution Condition of Bearhead Creek SUBI:

Encl: (1) Graph - Bearhead Creek Sampling Points

- (2) Graph Total Coliform
 (3) Graph Fecal Coliform
 (4) Excerpt of-Rules, Regulations, Classifications and Water Quality Standards Applicable to the Surface Waters of North Carolina
- 1. Evidence of overt pollution in Bearhead Creek was essentially negative during the period of 17-24 October 1973. Representatives of Utilities Division, Regional Preventive Medicine, and Natural Resources and Environmental Affairs Division conducted the investigation of this estuary as ordered by the Commanding General in the response to LCdr (Ret) ALTHAUSER's letter dated 11 October 1973.
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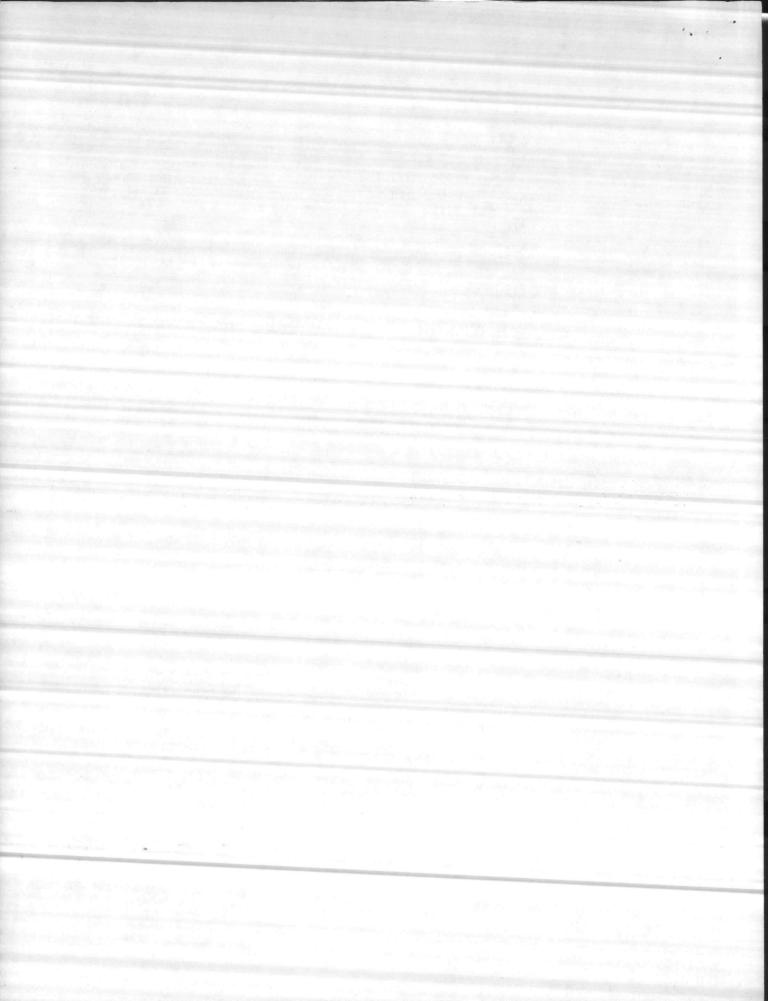


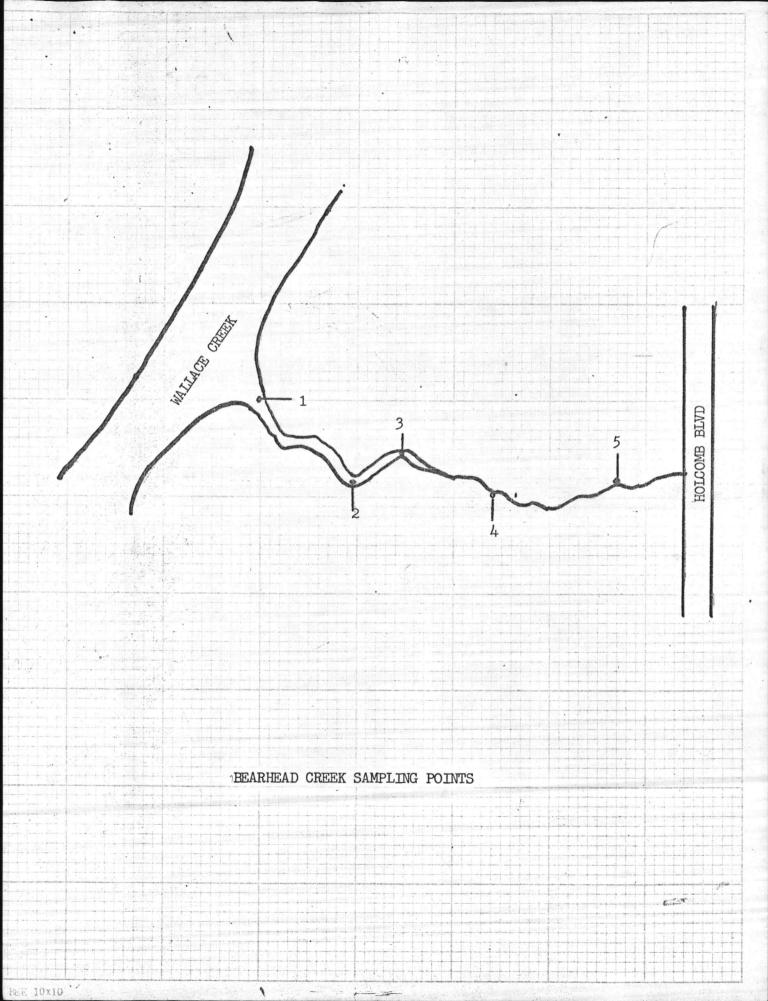
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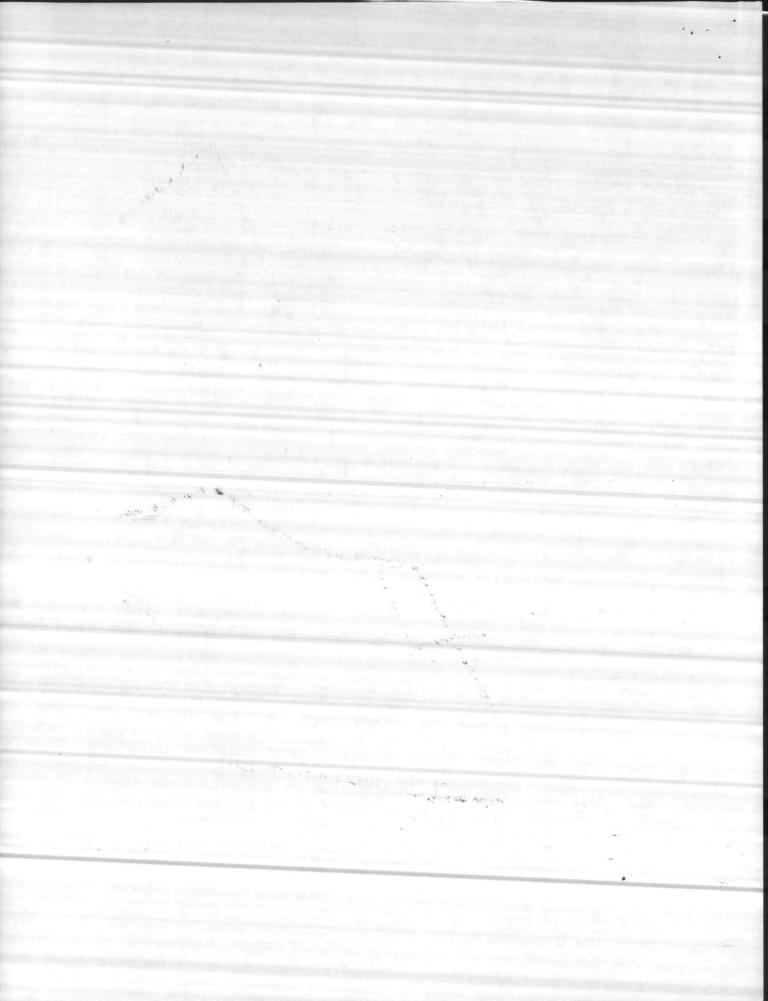
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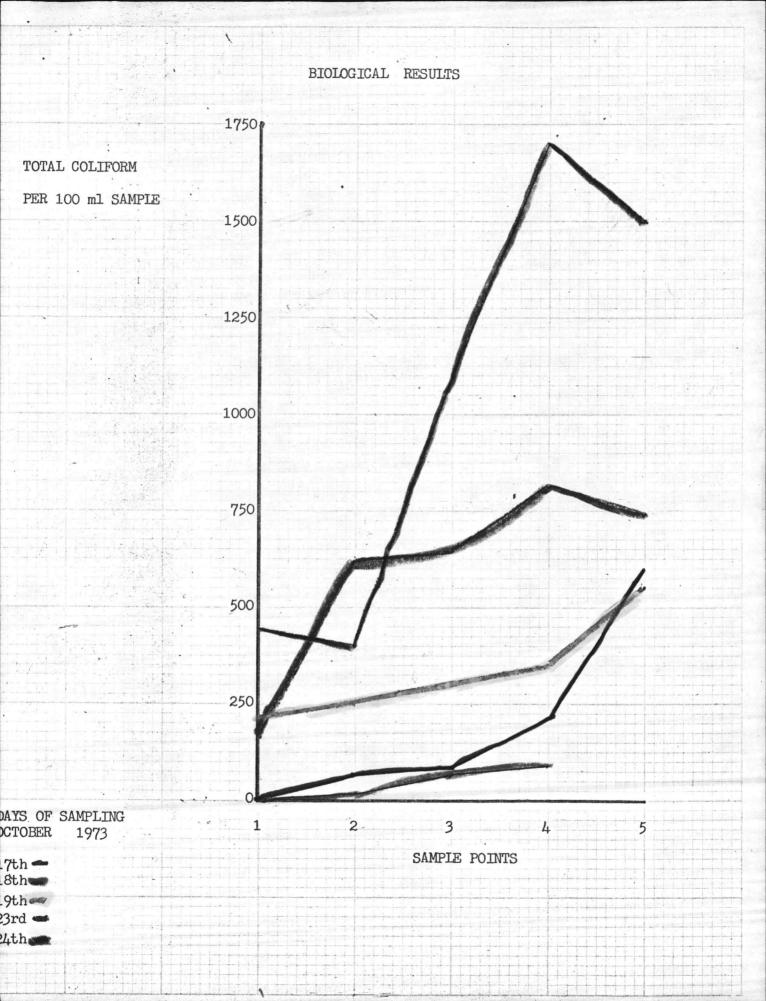
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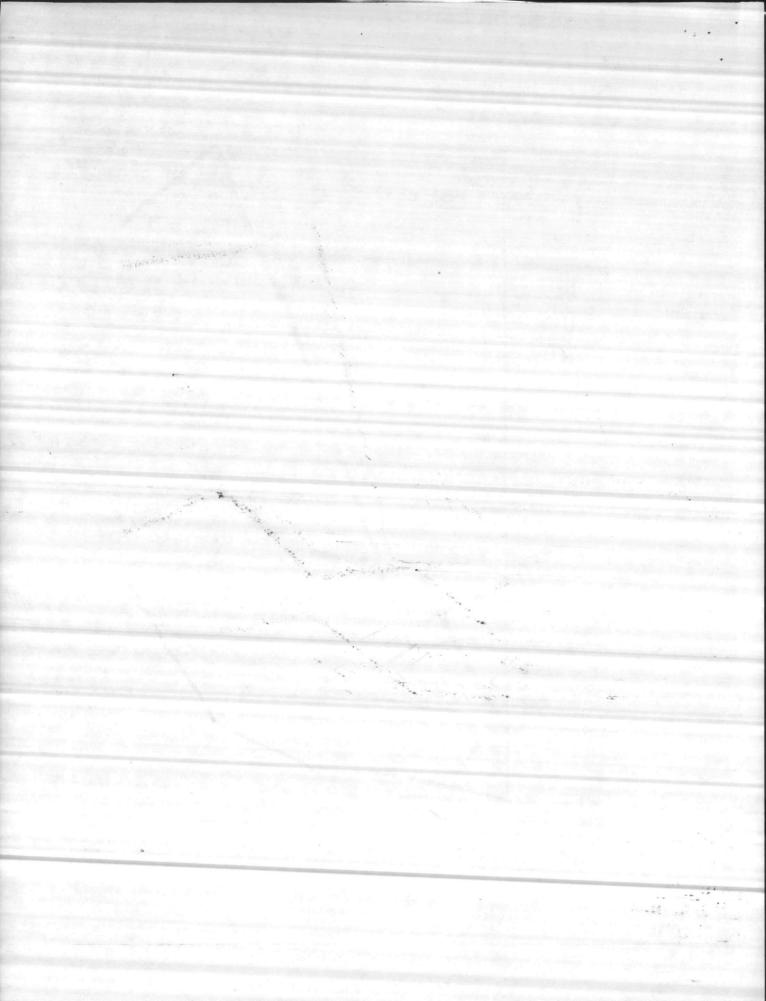
JULIAN I. WOOTEN, Ecologist



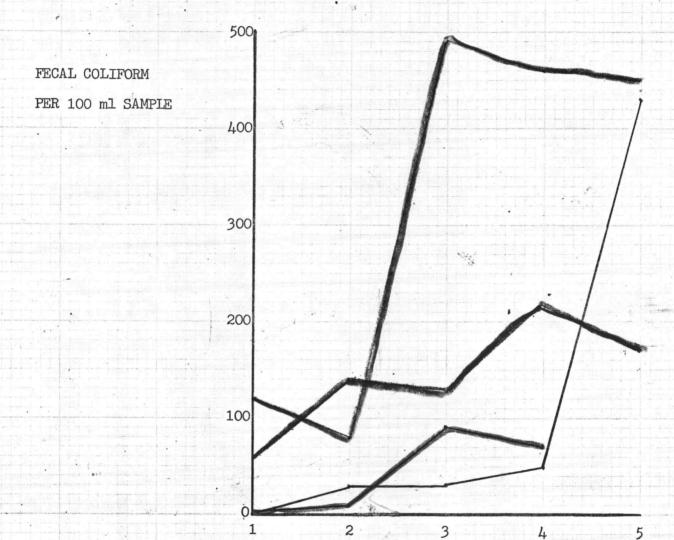






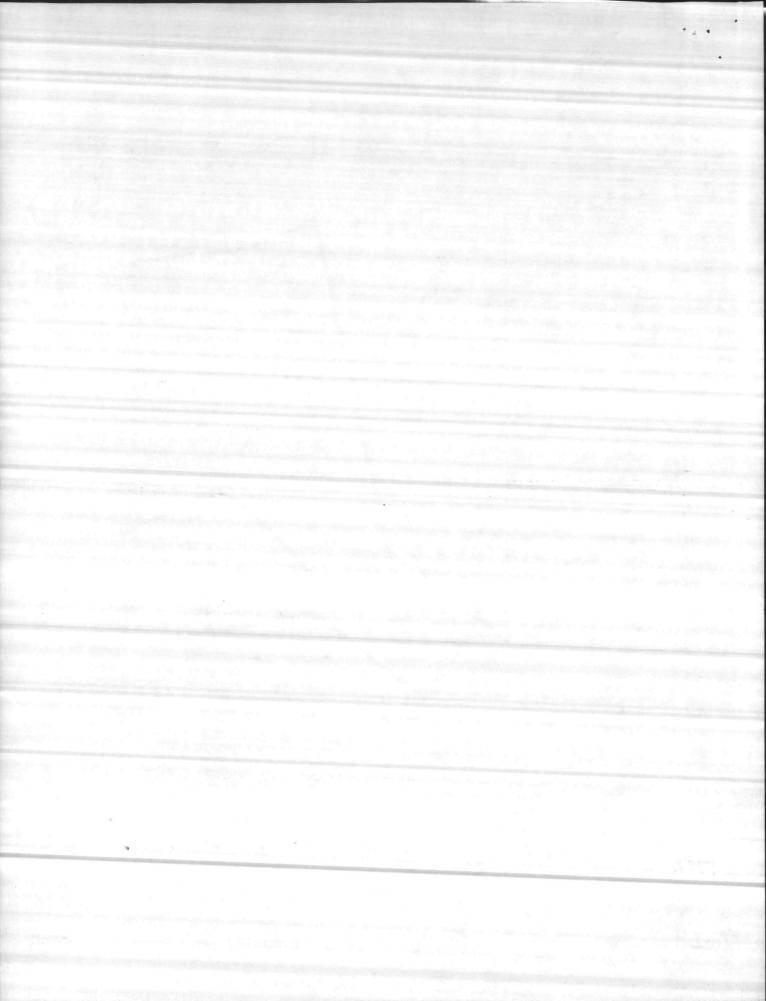


BIOLOGICAL RESULTS



SAMPLE POINTS

LIECTING DAYS TOBER 1973



RULES, REGULATIONS, CLASSIFICATIONS
AND
WATER QUALITY STANDARDS APPLICABLE
TO THE
SURFACE WATERS OF NORTH CAROLINA

7. Class C Waters

solids; sludge deposits.

- a. Best Usage of Waters: Fishing, boating, wading and any other usage except for bathing or as a source of water supply for drinking, culinary or food-processing purposes.
- b. Conditions Related to Best Usage: The waters will be suitable for fish and wildlife propagation. Also, suitable for boating, wading, and other uses requiring waters of lower quality.
 - 8. Quality Standards Applicable to Class C Waters

Items

a. Floating solids; settleable

b. pH. ' & ff.

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c. Dissolved oxygen.

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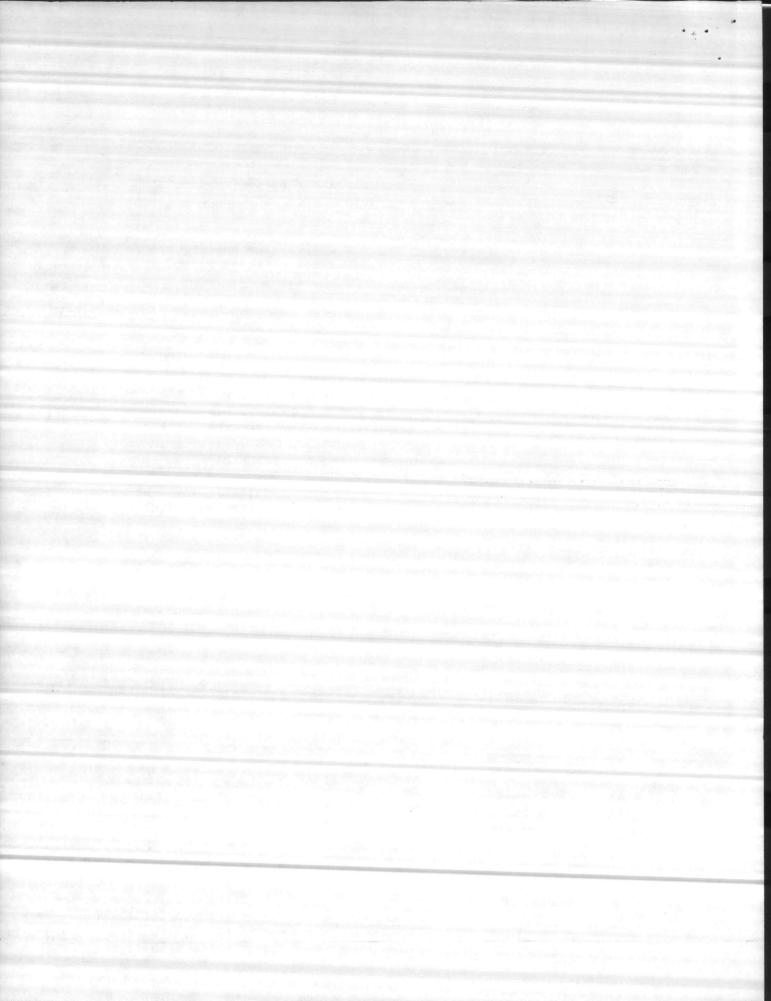
d. Toxic wastes; oils; deleterious substances; colored or other wastes. Specifications

Only such amounts attributable to sewage, industrial wastes or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, make the waters unsafe or unsuitable for fish and wildlife, or impair the waters for any other best usage established for this class.

Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5, except that swamp waters may have a low of 4.3.

Not less than 6.0 mg/l for natural trout waters; 5.0 mg/l for put-and-take trout waters; not less than a daily average of 5.0 mg/l with a minimum of not less than 4.0 mg/l for non-trout waters, except that swamp waters may have lower values if caused by natural conditions.

Only such amounts, whether alone or in combination with other substances or wastes as will not render the waters injurious to fish and wildlife or adversely affect the palatability or same, or impair the waters for any other best usage established for this class.



e. Organisms of coliform group.

Fecal coliforms not to exceed a log mean of 1,000/100 ml (MPN or MF count) based upon at least five consecutive samples examined during any 30-day period; nor exceed 2,000/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

Not to exceed 5°F. above the natural water temperature, and in no case to exceed 84°F. for mountain and upper piedmont waters and 90°F. for lower piedmont and coastal plain waters. The temperature of natural trout waters shall not be significantly increased due to the discharge of heated liquids and shall not exceed 68°F.; however, the temperature of put-and-take trout waters may be increased by as much as 3°F. but the maximum may not exceed 70°F.

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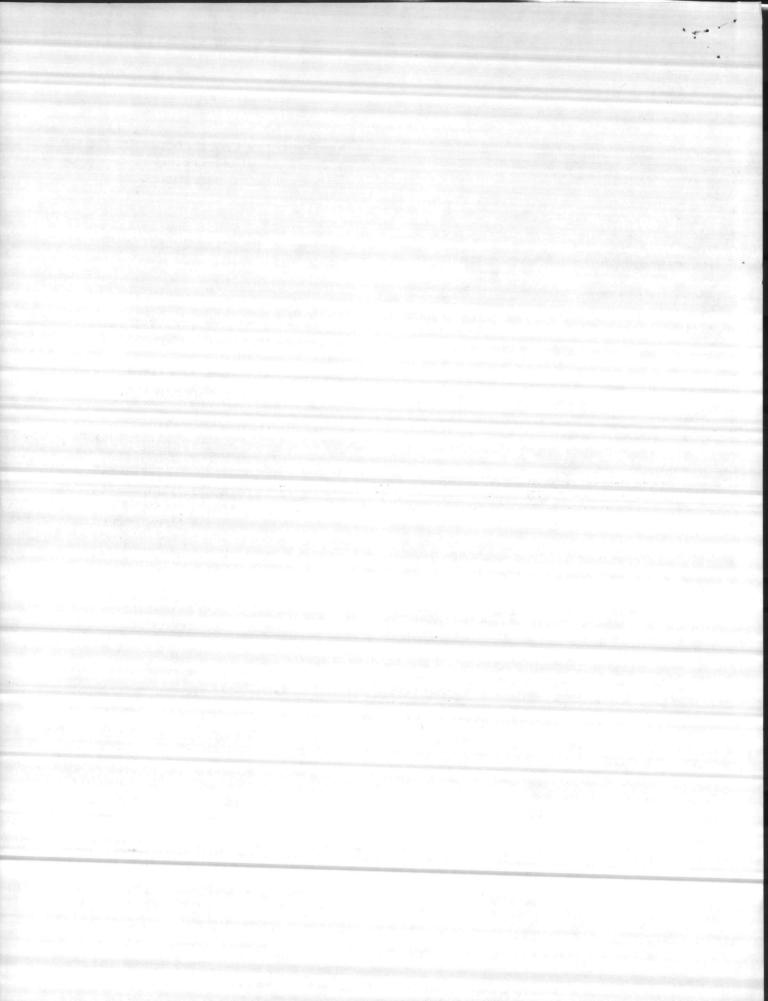
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f. Temperature.



OPNAV 5216/144 (REV. 6-70) S/N-0107-778-8099 DEPARTMENT OF THE NAVY

Memorandum

DATE: 29 Oct 1973

FROM: Natural Resources and Environmental Affairs Division

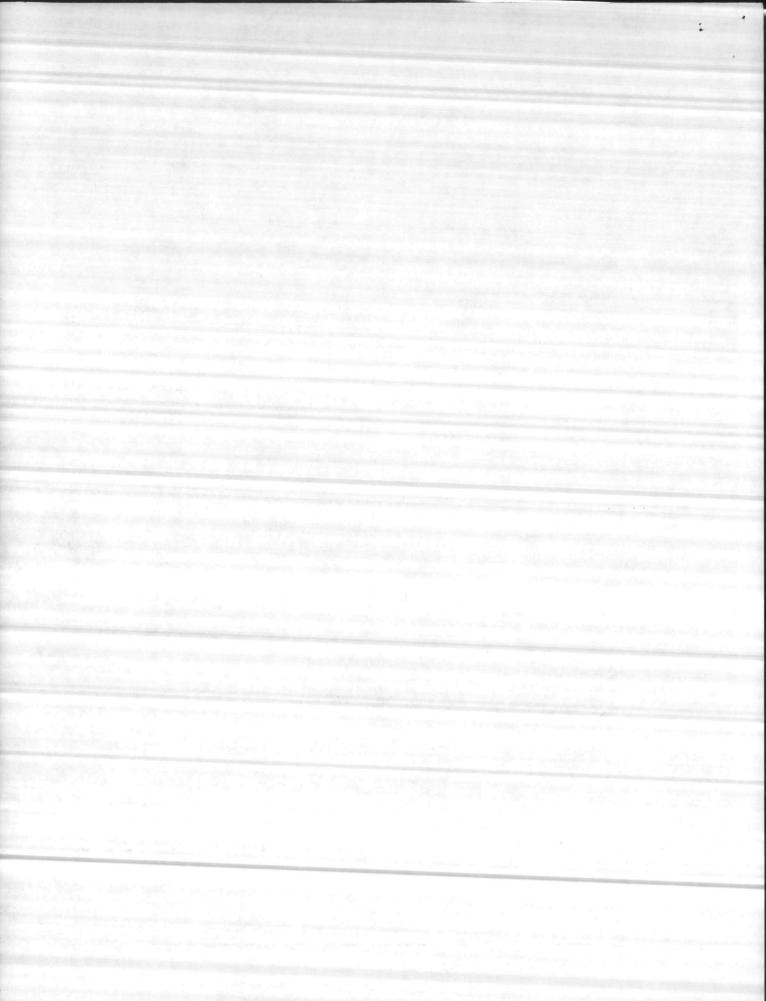
TO: Base Maintenance Officer

SUBJ: Pollution Condition of Bearhead Creek

Encl: (1) Graph - Bearhead Creek Sampling Points

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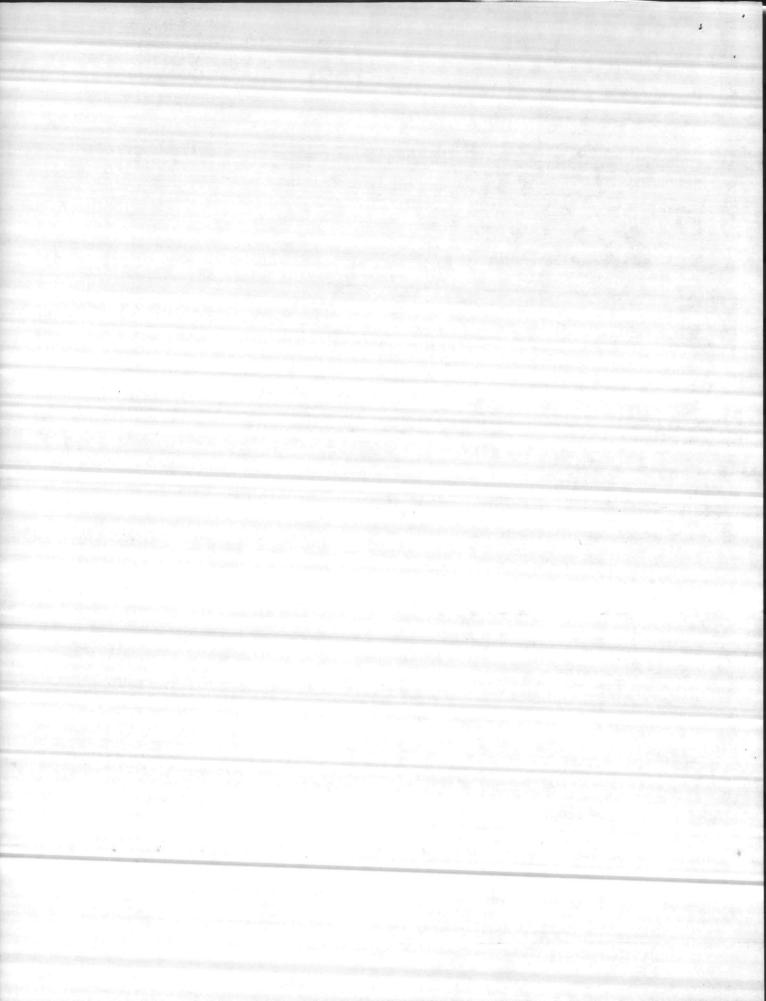


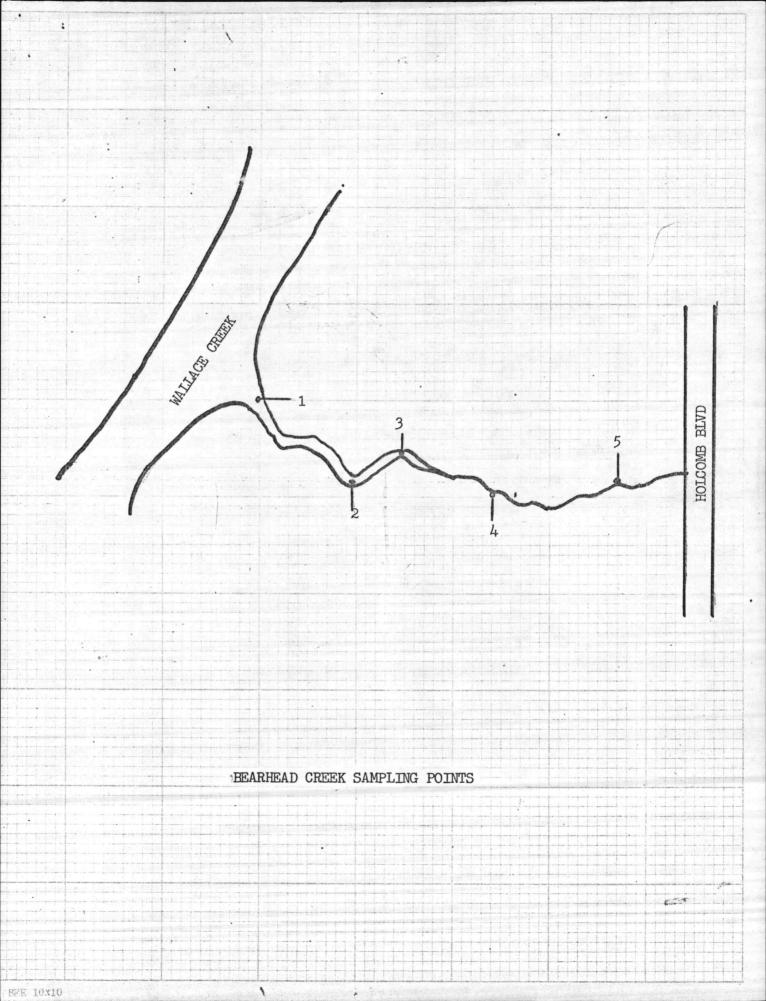
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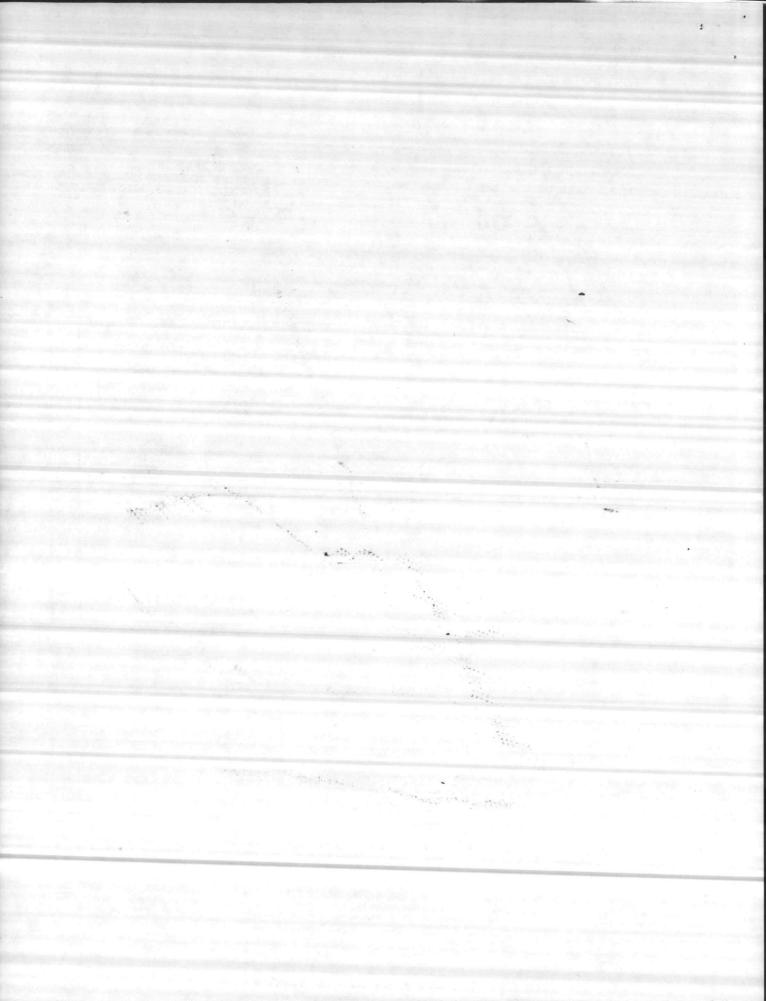
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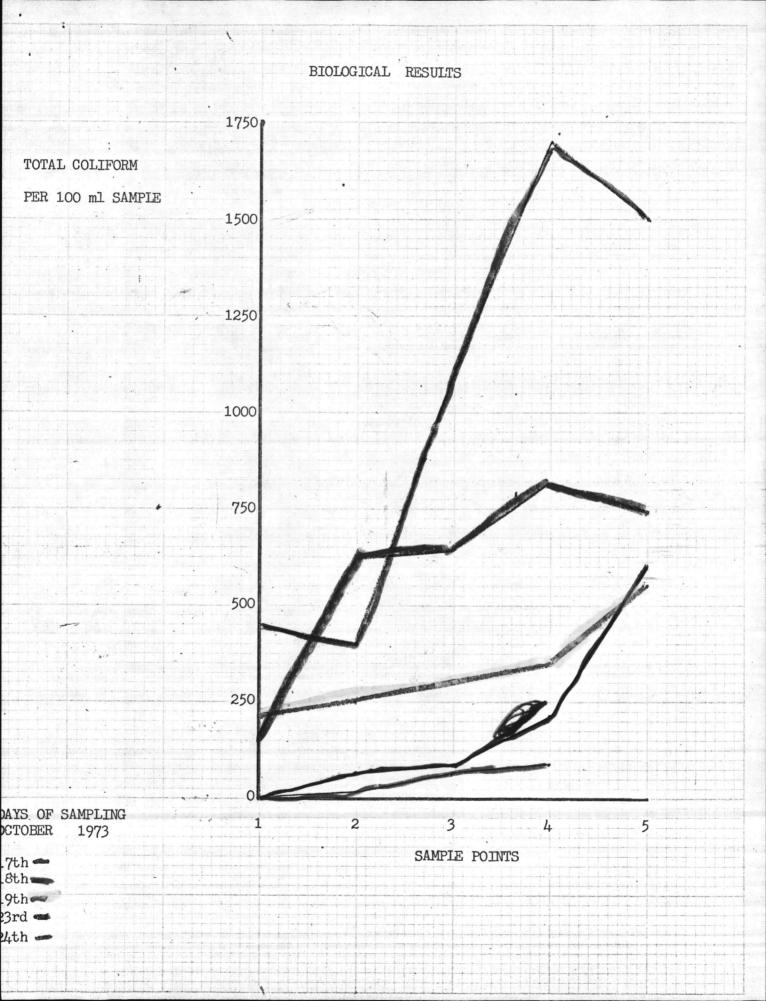
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 - 5. Aquatic Life Fish and water birds were observed repeatedly.

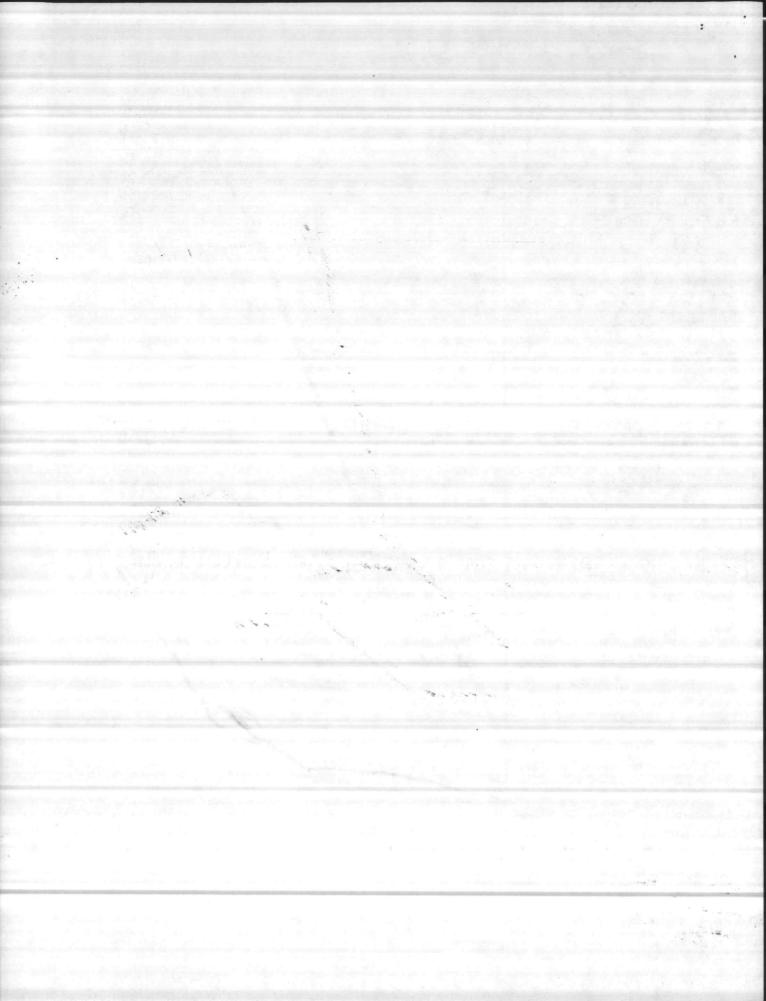
JULIAN I. WOOTEN, Ecologist











BIOLOGICAL RESULTS

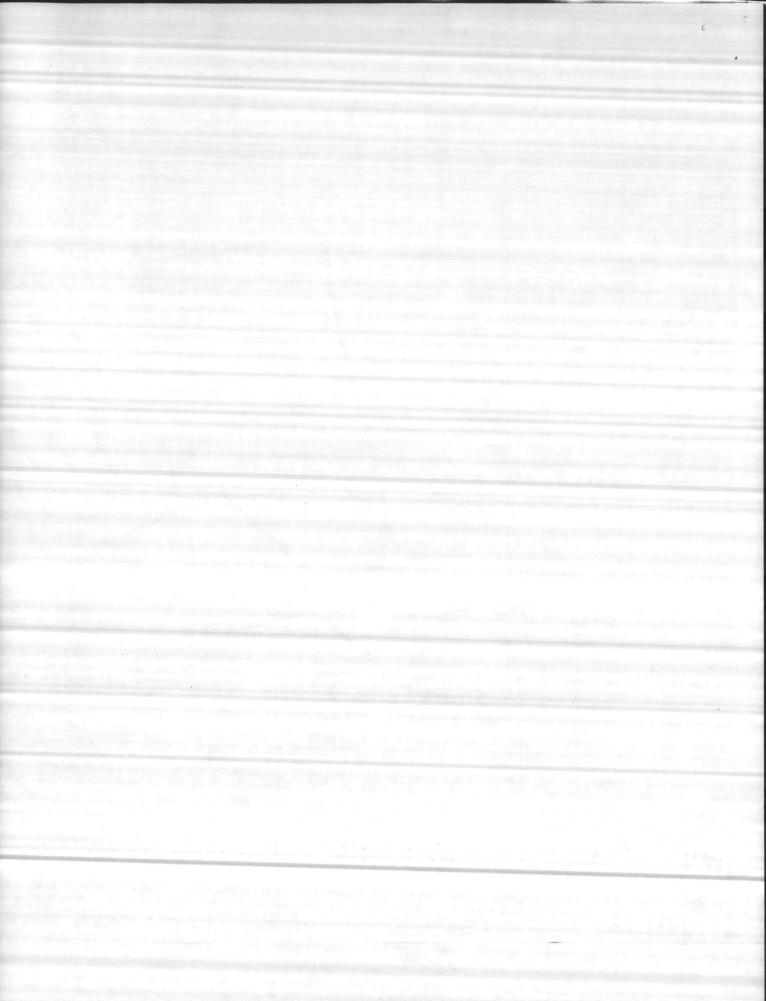
FECAL COLIFORM
PER 100 ml SAMPLE

LIECTING DAYS

FOBER 1973

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RULES, REGULATIONS, CLASSIFICATIONS
AND
WATER QUALITY STANDARDS APPLICABLE
TO THE
SURFACE WATERS OF NORTH CAROLINA

7. Class C Waters

- a. Best Usage of Waters: Fishing, boating, wading and any other usage except for bathing or as a source of water supply for drinking, culinary or food-processing purposes.
- b. Conditions Related to Best Usage: The waters will be suitable for fish and wildlife propagation. Also, suitable for boating, wading, and other uses requiring waters of lower quality.
 - 8. Quality Standards Applicable to Class C Waters

Items

Specifications

a. Floating solids; settleable solids; sludge deposits.

Only such amounts attributable to sewage, industrial wastes or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, make the waters unsafe or unsuitable for fish and wildlife, or impair the waters for any other best usage established for this class.

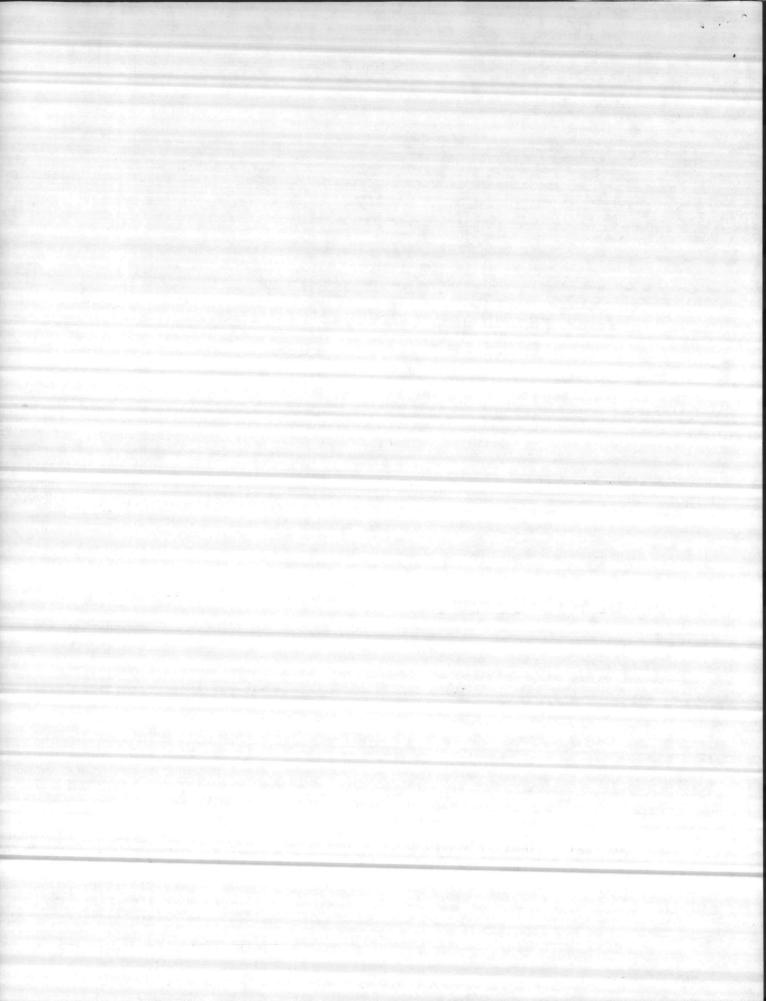
b. pH.

Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5, except that swamp waters may have a low of 4.3.

c. Dissolved oxygen.

Not less than 6.0 mg/l for natural trout waters; 5.0 mg/l for put-and-take trout waters; not less than a daily average of 5.0 mg/l with a minimum of not less than 4.0 mg/l for non-trout waters, except that swamp waters may have lower values if caused by natural conditions.

d. Toxic wastes; oils; deleterious substances; colored or other wastes. Only such amounts, whether alone or in combination with other substances or wastes as will not render the waters injurious to fish and wildlife or adversely affect the palatability or same, or impair the waters for any othe best usage established for this class.



e. Organisms of coliform group.

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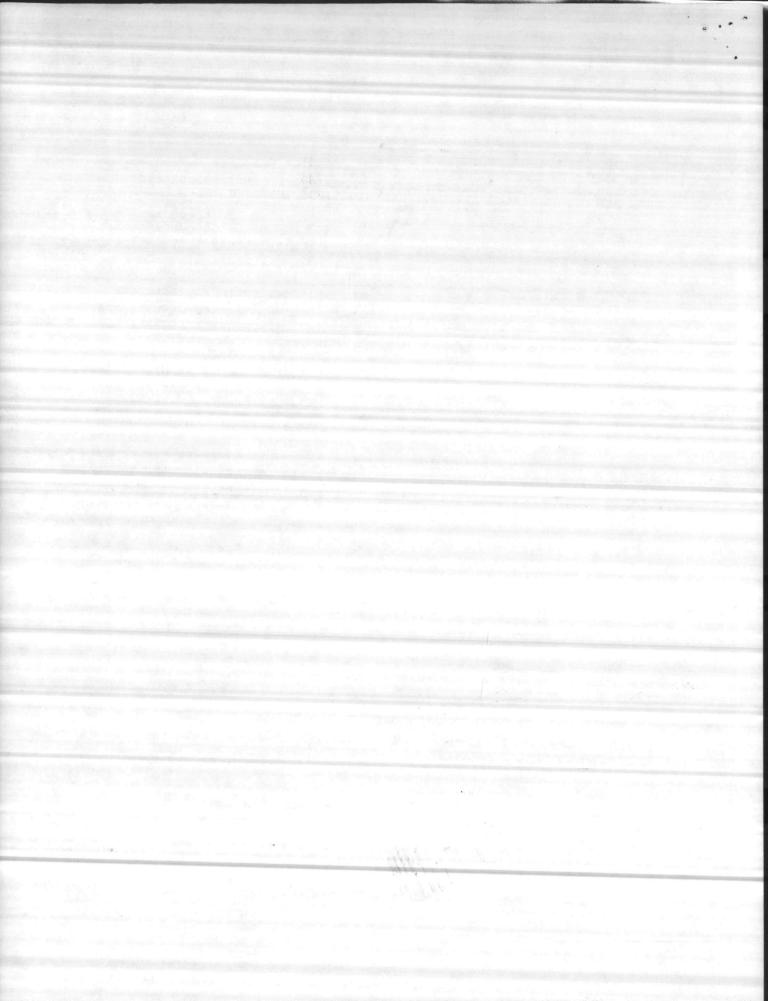
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f. Temperature.

Fecal coliforms not to exceed a log mean of 1,000/100 ml (MPN or MF count) based upon at least five consecutive samples examined during any 30-day period; nor exceed 2,000/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

Not to exceed 5°F, above the natural water temperature, and in no case to exceed 84°F. for mountain and upper piedmont waters and 90°F, for lower—piedmont and coastal plain waters. The temperature of natural trout waters shall not be significantly increased due to the discharge of heated liquids and shall not exceed 68°F.; however, the temperature of put-and-take trout waters may be increased by as much as 3°F. but the maximum may not exceed 70°F.



c. Atomospheric Conditions - Sunny to light overcast with no precipitation during investigation. Average water temperature of 65°F. Daily, times of observations and sample collections were between 0930 and 1200 with the tide level increasing daily.

d. Observations

- (1) Turbidity No quantitative tests were considered necessary due to observed clarity to three feet.
- (2) Oil Evidence No evidence of oil contamination was observed in Bearhead Creek. Evidence of oil was observed in one storm ditch located above Holcomb Boulevard which drains into Bearhead Creek during heavy run off.
- (3) Odors Some evidence of organic odors were detected at sample site # 4. Considered not unusual to this area.
 - (4) Silt Some evidence of siltation was observed.
 - (5) Aquatic Life Fish and water birds were observed repeatedly.

E. A. VOM ORDE, JR.

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ENVIONMENTAL PROTECTION AGECY

REGION IV
1421 Peachtree St., N.E., Atlanta, Georgia 30309

September 21, 1973

Mr. Russell

Commanding General United States Marine Corps Marine Corps Base Camp Lejeune, North Carolina 28542

Attn: Mr. Carroll Russel, Director Division of Natural Resources and Environmental Affairs

Dear Sir:

Reference is made to your telephone call to Mr. Don R. McCombs of our Environmental Emergency Branch on September 18 and to your telephone conversations with Mr. Holdaway of my staff on September 18 and 20 regarding safe disposal of empty pesticide containers. You stated the containers in question were five (5) gallon cans and had contained dibrom.

Empty cans should be thoroughly washed prior to disposal. Because they have contained dibrom, washing operations may be carried out where the wash water can be collected and directed to the sanitary sewer that delivers wastewater to the Hadnot Point waste treatment plant. Dibrom degrades rapidly and retention time within this plant will permit adequate degradation prior to discharge to the receiving stream. There should be no detrimental effects on the treatment plant processes. After washing, the cans may be placed in the chemical landfill.

Sincerely yours,

Arthur G. Linton, Chief Federal Facilities Office Enforcement Division

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VOLTA MOTTORO TO TATABLE CALLES

AND MOTORIES

eptember 21. 1973

Commanding General United States Marine Corps Marine Corps Base Caup Loteine, Worth Caroline 28562

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Sincerely yours.

Arther G. Lincon, Gules

Feder 1 Jacilities Office

Enforcement Division

Base Maintenance Officer

Public Works Officer

Automatic Car Wash, justification for

Ref: (a) Project No. P-444, Pollution Abatement Deficiencies, of 1 Aug 1973

- 1. By executive order, Camp Lejeune is obligated to conform to regulations set forth by the Environmental Protection Agency and the State of North Carolina for water pollution abatement. The present system of washing vehicles on open wash-racks and allowing the oily effluent to drain into open ditches and streams is in violation of these regulations.
- 2. Through the consolidation of vehicular washing facilities as requested in reference (a), several important benefits would accrue, such as (a) separation of oils from effluent (this will be a requirement on all washing facilities to protect the sewage system; therefore, the fewer the facilities the less expense for installation); (b) recirculation of water; (c) enhance surveillance and control capability to assure operations are in compliance with directives; (d) control of the quality and quantity of detergents dumped into sewage system; and (e) more effective and efficient cleaning of vehicles.

E. A. VOM ORDE, JR.

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DEPARTMENT OF THE NAVY Bureau of Medicine and Surgery Washington, D.C. 20390 BUMEDINST 6240.3C CH-1 722-PAT:cb 13 December 1972

BUMED INSTRUCTION 6240.3C CHANGE TRANSMITTAL 1

From: Chief, Bureau of Medicine and Surgery

To: All Ships and Stations

Subj: Standards for potable water

1. Purpose. To promulgate change 1 to the basic instruction to eliminate possible confusion concerning how nitrate and nitrite levels are to be determined.

These levels are to be expressed as nitrate nitrogen or nitrite nitrogen which is in consonance with current testing procedures.

2. Action. On page 4, table, line 12, opposite entry for Nitrate and Nitrite, in the Concentration column, to present "10." add "(as N)" so that it will read:

10. (as N)

G.M. DAVIS

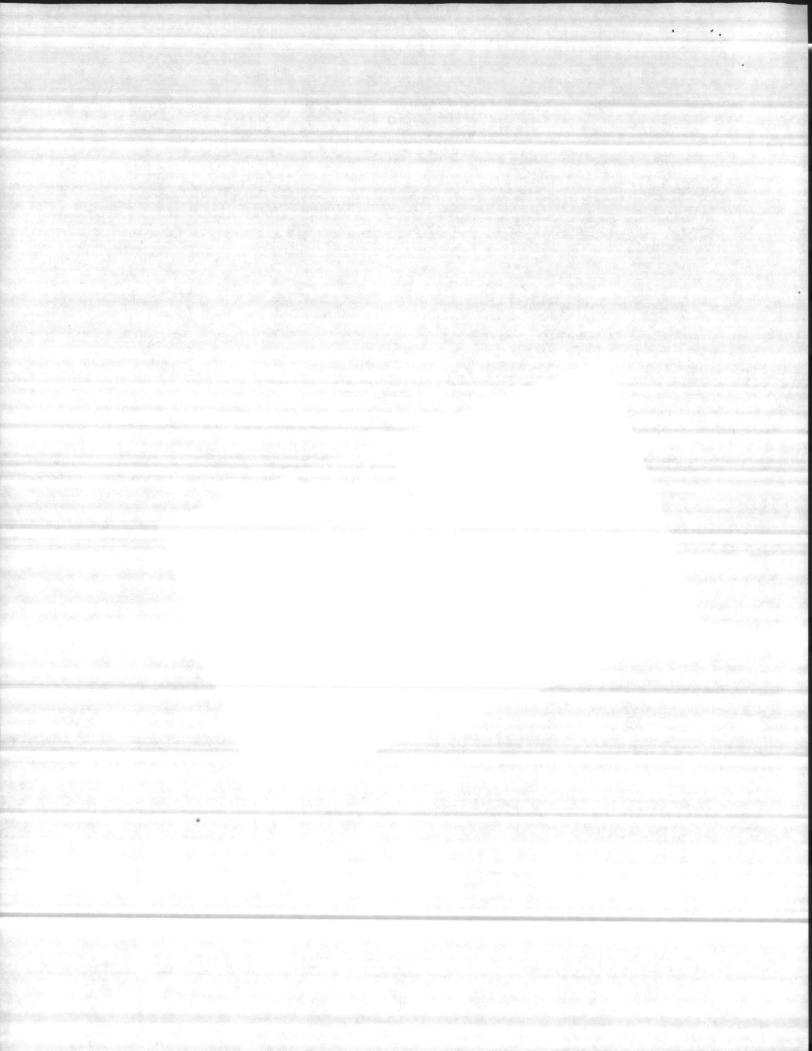
Distribution: SNDL Parts 1 and 2 MARCORPS Code CC (less MarBks)

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& Fiscal Dept.-Code 514.3)

1972



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DEPARTMENT OF THE NAVY Bureau of Medicine and Surgery Washington, D.C. 20390

BUMEDINST 6240.3C CH-1 722-PAT:cb 13 December 1972

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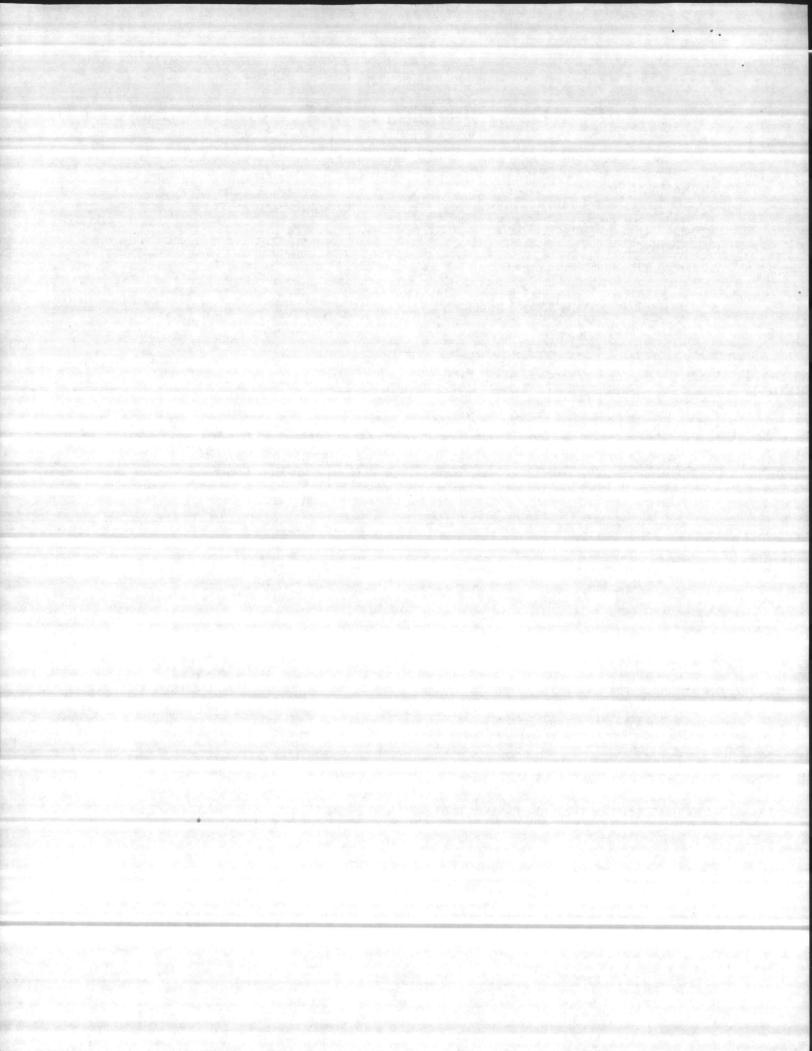
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Distribution: SNDL Parts 1 and 2 MARCORPS Code CC (less MarBks)



BUMED INSTRUCTION 6240.3C

From: Chief, Bureau of Medicine and Surgery

To: All Ships and Stations

Subj: Standards for potable water

* Ref: (a) NAVMATINST 5711.9A of 17 June * 1965 (NOTAL)

(b) BUMEDINST 5711.2A of 3 December

1965

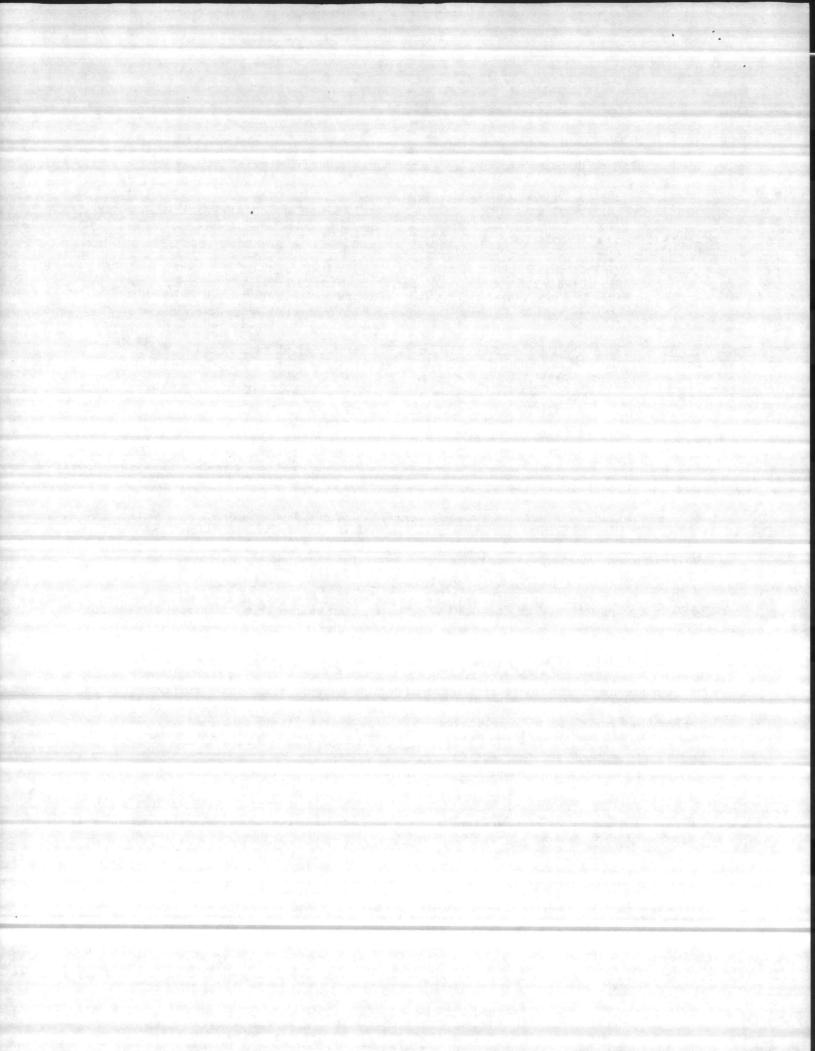
1. Purpose. To establish standards for water for .

- * drinking and culinary purposes throughout the Naval
- * Establishment and prescribe the use of the DD Form
- * 686, Bacteriological Examination of Water, and DD
- * Form 710, Physical and Chemical Analysis of Water.
- * 2. Cancellation, BUMED Instructions 6240.3B and
- * 6240.5 are canceled.

3. Background

- a. Policy. The Department of Defense has established the policy of compliance by the Military Departments with United States Public Health Service Drinking Water Standards, as may be modified by the Medical Services of the Departments, or as may be modified by competent authority for purposes of international agreement.
- b. International Agreement. Naval Tripartite
 Standardization Agreement ABC-NAVY-STD-23A
 was promulgated by references (a) and (b). The object
 of the agreement is to provide the United States Navy,
 the Royal Navy, and the Royal Canadian Navy assurance that drinking and culinary water delivered to
 each other's ships from installations under their cognizance meets certain minimum standards of quality.
- 4. Quality Standards. The standards for bacteriological quality, physical and chemical characteristics, and radioactivity shall be those in "Public Health Service Drinking Water Standards, 1962" Department of Health, Education, and Welfare. The Standards, as modified, may be found in NAVMED P-5010-5, Water Supply Ashore, available through the Navy Supply System.

- 5. Definition of Terms. The following terms are defined for clarification in interpretation of standards:
- a. Adequate protection by natural means involves one or more of the following processes of nature that produce water consistently meeting the requirements of these standards: dilution, storage, sedimentation, sunlight, aeration, and the associated physical and biological processes which tend to accomplish natural purification in surface waters and, in the case of ground waters, the natural purification of water by infiltration through soil and percolation through underlying material and storage below the ground water table.
- b. Adequate protection by treatment means any one or any combination of the controlled processes of coagulation, sedimentation, absorption, filtration, disinfection, or other processes which produce a water consistently meeting the requirements of these standards. This protection also includes processes which are appropriate to the source of supply; works which are of adequate capacity to meet maximum demands without creating health hazards, and which are located, designed, and constructed to eliminate or prevent pollution; and conscientious operation by well trained and competent personnel whose qualifications are commensurate with the responsibilities of the position.
- c. The coliform group includes all organisms considered in the coliform group as set forth in Standard Methods for the Examination of Water and Wastewater, current edition, prepared and published jointly by the American Public Health Association, American Water Works Association, and Water Pollution Control Federation.
- d. Health hazards mean any conditions, devices, or practices in the water supply system and its operation which create, or may create, a danger to the health and well-being of the water consumer. An example of a health hazard is a structural defect in the water supply system, whether of location, design, or construction, which may regularly or occasionally prevent satisfactory purification of the water supply or cause it to be polluted from extraneous sources.



- e. Pollution, as used in these standards, means the presence of any foreign substance (organic, inorganic, radiological, or biological) in water which tends to degrade its quality so as to constitute a hazard or impair the usefulness of the water.
- f. The standard sample for the bacteriological test shall consist of:
- (1) For the bacteriological fermentation tube test, five standard portions of either:
 - (a) 10 milliliters
 - (b) 100 milliliters
- (2) For the membrane filter technique, not less than 50 milliliters.
- g. Water supply system includes the works and auxiliaries for collection, treatment, storage, and distribution of the water from the sources of supply to the freeflowing outlet of the ultimate consumer.

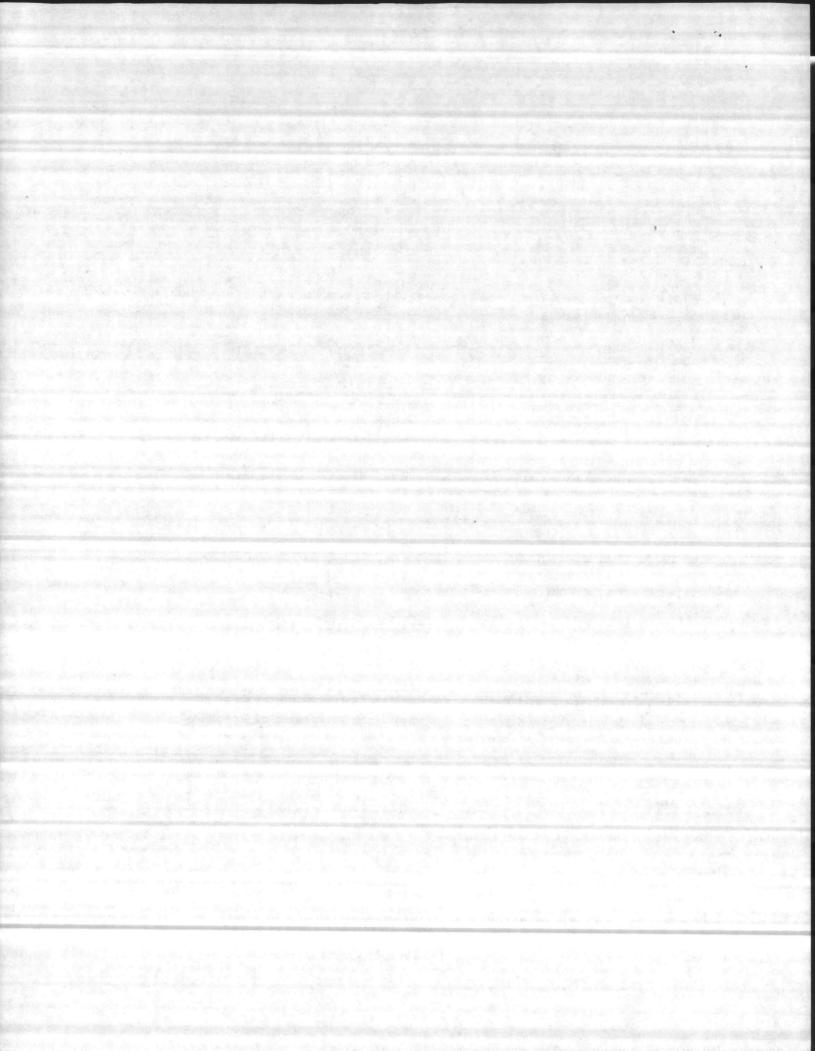
6. Source and Protection

- a. The water supply should be obtained from the most desirable source which is feasible, and effort should be made to prevent or control pollution of the source. If the source is not adequately protected by natural means, the supply shall be adequately protected by treatment.
- b. Frequent sanitary surveys shall be made of the water supply system to locate and identify health hazards which might exist in the system.
- c. Approval of water supplies shall be dependent in part upon:
- (1) Enforcement of rules and regulations to prevent development of health hazards;
- (2) Adequate protection of the water quality throughout all parts of the system, as demonstrated by frequent surveys;
- (3) Proper operation of the water supply system under the responsible charge of personnel whose

- qualifications are acceptable to the Navy Facilities Engineering Command or Navy Ship Systems Command.
- (4) Adequate capacity to meet peak demands without development of low pressures or other health hazards; and
- (5) Record of laboratory examinations showing consistent compliance with the water quality requirements of these standards.
- 7. Standards. The limits listed below are generally those contained in Public Health Service Drinking Water Standards, 1962. For sampling procedures and techniques, refer to NAVMED P-5010-5.
- a. Bacteriological Quality (Limits). The presence of organisms of the coliform group as indicated by samples examined shall not exceed the following limits:
- (1) When 10 ml. standard portions are examined, not more than 10 percent in any month shall show the presence of the coliform group. The presence of the coliform group in three or more 10 ml. portions of a standard sample shall not be allowable if this occurs:
 - (a) In two consecutive samples;
- (b) In more than one sample per month when less than 20 are examined per month; or
- (c) In more than five percent of the samples when 20 or more are examined per month.

When organisms of the coliform group occur in three or more of the 10 ml. portions of a single standard sample, daily samples from the same sampling point shall be collected promptly and examined until the results obtained from at least two consecutive samples show the water to be of satisfactory quality.

(2) When 100 ml. standard portions are examined, not more than 60 percent in any month shall show the presence of the coliform group. The presence



of the coliform group in all five of the 100 ml. portions of a standard sample shall not be allowable if this occurs:

- (a) In two consecutive samples;
- (b) In more than one sample per month when less than five are examined per month; or
- (c) In more than 20 percent of the samples when five or more are examined per month.

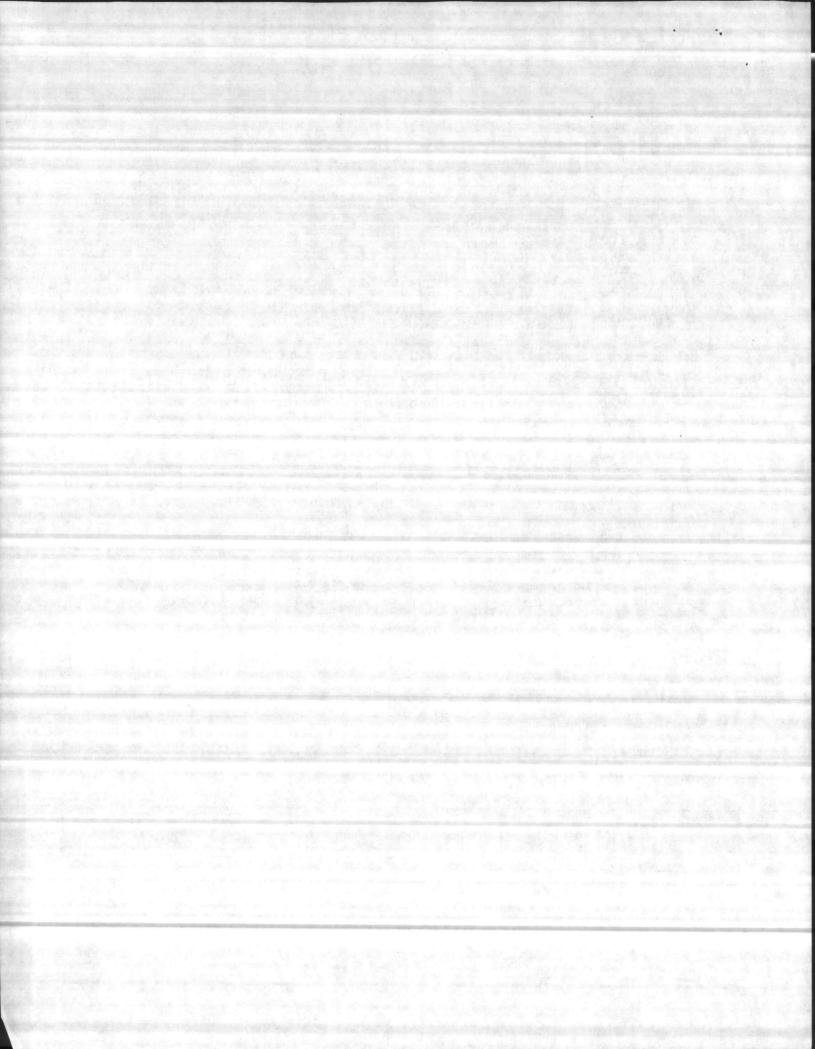
When organisms of the coliform group occur in all five of the 100 ml. portions of a single standard sample, daily samples from the same sampling point shall be collected promptly and examined until the results obtained from at least two consecutive samples show the water to be of satisfactory quality.

- (3) When the membrane filter technique is used, the arithmetic mean coliform density of all standard samples examined per month shall not exceed one per 100 ml. Coliform colonies per standard sample shall not exceed 3/50 ml., 4/100 ml., 7/200 ml., or 13/500 ml. in:
 - (a) Two consecutive samples:
- (b) More than one standard sample when less than 20 are examined per month; or
- (c) More than five percent of the standard samples when 20 or more are examined per month.

When coliform colonies in a single standard sample exceed the above values, daily samples from the same sampling point shall be collected promptly and examined until the results obtained from at least two consecutive samples show the water to be of satisfactory quality.

- b. Bacteriological Examination of Water. Bacteriological Examination of Water, DD Form 686, shall * be used by all naval facilities, both ashore and afloat, to conduct bacteriological examination of water.
- c. Physical Characteristics (Limits). Drinking water should contain no impurity which would cause offense to the sense of sight, taste, or smell. Under general use, the following limits should not be exceeded:

d. Chemical Characteristics (Limits). Drinking water shall not contain impurities in concentrations which may be hazardous to the health of the consumers. It should not be excessively corrosive to the water supply system. Substances used in its treatment



shall not remain in the water in concentrations greater than required by good practice. Substances which may have deleterious physiological effect, or for which physiological effects are not known, shall not be introduced into the system in a manner which would permit them to reach the consumer.

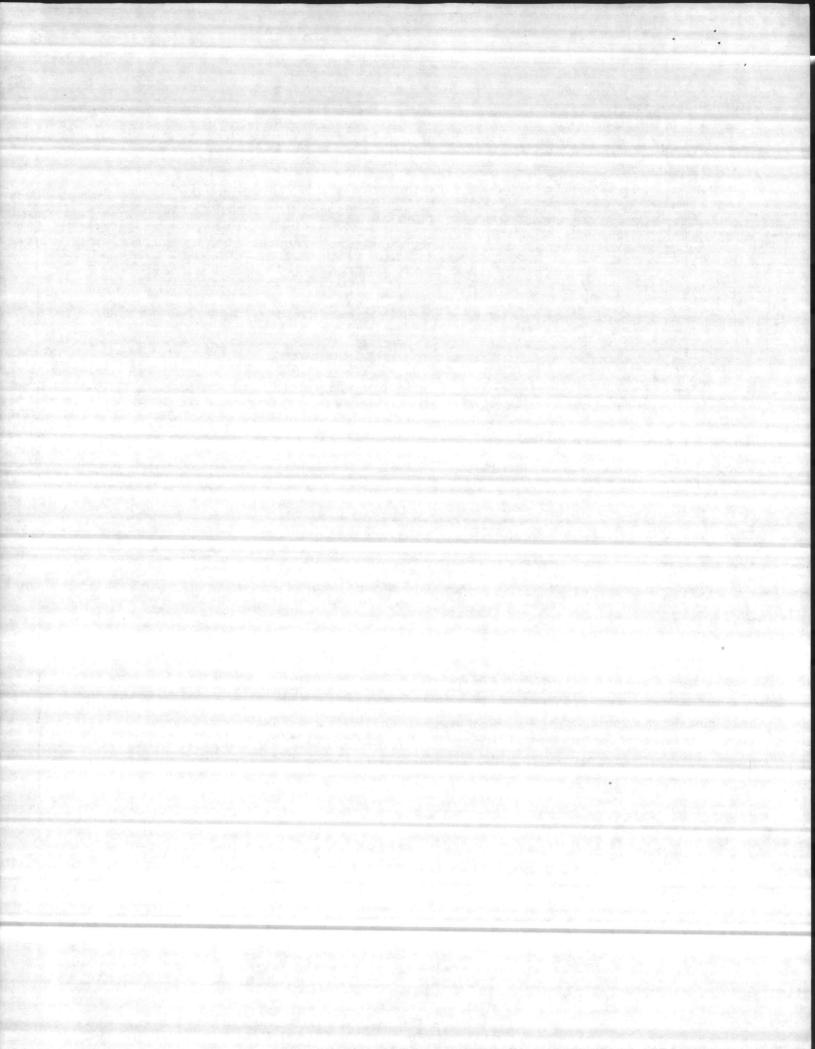
(1) The following chemical substances should not be present in a water supply in excess of the listed concentrations where, in the judgement of the Navy Facilities Engineering Command and the Bureau of Medicine and Surgery, other more suitable supplies are or can be made available.

Substance	Concentration in mg/1 (ppm)	
Antimony (Sb) (See footnote 1.)	0.01	
Arsenic (As)	0.01	
Chloride (C1)	250.	
Carbon Chloroform Extract (CCE)	0.15	*
Copper (Cu)		
Cyanide (CN)		
Fluoride (F)		
Iron (Fe)	0.3	
Manganese (Mn)		
Mercury (Hg) (See footnote 2.)		
Methylene Blue-Active Substance (Including ABS)		*
Nitrate (NO ₃), Nitrite (NO ₂) (See footnote 3.)	10.	*
pH (Range)		*
Phenols		
Sulfate (SO ₄)		
Total Dissolved Solids	500.	
ZINC (Zn)	5.	

Footnotes:

- 1. Not contained in Drinking Water Standards but this limit set by PHS and BUMED.
- 2. Not contained in Drinking Water Standards but this limit set by BUMED upon recommendation of EPA.
- 3. In areas in which the nitrate or nitrite content of water is known to be in excess of the listed concentration, the public should be warned of the potential dangers of using the water for infant feeding.

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(2) The presence of the following substances in excess of the concentrations listed shall constitute grounds for rejection of the supply:

Substance	Concentration in mg/1 (ppm)
Antimony (Sb) (See footnote 1.)	0.05
Arsenic (As)	0.05
Barium (Ba)	1.0
Cadmium (Cd)	0.01
Chromium (Hexavalent) (Cr ⁺ 6)	0.05
Cyanide (CN)	. 0.2
Fluoride (F)	See 7d(3)
Lead (Pb)	0.05
Pesticides, Herbacides, Fungicides (See footnote 2.)	
Chlorinated hydrocarbons	0.003 - 0.1
Organo-phosphates	0.1
Chlorophenoxy herbacides	0.005 - 1.00
Selenium (Se)	0.01
Silver (Ag)	0.05

Footnotes:

- 1. Not contained in Drinking Water Standards but this limit set by PHS and BUMED.
- 2. Concentrations represent range of levels for each group of chemicals. Individual pesticides have specific concentrations diqueries should be directed to BUMED (Code 72).
- (3) Fluoride. When fluoride is naturally present in drinking water, the concentration should not average more than the appropriate upper limit in the following table. Presence of fluoride in average concentrations greater than two times the optimum

values in the table shall constitute grounds for rejection of the supply. When fluoridation (supplementation of fluoride in drinking water) is practiced, the average fluoride concentration shall be kept within the upper and lower control limits in the table.

Annual average of maximum daily air temperatures, based on data obtained for a minimum	Recommended limits-Fluoride co tions in mg/1 (ncentra-	
of 5 years	Lower	Optimum	Upper	
50.0 - 53.7	0.9	1.2	1.7	
53.8 - 58.3	0.8	1.1	1.5	
58.4 - 63.8	0.8	1.0	1.3	
63.9 - 70.6	0.7	0.9	1.2	
70.7 - 79.2	0.7	0.8	1.0	
79.3 - 90.5	0.6	0.7	0.8	

e. Physical and Chemical Analysis of Water. Physical

and Chemical Analysis of Water, DD Form 710, shall

be used by all naval facilities, both ashore and afloat, to conduct physical and chemical analysis of water.

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f. Radioactivity (Limits).

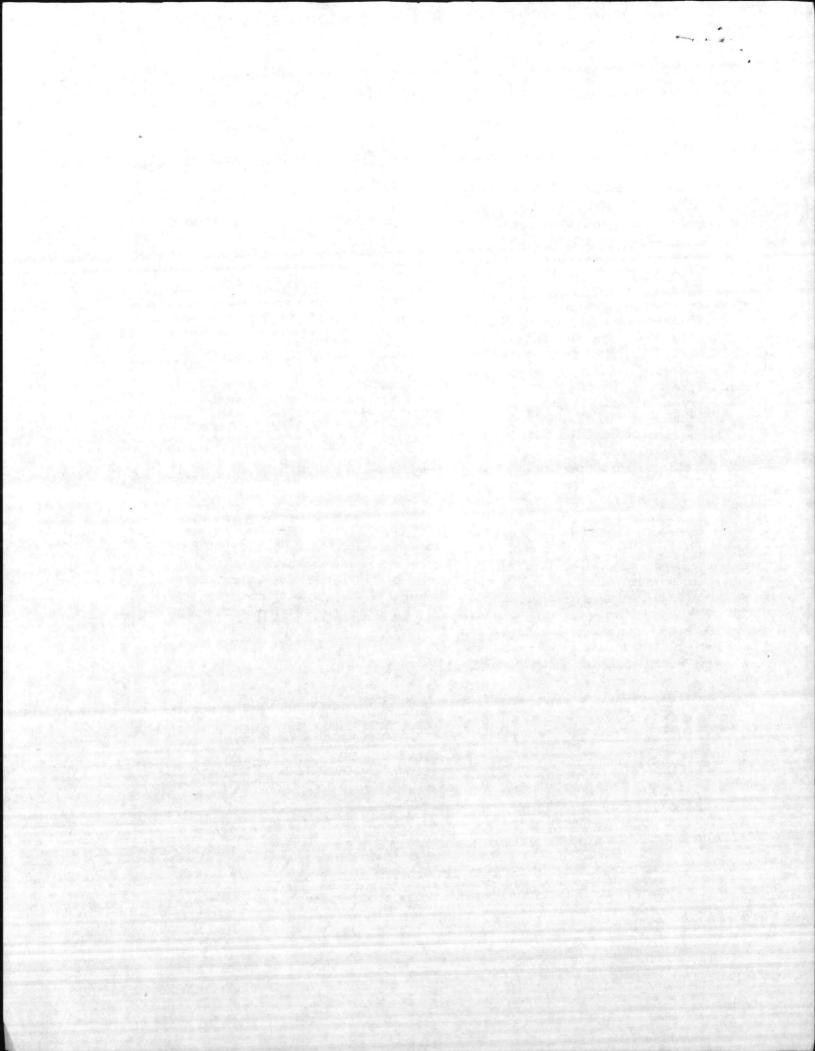
- (1) The effects of human radiation exposure are viewed as harmful and any unnecessary exposure to ionizing radiation should be avoided. Approval of water supplies containing radioactive materials shall be based upon the judgement that the radioactivity intake from such water supplies when added to that from all other sources is not likely to result in an intake greater than the radiation protection guidance recommended by the Federal Radiation Council and approved by the President. (The Federal Radiation Council, in its 13 September 1961, Memorandum for the President, recommended that "Routine control of useful applications of radiation and atomic energy should be such that expected average exposures of suitable samples of an exposed population group will not exceed the upper value of Range II (20 μμc/day of Radium-226 and 200 µµc/day of Strontium-90).") Water supplies shall be approved without further consideration of other sources of radioactivity intake of Radium-226 and Strontium-90 when the water contains these substances in amounts not exceeding 3 and 10 µµc/liter, respectively. When these concentrations are exceeded, a water supply shall be approved by the certifying authority if surveillance of total intakes of radioactivity from all sources indicates that such intakes are within the limits recommended by the Federal Radiation Council for control action.
- (2) In the known absence (taken here to mean a negligibly small fraction of the above specific limits, where the limit for unidentified alpha emitters is

taken as the listed limit for Radium-226) of Strontium-90 and alpha emitters, the water supply is acceptable when the gross beta concentrations do not exceed 1,000 $\mu\mu$ c/liter. Gross beta concentrations in excess of 1,000 $\mu\mu$ c/liter shall be grounds for rejection of supply except when more complete analyses indicate that concentrations of nuclides are not likely to cause exposures greater than the Radiation Protection Guides as approved by the President on recommendation of the Federal Radiation Council.

- 8. Technical Assistance. Assistance with potable water problems may be requested from the following:
- a. Environmental and Preventive Medicine Units, in accordance with BUMED Instruction 6200.3C series, Subj: Environmental and Preventive Medicine Units.
- b. Navy Facilities Engineering Command's Field Engineering Offices in accordance with current NAV-FAC Instruction 5450.19 series, Subj: Sanitary Engineering Responsibilities of the Naval Facilities Engineering Command Field Division.
- 9. Procurement of DD Form 686 and DD Form 710. 9
 DD Form 686, Bacteriological Examination of
 Water, and DD Form 710, Physical and Chemical
 Analysis of Water, may be obtained from Cognizance I stock points of the Navy Supply System.

G. M. DAVIS

Distribution:
SNDL Parts 1 and 2
MARCORPS Code CC (less MarBks)



DEPARTMENT OF THE NAVY Bureau of Medicine and Surgery Washington, D.C. 20390

BUMEDINST 6240.3C 722-PAT:cb 25 August 1972

BUMED INSTRUCTION 6240.3C

From: Chief, Bureau of Medicine and Surgery

To: All Ships and Stations

Subj: Standards for potable water

* Ref: (a) NAVMATINST 5711.9A of 17 June * 1965 (NOTAL)

(b) BUMEDINST 5711.2A of 3 December

1965

1. Purpose. To establish standards for water for

- * drinking and culinary purposes throughout the Naval
- * Establishment and prescribe the use of the DD Form
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- b. International Agreement. Naval Tripartite
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 of the agreement is to provide the United States Navy,
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- 5. Definition of Terms. The following terms are defined for clarification in interpretation of standards:
- a. Adequate protection by natural means involves one or more of the following processes of nature that produce water consistently meeting the requirements of these standards: dilution, storage, sedimentation, sunlight, aeration, and the associated physical and biological processes which tend to accomplish natural purification in surface waters and, in the case of ground waters, the natural purification of water by infiltration through soil and percolation through underlying material and storage below the ground water table.
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DEPARTMENT OF THE NAVY Bureau of Medicine and Surgery Washington, D.C. 20390

Barren, may

BUMEDINST 6240.3C CH-1 722-PAT:cb 13 December 1972

BUMED INSTRUCTION 6240.3C CHANGE TRANSMITTAL 1

From: Chief, Bureau of Medicine and Surgery

To: All Ships and Stations

Subj: Standards for potable water

1. Purpose. To promulgate change 1 to the basic instruction to eliminate possible confusion concerning how nitrate and nitrite levels are to be determined.

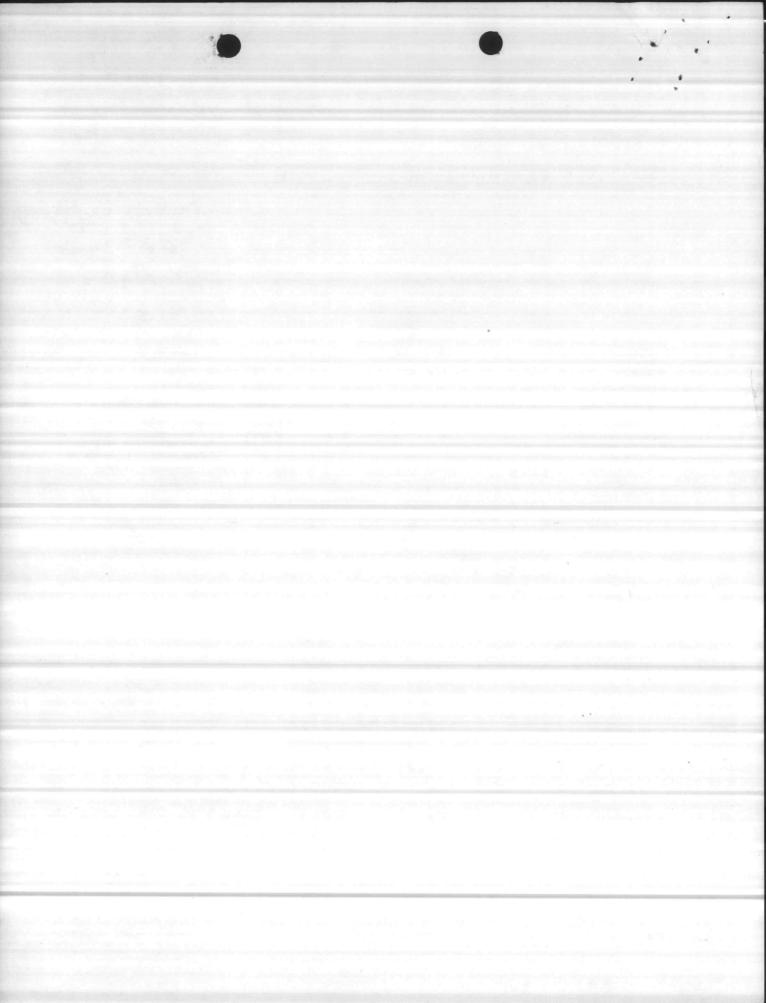
These levels are to be expressed as nitrate nitrogen or nitrite nitrogen which is in consonance with current testing procedures.

2. Action. On page 4, table, line 12, opposite entry for Nitrate and Nitrite, in the Concentration column, to present "10." add "(as N)" so that it will read:

10. (as N)

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- e. Pollution, as used in these standards, means the presence of any foreign substance (organic, inorganic, radiological, or biological) in water which tends to degrade its quality so as to constitute a hazard or impair the usefulness of the water.
- f. The standard sample for the bacteriological test shall consist of:
- (1) For the bacteriological fermentation tube test, five standard portions of either:
 - (a) 10 milliliters
 - (b) 100 milliliters
- (2) For the membrane filter technique, not less than 50 milliliters.
- g. Water supply system includes the works and auxiliaries for collection, treatment, storage, and distribution of the water from the sources of supply to the freeflowing outlet of the ultimate consumer.

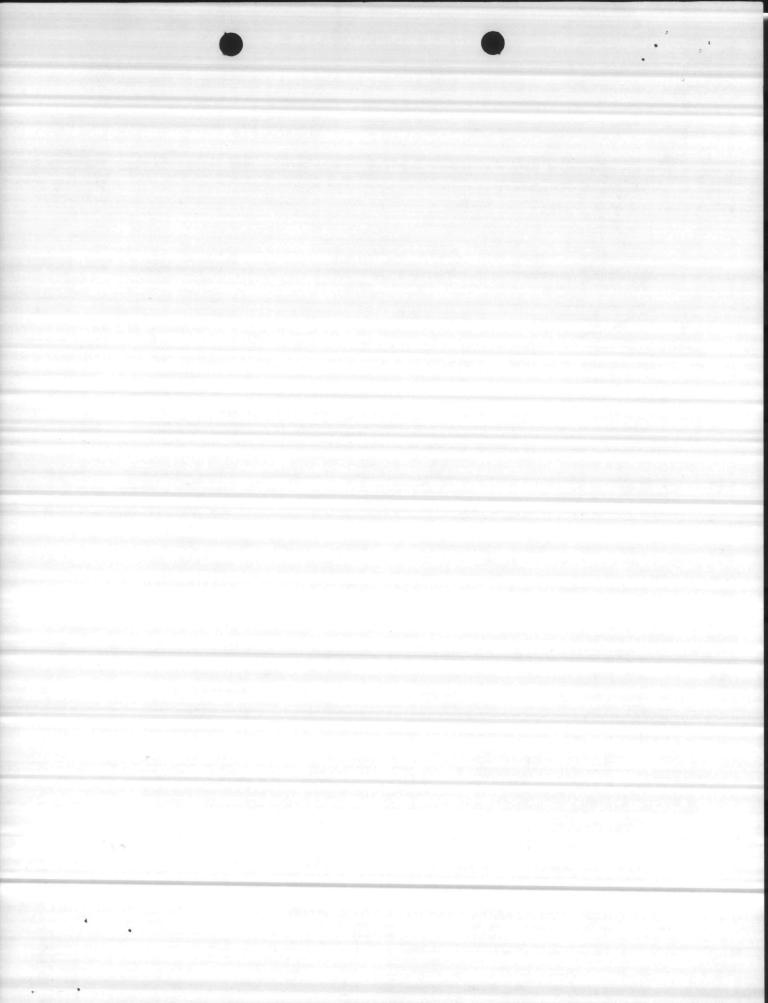
6. Source and Protection

- a. The water supply should be obtained from the most desirable source which is feasible, and effort should be made to prevent or control pollution of the source. If the source is not adequately protected by natural means, the supply shall be adequately protected by treatment.
- **b.** Frequent sanitary surveys shall be made of the water supply system to locate and identify health hazards which might exist in the system.
- c. Approval of water supplies shall be dependent in part upon:
- (1) Enforcement of rules and regulations to prevent development of health hazards;
- (2) Adequate protection of the water quality throughout all parts of the system, as demonstrated by frequent surveys;
- (3) Proper operation of the water supply system under the responsible charge of personnel whose

- qualifications are acceptable to the Navy Facilities Engineering Command or Navy Ship Systems Command.
- (4) Adequate capacity to meet peak demands without development of low pressures or other health hazards; and
- (5) Record of laboratory examinations showing consistent compliance with the water quality requirements of these standards.
- 7. Standards. The limits listed below are generally those contained in Public Health Service Drinking Water Standards, 1962. For sampling procedures and techniques, refer to NAVMED P-5010-5.
- a. Bacteriological Quality (Limits). The presence of organisms of the coliform group as indicated by samples examined shall not exceed the following limits:
- (1) When 10 ml. standard portions are examined, not more than 10 percent in any month shall show the presence of the coliform group. The presence of the coliform group in three or more 10 ml. portions of a standard sample shall not be allowable if this occurs:
 - (a) In two consecutive samples;
- (b) In more than one sample per month when less than 20 are examined per month; or
- (c) In more than five percent of the samples when 20 or more are examined per month.

When organisms of the coliform group occur in three or more of the 10 ml. portions of a single standard sample, daily samples from the same sampling point shall be collected promptly and examined until the results obtained from at least two consecutive samples show the water to be of satisfactory quality.

(2) When 100 ml. standard portions are examined, not more than 60 percent in any month shall show the presence of the coliform group. The presence



of the coliform group in all five of the 100 ml. portions of a standard sample shall not be allowable if this occurs:

(a) In two consecutive samples;

(b) In more than one sample per month when less than five are examined per month; or

(c) In more than 20 percent of the samples when five or more are examined per month.

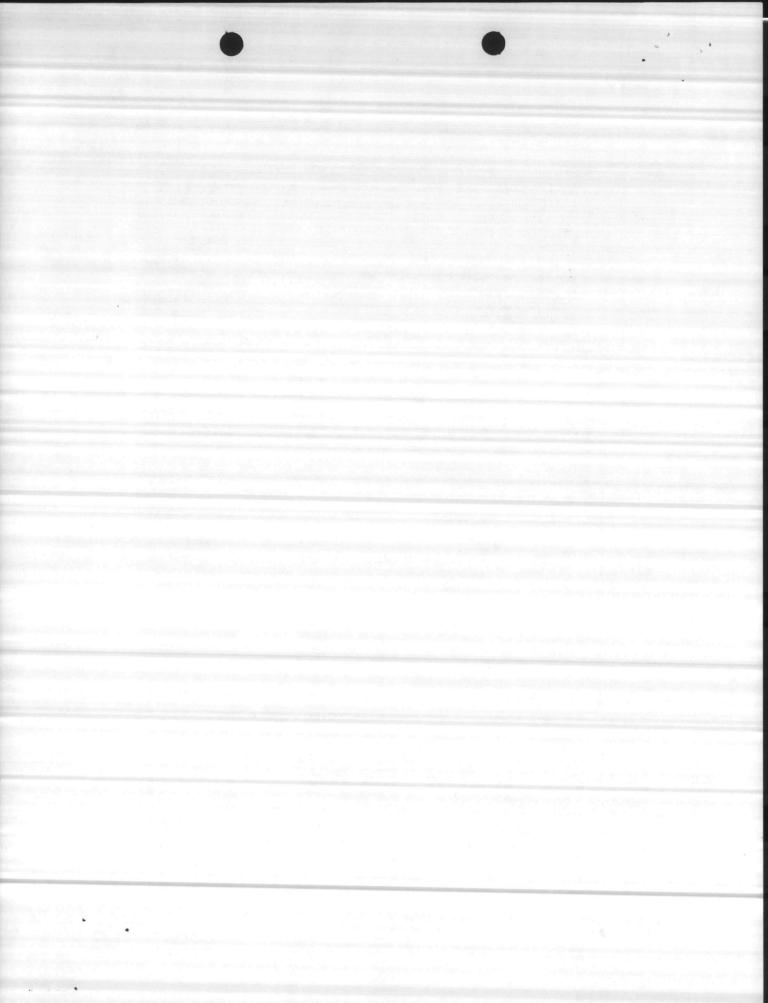
When organisms of the coliform group occur in all five of the 100 ml. portions of a single standard sample, daily samples from the same sampling point shall be collected promptly and examined until the results obtained from at least two consecutive samples show the water to be of satisfactory quality.

- (3) When the membrane filter technique is used, the arithmetic mean coliform density of all standard samples examined per month shall not exceed one per 100 ml. Coliform colonies per standard sample shall not exceed 3/50 ml., 4/100 ml., 7/200 ml., or 13/500 ml. in:
 - (a) Two consecutive samples;
- (b) More than one standard sample when less than 20 are examined per month; or
- (c) More than five percent of the standard samples when 20 or more are examined per month.

When coliform colonies in a single standard sample exceed the above values, daily samples from the same sampling point shall be collected promptly and examined until the results obtained from at least two consecutive samples show the water to be of satisfactory quality.

- b. Bacteriological Examination of Water. Bacteriological Examination of Water, DD Form 686, shall * be used by all naval facilities, both ashore and afloat, to conduct bacteriological examination of water.
- c. Physical Characteristics (Limits). Drinking water should contain no impurity which would cause offense to the sense of sight, taste, or smell. Under general use, the following limits should not be exceeded:

d. Chemical Characteristics (Limits). Drinking water shall not contain impurities in concentrations which may be hazardous to the health of the consumers. It should not be excessively corrosive to the water supply system. Substances used in its treatment



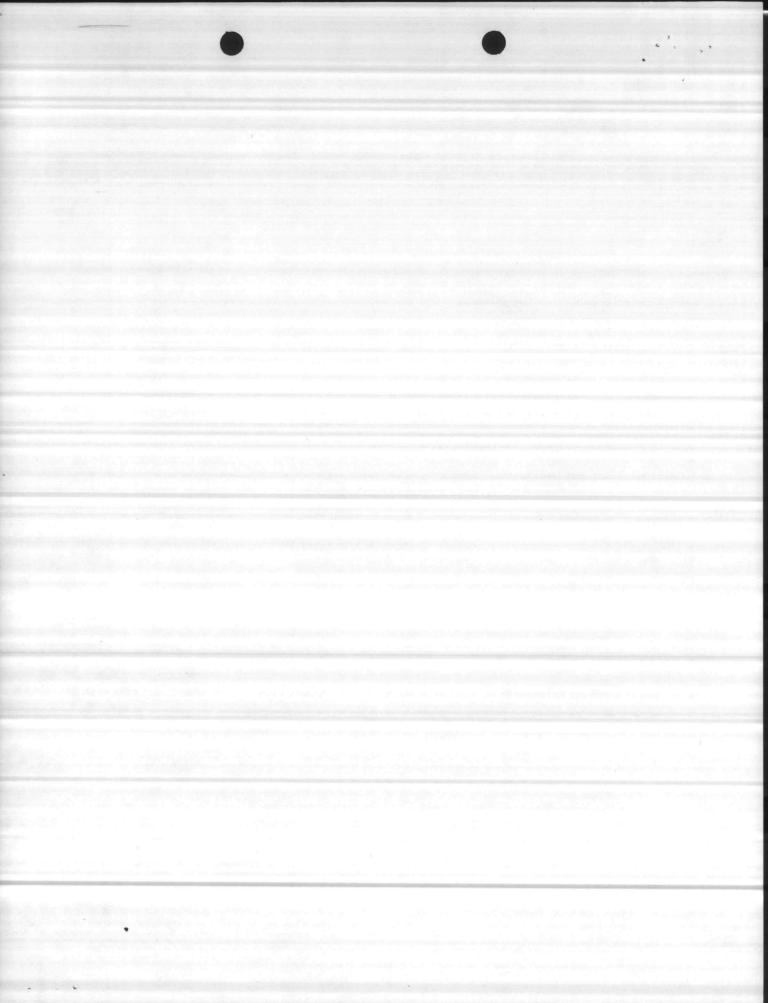
shall not remain in the water in concentrations greater than required by good practice. Substances which may have deleterious physiological effect, or for which physiological effects are not known, shall not be introduced into the system in a manner which would permit them to reach the consumer.

(1) The following chemical substances should not be present in a water supply in excess of the listed concentrations where, in the judgement of the Navy Facilities Engineering Command and the Bureau of Medicine and Surgery, other more suitable supplies are or can be made available.

Substance	Concentration in mg/1 (ppm)	
Antimony (Sb) (See footnote 1.)	0.01	
Arsenic (As)	0.01	
Arsenic (As) Chloride (C1)	250.	
Carbon Chloroform Extract (CCE).	0.15	*
Copper (Cu).	1.	
Carbon Chloroform Extract (CCE). Copper (Cu). Cyanide (CN). Fluoride (F).	0.01	
Fluoride (F)	See 7d(3)	
Iron (Fe)	0.3	
Manganese (Mn)		
Mercury (Hg) (See footnote 2.)	0.005	
Methylene Blue-Active Substance (Including ABS)		*
Nitrate (NO ₃), Nitrite (NO ₂) (See footnote 3.)	10.	*
pH (Range).		*
Phenols	0.001	
Sulfate (SO ₄)	250.	
Total Dissolved Solids		
ZINC (Zn)	5.	
	•	

Footnotes:

- 1. Not contained in Drinking Water Standards but this limit set by PHS and BUMED.
- 2. Not contained in Drinking Water Standards but this limit set by BUMED upon recommendation of EPA.
- 3. In areas in which the nitrate or nitrite content of water is known to be in excess of the listed concentration, the public should be warned of the potential dangers of using the water for infant feeding.



(2) The presence of the following substances in excess of the concentrations listed shall constitute grounds for rejection of the supply:

Substance	in mg/1 (ppm)
Antimony (Sb) (See footnote 1.)	0.05
Austine (As)	0.05
Darium (Da)	1.0
Caulifulli (Cu)	0.01
Cindinum (Hexavalent) (CI 0)	0.05
	(17)
	See 7d(3)
	0.05
LESUCIDES, DETDACIDES FUNDICIDES (See tootnote 7)	
Chlorinated hydrocarbons	0.003 - 0.1
Organo-phosphates.	0.1
Chrotophenoxy herbacides	0.005 - 1.00
Selenium (Se)	0.003 - 1.00
Silver (Ag)	0.05
요 그 이렇게 더 무료되는 일	

Footnotes:

- 1. Not contained in Drinking Water Standards but this limit set by PHS and BUMED.
- 2. Concentrations represent range of levels for each group of chemicals. Individual pesticides have specific concentrations decreases should be directed to BUMED (Code 72).
- (3) Fluoride. When fluoride is naturally present in drinking water, the concentration should not average more than the appropriate upper limit in the following table. Presence of fluoride in average concentrations greater than two times the optimum

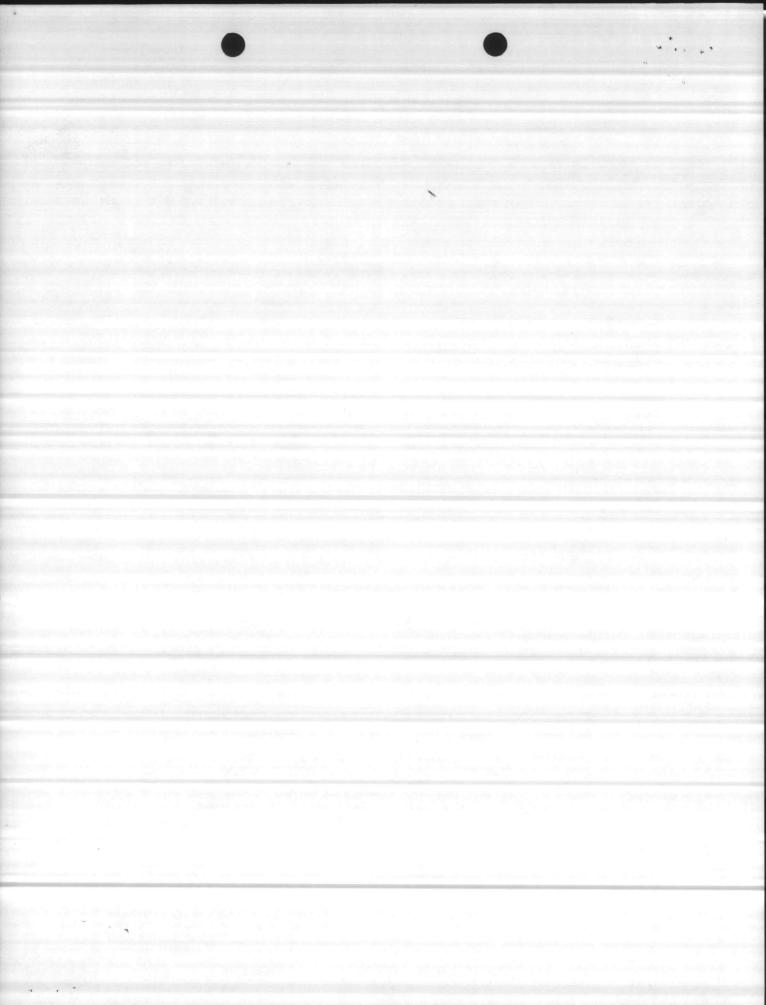
values in the table shall constitute grounds for rejection of the supply. When fluoridation (supplementation of fluoride in drinking water) is practiced, the average fluoride concentration shall be kept within the upper and lower control limits in the table.

Annual average of maximum daily air temperatures, based on data obtained for a minimum	Recommended control limits-Fluoride concentrations in mg/1 (ppm)		entra-
of 5 years	Lower	Optimum	Upper
50.0 - 53.7	0.9	1.2	1.7
53.8 - 58.3	0.8	1.1	1.5
58.4 - 63.8	0.8	1.0	1.3
63.9 - 70.6	0.7	0.9	1.2
70.7 - 79.2	0.7	0.8	1.0
79.3 - 90.5	0.6	0.7	0.8

e. Physical and Chemical Analysis of Water. Physical

* and Chemical Analysis of Water, DD Form 710, shall

be used by all naval facilities, both ashore and afloat, to conduct physical and chemical analysis of water.



f. Radioactivity (Limits).

(1) The effects of human radiation exposure are viewed as harmful and any unnecessary exposure to ionizing radiation should be avoided. Approval of water supplies containing radioactive materials shall be based upon the judgement that the radioactivity intake from such water supplies when added to that from all other sources is not likely to result in an intake greater than the radiation protection guidance recommended by the Federal Radiation Council and approved by the President. (The Federal Radiation Council, in its 13 September 1961, Memorandum for the President, recommended that "Routine control of useful applications of radiation and atomic energy should be such that expected average exposures of suitable samples of an exposed population group will not exceed the upper value of Range II (20 μμc/day of Radium-226 and 200 µµc/day of Strontium-90).") Water supplies shall be approved without further consideration of other sources of radioactivity intake of Radium-226 and Strontium-90 when the water contains these substances in amounts not exceeding 3 and 10 µµc/liter, respectively. When these concentrations are exceeded, a water supply shall be approved by the certifying authority if surveillance of total intakes of radioactivity from all sources indicates that such intakes are within the limits recommended by the Federal Radiation Council for control action.

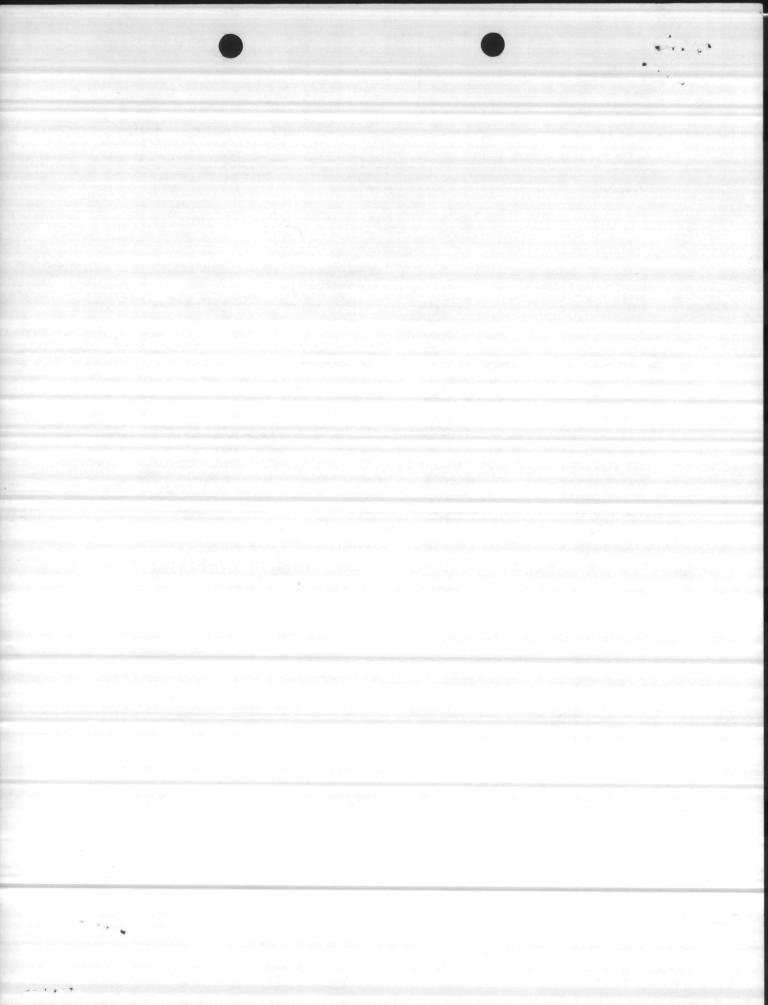
(2) In the known absence (taken here to mean a negligibly small fraction of the above specific limits, where the limit for unidentified alpha emitters is

taken as the listed limit for Radium-226) of Strontium-90 and alpha emitters, the water supply is acceptable when the gross beta concentrations do not exceed 1,000 $\mu\mu$ c/liter. Gross beta concentrations in excess of 1,000 $\mu\mu$ c/liter shall be grounds for rejection of supply except when more complete analyses indicate that concentrations of nuclides are not likely to cause exposures greater than the Radiation Protection Guides as approved by the President on recommendation of the Federal Radiation Council.

- 8. Technical Assistance. Assistance with potable water problems may be requested from the following:
- a. Environmental and Preventive Medicine Units, in accordance with BUMED Instruction 6200.3C series, Subj: Environmental and Preventive Medicine Units,
- b. Navy Facilities Engineering Command's Field Engineering Offices in accordance with current NAV-FAC Instruction 5450.19 series, Subj: Sanitary Engineering Responsibilities of the Naval Facilities Engineering Command Field Division.
- 9. Procurement of DD Form 686 and DD Form 710. DD Form 686, Bacteriological Examination of Water, and DD Form 710, Physical and Chemical Analysis of Water, may be obtained from Cognizance I stock points of the Navy Supply System.

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RULES, REGULATIONS, CLASSIFICATIONS

AND

WATER QUALITY STANDARDS APPLICABLE

TO THE

SURFACE WATERS OF NORTH CAROLINA



Adopted By
BOARD OF WATER AND AIR RESOURCES
DEPARTMENT OF WATER AND AIR RESOURCES
Releigh, North Carolina

NORTH CAROLINA

BOARD OF WATER AND AIR RESOURCES

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RULES, REGULATIONS, CLASSIFICATIONS AND WATER QUALITY STANDARDS APPLICABLE TO THE SURFACE WATERS OF NORTH CAROLINA.

The Declaration of Policy, as set forth in Section 211, Article 21, Chapter 143 of the General Statutes of North Carolina (Chapter 606, Session Laws of 1951) as amended, reads as follows: "It is hereby declared to be the public policy of this State to provide for the conservation of its water and air resources. Furthermore, it is the intent of the General Assembly, within the context of this Article to achieve and to maintain for the citizens of the State a total environment of superior quality. Recognizing that the water and air resources of the State belong to the people, the General Assembly affirms the State's ultimate responsibility for the preservation and development of these resources in the best interest of all its citizens and declares the prudent utilization of these resources to be essential to the general welfare. It is the purpose of this Article to create an agency which shall administer a program of water and air pollution control and water resource management. It is the intent of the General Assembly, through the duties and powers defined herein, to confer such authority upon the Board of Water and Air Resources as shall be necessary to administer a complete program of water and air conservation, pollution abatement and control and to achieve a coordinated effort of pollution abatement and control with other juy sdictions. Standards of water and air purity shall be designed to project human health, to prevent injury to plant and animal life, to prevent damage to public and private property, to insure the continued enjoyment of the natural attractions of the State, to encourage the expansion of employment opportunities, to provide a permanent foundation for healthy industrial development and to secure for the people of North Carolina, now and in the future, the beneficial uses of these great natural resources,"

In accordance with the declaration of policy and under authority of Article 21, Chapter 143, General Statuces of North Carolina (Chapter 606, Session Laws of 1951), and gursuant to public hearings duly called and held at the places and on the dates designated in notices published as required by Statute, Rules, Regulations, Classifications and Water Quality Standards Applicable to the Surface Waters of North Carolina were adopted by the State Stream Sanitation Committee of North Carolina, on November 15, 1953.

In accordance with the above declaration of policy and under authority of Article 21, Chapter 143, General Statutes of North Carolina, as amended, and pursuant to public hearing duly called and held at the place and on the date designated in notice published as required by Statute, the Rules, Regulations, Classifications and Water Quality Standards Applicable to the Surface Waters of North Carolina amended and adopted by the Board of Water and Air Resources, on January 30, 1968, are hereby amended and adopted by the Board of Water and Air Resources as set forth in the accompanying rules and regulations, this the 13th day of October, 1970.

CLASSIFICATIONS AND WATER QUALITY STANDARDS

- RULE NO. I. The Board of Water and Air Resources, prior to classifying and assigning standards of water quality to any specifically designated waters of the State, will proceed as follows:
 - 1. The Board will designate and define the specific limits of each separate major watershed within the State to be studied for the purpose of classifying and assigning water quality standards to the waters or segments of waters therein.
 - 2. The Board will direct its staff to have studies made of the designated waters to obtain the essential data and facts required for consideration in determining the proper classification of such waters or segments of waters under consideration.
 - 3. The Board will direct its staff to have a report of the findings of such studies prepared and distributed or otherwise made available so far as practicable to all parties having specific interests in the classification of the designated waters. Such report shall contain recommendations as to classification of such waters or segments thereof, together with the standards of water quality which apply to the various classifications recommended.
 - 4. The Chairman of the Board, or the Board, will designate one or more of its members as Hearing Examiner or Examiners to conduct a public hearing on the matter of classifying and assigning standards of water quality to the waters under consideration and will specify the date, time and place for holding each public hearing.
 - 5. The Board will give due notice of such hearing or hearings in accordance with the requirements of General Statute 143-214.1.
 - 6. The Hearing Examiner or Examiners will, as soon as practicable after the completion of the hearing, submit a complete report of the proceedings of the hearing, together with recommendations to the Board for disposition of the matter under consideration. The report shall be accompanied by a transcript of testimony presented at such public hearing, together with exhibits, a summary of relevant information from the results of stream studies conducted by the technical staff of the Board, and final recommendations as to classification of the designated waters or segments thereof and the standards of water quality which should be applied to each classification recommended.
 - 7. The Board, after due consideration of the hearing records and the final recommendations of the Hearing Examiner or Examiners, will adopt its final action with respect to the assignment of classifications applicable to the identified waters under consideration and will publish such action, together with the effective date for the application of the provisions of General Statute 143-215.1 and General Statute 143-215.2, as amended, as a part of the Board's official regulations.

- 8. The final action of the Board with respect to the assignment of classification with its accompanying standards shall contain the Board's conclusions relative to the various factors given in General Statute 143-214.1(d), and shall specifically state:
- a. The best usage in the interest of the public for such specifically identified waters or segments thereof, in accordance with the provisions of the Statute.
- b. The class or classes to which such specifically designated waters in the watershed or watersheds shall be assigned.
- c. The standards of water quality which shall be assigned to each classification to which the specifically identified water or segments thereof are assigned.
- RULE NO. II. The series of classifications and water quality standards applicable to each such classification, as adopted by the Board of Water and Air Resources, will be used by the Board for the purpose of assigning an appropriate classification to each separately identified water or segment thereof which the Board believes to be of sufficient importance to justify classification or control.
- RULE NO. III. Tests or analytical procedures to determine conformity or nonconformity with standards will, insofar as practicable and applicable, be made in accordance with the methods given in the latest edition of "Standard Methods for the Examination of Water and Wastewater", published by the American Public Health Association, American Water Works Association, and Water Pollution Control Federation or the latest edition of "Methods for Chemical Analysis of Water and Wastes", published by the Federal Water Quality Administration, or where other tests or analytical procedures have been found by the Department to be more applicable and satisfactory, same may be used upon adoption by the Board as a rule pursuant to General Statute 143-215.4(b). Latest edition as used in this rule means that edition of the applicable publication which has been most recently published with reference to the date at which a test or analytical procedure is carried out, and applies prospectively to editions issued subsequent to the adoption of this rule.
- RULE NO. IV. In determining the safety or suitability of Class A-I Waters for use as a source of water supply for drinking, culinary or food-processing purposes after approved disinfection, the Board will be guided by the physical, chemical and bacteriological standards specified in the 1962 edition of the "Public Health Service Drinking Water Standards" and one requirements of the State Board of Health as set forth in Section 5, "Protection of Unfiltered Public Water Supplies", of the Rules and Regulations Providing for the Protection of Public Water Supplies, as adopted October 6, 960, and amended May 9, 1962, August 26, 1965, and October 12, 1967.
- RULE NO. V. In determining the safety or suitability of Class A-II Waters for use as a source of water supply for drinking, culinary or food-processing purposes after approved treatment, the Board will be guided by the physical, chemical and bacteriological standards specified in the 1962 edition of the "Public Health Service Drinking Water Standards."

RULE NO. VI. - In assigning the B or SB classification to waters intended for bathing, the Board will take into consideration the relative proximity of sources of pollution and will recognize the potential hazards involved in locating swimming areas close to sources of pollution and will not assign this classification to waters, the bacterial quality of which is dependent solely upon adequate disinfection, and where the interruption of such treatment would render the water unsafe for bathing.

RULE NO. VII. - The series of classifications and water quality standards and the rules and regulations pertaining thereto shall be known as the "Classifications and Water Quality Standards Applicable To The Surface Waters of North Carolina".

REGULATIONS APPLICABLE TO CLASSIFICATIONS AND WATER QUALITY STANDARDS

REGULATION NO. I. - Waters whose existing quality is better than the established standards as of the date on which such standards become effective will be maintained at high quality; provided that the State of North Carolina has the authority to approve any project or development, which would constitute a new or an increased discharge of effluent to high quality water, when it has been affirmatively demonstrated that a change is justifiable to provide necessary economic or social development, and provided further, that the necessary degree of waste treatment to maintain high water quality will be required where physically and economically feasible. Present and anticipated use of such waters will not be precluded under the conditions of the aforesaid. In implementing this policy, the Federal Water Quality Administration will be kept informed and will be provided with such information as it will need in discharging its responsibilities under the Federal Water Pollution Control Act.

REGULATION NO. II. - DEFINITIONS. The definition of any word or phrase used in these regulations shall be the same as given in Article 21, Chapter 143 of the General Statutes of North Carolina, as amended. The following words and phrases, which are not defined in said Article, shall be construed to have the following meanings:

- 1. Source of water supply for drinking, culinary or food-processing purposes shall mean any source, either public or private, the waters from which are used for human consumption, or used in connection with the processing of milk, beverages, food or other purposes which require water meeting the "Public Health Service Drinking Water Standards".
- Approved treatment, as applied to water supplies, means treatment accepted as satisfactory by the health authorities responsible for exercising supervision over the sanitary quality of water supplies.
- 3. Bathing shall include swimming, diving, skiing and similar uses but shall be regarded as a best usage only for waters in which such uses are or may be expected to be subjected to effective sanitary supervision and control.
- 4. Fishing shall include the propagation of fish and such other aquatic life as is necessary to provide a suitable environment for fish.

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- 5. Shellfish culture shall include the use of waters for the propagation, storage and gathering of oysters, clams and other shellfish for market purposes.
- 6. Agricultural shall include the use of waters for stock watering, irrigation, and other farm purposes but not as sources of water supply for drinking, culinary or food-processing purposes.
- 7. Waste disposal shall include the use of waters for the disposal of sewage, industrial waste or other waste after approved treatment,
- 8. Tidal Salt Waters shall mean all tidal waters which are so designated by the Board of Water and Air Resources and which generally have a natural chloride ion content in excess of 500 parts per million,
- 9. Swamp Waters shall mean those waters which are so designated by the Board of Water and Air Resources and which are topographically located so as to generally have very low velocities and certain other characteristics which are different from adjacent stream draining steeper topography.
- 10. Offensive condition shall be construed to mean and include any condition or conditions resulting from the presence of sewage, industrial wastes or other wastes within the waters of the State or along the shorelines thereof which shall either directly or indirectly cause foul or noxious odors, unsightly conditions, or breeding of abnormally large quantities of mosquitoes or other insect pasts, or shall damage private or public water supplies or other structures, wasult in the development of gases which destroy or damage surrounding property, herbage or grasses, or which shall affect the health of any person residing or working in the area.
- 11. Mountain and Upper Piedmont Woters shall mean all of the weters of the Hiwassee; Little Tennessee, including the Savannah River drainage area; French Broad; Broad; New; and Watauga River Basins and those portions of the Catawba River Basin above Lookout Shoals Dan and the Yadkin River Basin above the Junction of the Forsyth, Yadkin and Davie County Lines.
- 12. Lower Piedmont and Coastal Plain Watters shall mean those waters of the Catawba River Basin below Lookout Shoala Dam; the Yadkin River Tasin below the Junction of the Forsyth, Yadkin and Davie County Lines and all of the waters of Cape Fear; Lumber; Roanoke; Neuse; Tar-Pamlico: Chowan; Pasquotank; and White Oak River Basins, except tidal salt waters which are assigned 'S' Classifications.
- 13. Estuarine Waters shall mean those tidal salt waters assigned "S" Classifications.
- 14. Best usage of waters as specified for each class shall be those uses as determined by the Board of Water and Air Resources in accordance with the provisions of Article 21, Chapter 143, General Statutes of North Carolina, as amended.
- 15. Parts per million and parts per billion as used herein shall be construed to mean milligrams per liter and micrograms per liter, respectively, as defined in the latest edition of "Standard Methods for the Examination of Water and Wastewater", published by the American Public Health Association, American Water Works Association, and Water Pollution Control Federation.

REGULATION NO. III. " In cases where treated sewage, industrial wastes or other wastes are discharged directly into waters which are assigned a different classification than the waters into which such receiving waters flow, the standards applicable to the waters which receive such sewage, industrial wastes or other wastes shall be supplemented by the following:

"The quality of any waters receiving sewage, industrial waste or other waste discharges shall be such that no impairment of the best usage of waters in any other class shall occur by reason of such sewage, industrial waste or other waste discharges."

REGULATION NO. IV. - In making tests or analytical determinations of classified waters to determine conformity or nonconformity with the established standards, samples shall be collected outside the limits of prescribed mixing zones in such manner and at such times and locations as to be representative of the receiving waters after reasonable opportunity for dilution and mixture with the wastes discharged thereto. The limits of mixing zones will be defined by the Department on a case-by-case basis after consideration of the magnitude and character of the waste discharge and the size and character of the receiving waters. Such zones shall be restricted to as small an area and length as possible, and shall not prevent free passage of fish or cause fish mortality.

REGULATION NO. V. - Natural waters may on occasion have characteristics outside of the limits established by the standards. The standards adopted herein relate to the condition of waters as affected by the discharge of sewage, industrial wastes or other wastes. The specified standards will not be considered violated when values outside the established limits are caused by natural conditions. Where wastes are discharged to such waters, the discharger shall not be considered a contributor to substandard conditions provided maximum treatment in compliance with permit requirements is maintained and, therefore, meeting the established limits is beyond his control.

REGULATION NO. VI. - The governing flow, which shall be the criterion for the standards and for the design of waste treatment facilities, shall be the minimum average flow for a period of seven consecutive days that have an average recurrence of once in ten years. In cases where the stream is regulated, the governing flow shall be the instantaneous minimum flow.

REGULATION NO. VII. - In the interest of maintaining and enhancing water quality, secondary treatment or equally effective treatment and control shall be considered the minimum acceptable abatement action for all significant sources of sewage, industrial waste or other waste regardless of the assigned classification and applicable water quality standards, unless it can be demonstrated that the quality of the receiving waters will be maintained and enhanced by a lesser degree of treatment or control. Advanced waste treatment processes shall be required insofar as practicable in instances where a higher degree of treatment is required to maintain the assigned water quality standards.

REGULATION NO. VIII. - The maximum limits for toxic and other deleterious substances in receiving waters shall not exceed the values recommended in the most recent edition of the "Report of the National Technical Advisory Committee on Water Quality Criteria" where stated and in cases where such values are not included in the report, bioassays will be conducted according

to the standard techniques recommended therein to determine safe levels for such substances on the basis of the discharge and characteristics of the waters under consideration.

REGULATION NO. IX. - It is recognized that unusual conditions may exist making it impossible or impractical to bring the quality of the receiving waters into compliance with the general or specific requirements of the applicable water quality standards. For example, such a situation shall be deemed to exist where no adequate or practical method of disposal or treatment for a particular waste is presently known or where the public interest will be better served by granting a variance. Under such conditions and with justifiable proof, variances from such standards may be authorized for such period as the public interest may require or permit, with due consideration being given to, among other things, the time required to develop a more effective method of disposal or treatment. Variances will be granted only after hearing and written approval of the Board.

REGULATION NO. X. - In determining the best usage of waters and in assigning classifications thereto, the Board shall consider the criteria specified in General Statute 143-214.1(d).

REGULATION NO. XI. - CLASSIFICATIONS FOR FRESH SURFACE WATERS AND WATER QUALITY STANDARDS APPLICABLE THERETO. The standards of water quality for each separately identified water to which a classification is assigned shall be those specified for such classification in the following series of Classifications and Water Quality Standards.

- 1. Class A-I Waters:
- a. Best Usage of Waters: Source of water supply for drinking, culinary, or food-processing purposes or any other usage requiring water of lower quality.
- ily for waters having watersheds which are uninhabited and otherwise protected as required by the State Board of Health and which require only approved disinfection, with additional treatment when necessary to remove naturally present impurities, in order to meet the "Public Health Service Drinking Water Standards" and will be considered safe for drinking, culinary, and food-processing purposes.
 - 2. Quality Standards Applicable to Class A-I Waters

Items

Specifications

a. Floating solids; settleable solids; sludge deposits; taste or odor-producing substances.

None attributable to sewage, industrial wastes or other wastes.

b. Sewage, industrial wastes, or other wastes.

None.

c. Toxic wastes; oils; deleterious substances; colored or other wastes.

None.

d. Organisms of coliform group.

Not to exceed 50/100 ml (either MPN or MF count) as a monthly average value.

e. Radioactive substances.

Gross beta activity (in the known absence of Strontium-90 and alpha emitters) not to exceed 1,000 pc/1 (picocuries per liter) at any time.

3. Class A-II Waters

- a. Best Usage of Waters: Source of water supply for drinking, culinary or food-processing purposes and any other best usage requiring waters of lower quality.
- b. Conditions Related to Best Usage: The waters, if subjected to approved treatment equal to coagulation, sedimentation, filtration and disinfection with additional treatment if necessary to remove naturally present impurities, will meet the "Public Health Service Drinking Water Standards" and will be considered safe for drinking, culinary or food-processing purposes.
 - 4. Quality Standards Applicable to Class A-II Waters

Items

Specifications

a. Floating solids; settleable solids; sludge deposits.

Only such amounts attributable to sewage, industrial wastes or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, make the waters unsafe or unsuitable as a source of water supply for drinking, culinary, or food-processing purposes, injurious to fish and wild-life, or impair the waters for any other best usage established for this class.

b. Sewage, industrial wastes, or other wastes.

None which are not effectively treated to the satisfaction of the Board and in accordance with the requirements of the State Board of Health.

c. Odor-producing substances contained in sewage, industrial wastes, or other wastes.

Only such amounts, whether alone or in combination with other substances or wastes, as will not, after reasonable opportunity for dilution and mixture of same with receiving waters, cause taste and odor difficulties in water supplies which cannot be corrected by treatment as specified under "Conditions Related to Best Usage", impair

- d. Phenolic compounds.
- e. pH.
- f. Total hardness.
- g. Dissolved oxygen.

h. Toxic wastes; oils; deleterious substances; colored or other wastes.

1. Organisms of coliform group.

the palatability of fish, or have a deleterious effect upon any best usage established for waters of this class.

Not greater than 0.001 mg/l (phenols).

Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5 except that swamp waters may have a low of 4.3.

Not greater than 100 parts per million as CaCO3.

Not less than 6.0 mg/l for natural trout waters; 5.0 mg/l for put-and-take trout waters; not less than a daily average of 5.0 mg/l with a minimum of not less than 4.0 mg/l for non-trout waters, except that swamp waters may have lower values if caused by natural conditions,

pnly such amounts, whether alone pr in combination with other substances or wastes as will not render the waters unsafe or unsuitable as a soutce of water supply for drinking, culinary, pr food-processing purposes, injurious to fish and wildlife or adversely affect the palatability of same, or impair the waters for any other best usage established for this class.

a monthly average value (either MPN or MF count): nor exceed this number in more than 20% of the samples examined during any one month; nor exceed 20,000/100 ml in more than 5% of such samples. Fecal Coliforms (MPN or MF count) not to exceed a log mean of 1,000/ 100 ml based on at least five consecutive samples examined during any 30-day period; nor exceed 2,000/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

1. Temperature,

Not to exceed 5°F. above the natural water temperature, and in no case to exceed 84°F. for mountain and upper piedmont waters and 90°F. for lower piedmont and coastal plain waters. The temperature of natural trout waters shall not be significantly increased due to the discharge of heated liquids and shall not exceed 68°F.; however, the temperature of put-and-take trout waters may be increased by as much as 3°F. but the maximum may not exceed 70°F.

k. Radioactive substances.

Gross beta activity (in the known absence of Strontium-90 and alpha emitters) not to exceed 1,000 picocuries per liter.

- 5. Class B Waters
- a. Best Usage of Waters: Bathing and any other best usage except as source of water supply for drinking, culinary or food-processing purposes.
- b. Conditions Related to Best Usage; The waters, under proper sanitary supervision by the controlling health authorities, will meet accepted standards of water quality for outdoor bathing places and will be considered safe and satisfactory for bathing purposes. Also, suitable for other uses requiring waters of lower quality.
 - 6. Quality Standards Applicable to Class H Waters

Items

Specifications

a. Floating solids; settleable solids, sludge deposits.

Only such amounts attributable to sewage, industrial wastes or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, make the waters unsafe or unsuitable for bathing, injurious to fish and wildlife, or impair the waters for any other best usage established for this class.

b. Sewage, industrial wastes, or other wastes.

None which are not effectively treated to the satisfaction of the Board. In determining the degree of treatment required for such waste when discharged into waters to be used for bathing, the Board will take into consideration the quantity and quality of the sewage and wastes

- c. Phenolic compounds.
- d. pH.
- e. Dissolved oxygen.

f. Toxic wastes; oils; deleterious substances; colored or other wastes.

g. Organisms of coliform group. (Applicable only during the months of May through September. During other months the coliform organism standard for Class "C" Waters shall apply.)

h. Temperature.

involved and the proximity of such discharges to the waters in this class.

Not to exceed 0.001 mg/1 (phenols).

Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5, except that swamp waters may have a low of 4.3.

Not less than 6.0 mg/l for natural trout waters; 5.0 mg/l for put-and-take trout waters; not less than a daily average of 5.0 mg/l with a minimum of not less than 4.0 mg/l for non-trout waters, except that swamp waters may have lower values if caused by natural conditions.

Only such amounts, whether alone of in combination with other substances or wastes as will not render the waters unsafe or unsuitable for bathing, injurious to fish and wildlife or adversely affect the palatability of same, or impair the waters for any other best usage established for this class.

Fecal coliforms not to exceed a log mean of 200/100 ml (either MPN or MF count) based on at least five consecutive samples examined during any 30-day period and not to exceed 400/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

Not to exceed 5°F. above the natural water temperature, and in no case to exceed 84°F. for mountain and upper piedmont waters and 90°F. for lower piedmont and coastal plain waters. The temperature of natural trout waters shall not be significantly increased due to the discharge of heated liquids and shall not exceed 68°F.; however, the temperature of put-and-take trout waters

may be increased by as much as 3°F. but the maximum may not exceed 70°F.

7. Class C Waters

- a. Best Usage of Waters: Fishing, boating, wading and any other usage except for bathing or as a source of water supply for drinking, culinary or food-processing purposes.
- b. Conditions Related to Best Usage: The waters will be suitable for fish and wildlife propagation. Also, suitable for boating, wading, and other uses requiring waters of lower quality.
 - 8. Quality Standards Applicable to Class C Waters

Items

a. Fleating solids; settleable solids; sindge deposits.

Specifications

Only such amounts attributable to sewage, industrial wastes or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, make the waters unsafe or unsuitable for fish and wildlife, or impair the waters for any other best usage established for this class.

b. pff.

Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5, except that swamp waters may have a low of 4.3.

c. Dissolved oxygen.

Not less than 6.0 mg/l for natural trout waters; 5.0 mg/l for put-and-take trout waters; not less than a daily average of 5.0 mg/l with a minimum of not less than 4.0 mg/l for non-trout waters, except that swamp waters may have lower values if caused by natural conditions.

d. Toxic wastes; eils; deleterious substances; colored or other wastes. Only such amounts, whether alone or in combination with other substances or wastes as will not render the waters injurious to fish and wildlife or adversely affect the palatability of same, or impair the waters for any other best usage established for this class.

e. Organisms of coliform group.

Fecal coliforms not to exceed a log mean of 1,000/100 ml (MPN or MF count) based upon at least five consecutive samples examined during any 30-day period; nor exceed 2,000/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

f. Temperature.

Not to exceed 5°F, above the natural water temperature, and in no case to exceed 84°F, for mountain and upper piedmont waters and 90°F, for lower piedmont and coastal plain waters. The temperature of natural trout waters shall not be significantly increased due to the discharge of heated liquids and shall not exceed 68°F.; however, the temperature of put-and-take trout waters may be increased by as much as 3°F, but the maximum may not exceed 70°F,

9. Class D Waters

- a. Best Usage of Waters: Agriculture, industrial cooling and process water supply, fish survival, navigation, and any other usage, except fishing, bathing, or as a source of water supply for drinking, culinary or food-processing purposes.
- b. Conditions Related to Best Usage: The waters without treatment and except for natural impurities which may be present therein will be suitable for agricultural uses and will permit fish survival. The waters will also be usable after special treatment by the user as may be needed under each particular circumstance for industrial purposes, including cooling and process waters.
 - 10. Quality Standards Applicable to Class D Waters

Items

Specifications

a. Floating solids; settleable solids; sludge deposits.

Only such amounts attributable to sewage, industrial wastes or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, render the waters unsuitable for agriculture, industrial cooling purposes and fish survival, or cause an offensive condition.

b. pH.

- c. Dissolved oxygen.
- d. Toxic wastes; oils; deleterious substances; colored or other wastes.
- e. Organisms of coliform group. (Applicable only to waters designated by the Board for irrigation of fruits and vegetables.)

f. Temperature.

Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5, except that swamp waters may have a low of 4.3.

Not less than 3.0 mg/1.

Only such amounts attributable to sewage, industrial wastes or other wastes as will not render the waters unsuitable for agriculture, industrial cooling purposes, navigation, fish survival, or cause offensive conditions.

Fecal coliforms not to exceed a log mean of 1,000/100 ml (MPN or MF count) based upon at least five consecutive samples examined during any 30-day period; nor exceed 2,000/100 ml in more than 20% of the samples examined during such period, (Not applicable during or immediately) following periods of rainfall.)

Not to exceed 5°F. above the natural water temperature and in no case to exceed 84°F, for mountain and upper piedmont waters and 90°F, for lower piedmont and coastal plain waters.

REGULATION NO. XII, - CLASSIFICATIONS FOR TIDAL SALT WATERS AND WATER QUALITY STANDARDS APPLICABLE THERETO. The standards of water quality for each separately identified water to which a classification is assigned shall be those specified for such classification in the following series of Classifications and Water Quality Standards.

- 1. Class SA Waters:
- a. Best Usage of Waters: Shellfishing for market purposes and any other usage requiring waters of lower quality.
- b. Conditions Related to Best Usage: Waters will meet the sanitary and bacteriological standards given in the 1965 revision of the "National Shell-fish Sanitation Program Manual Of Operations: Part 1, Sanitation of Shellfish Growing Areas", recommended by the Public Health Service and will be considered safe and suitable for shellfish culture.

2. Quality Standards Applicable to Class SA Waters

Items

- a. Floating solids; settleable solids; sludge deposits.
- Sewage, industrial wastes,
 of other wastes.
 - c. pH.
 - d. Dissolved oxygen.
- e. Toxic wastes; oils; deleterious substances; colored or other wastes.

f. Organisms of coliform group.

g. Temperature.

Specifications

None attributable to sewage, industrial wastes or other wastes.

None which are not effectively treated to the satisfaction of the Board and in accordance with the requirements of the State Board of Health.

Range between 6.8 and 8.5.

Not less than 5.0 mg/l, except that swamp waters may have a minimum of 4.0 mg/l.

Only such amounts, whether alone or in combination with other substances or wastes as will not make the waters unsafe or unsuitable for fish and shellfish or their propagation, impair the palatability of same, or impair the waters for any other best usage established for this class.

Total coliform group not to exceed a median MPN of 70/100 ml, and not more than 10% of the samples shall exceed an MPN of 130/100 ml for a 5 vtube decimal dilution test (or 110/100 ml where a 3-tube decimal dilution is used) in those areas most probably exposed to fecal contamination during the most unfavorable hydrographic and pollution conditions.

Shall not be increased above the natural water temperature by more than 1.5°F. during the months of June, July, and August nor more than 4.0°F. during other months and in no case to exceed 90°F., due to the discharge of heated liquids.

3. Class SB Waters

- a. Best Usage of Waters: Bathing and any other usage except shellfishing for market purposes.
- b. Conditions Related to Best Usage: The waters, under proper sanitary supervision by the controlling health authorities, will meet accepted sanitary standards of water quality for outdoor bathing places and will be considered safe and satisfactory for bathing purposes.

4. Quality Standards Applicable to Class SB Waters

Items

- a. Floating solids; settleable solids; sludge deposits.
- b. Sewage, industrial wastes, or other wastes.

- c. pH.
- d. Dissolved oxygen.
- e. Toxic wastes; oils; deleterious substances; colored or other wastes.

- f. Organisms of coliform group. (Applicable only during months of May through September. During other months the coliform organism standard for Class "SC" Waters shall apply.)
 - g. Temperature.

Specifications

None attributable to sewage, industrial wastes or other wastes.

None which are not effectively treated to the satisfaction of the Board. In determining the degree of treatment required for such waters when discharged into waters to be used for bathing, the Board will take into consideration the quantity and quality of the sewage and wastes involved and the proximity of such discharges to the waters in this class.

Shall be normal for the waters in the area, which generally shall range between 6.0 and 8.5, except that swamp waters may have a low of 4.3.

Not less than 5.0 mg/l, except that swamp waters may have a minimum of 4.0 mg/l.

Only such amounts, whether alone or in combination with other substances or wastes as will not make the waters unsafe or unsuitable for bathing, injurious to fish or shellfish, or adversely affect the palatability of same, or impair the waters for any other best usage established for this class.

Fecal coliforms not to exceed a log mean of 200/100 ml (either MPN or MF count) based on at least five consecutive samples examined during any 30-day period and not to exceed 400/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

Shall not be increased above the natural water temperature by more than 1.5°F. during the months of June, July, and August nor more than 4.0°F. during other months and in no case to exceed 90°F., due to the discharge of heated liquids.

- 5. Class SC Waters
- a. Best Usage of Waters: Fishing, and any other usage except bathing or shell ishing for market purposes.
- b. Conditions Related to Best Usage: The waters will be suitable for fishing and fish propagation. Also, suitable for other uses requiring waters of lower quality.
 - 6. Quality Standards Applicable to Class SC Waters

Items

Specifications

a. Floating solids; settleable solids; sludge deposits.

Only such amounts attributable to sewage, industrial waste or other wastes as will not, after reasonable opportunity for dilution and mixture of same with the receiving waters, make the waters unsafe or unsuitable for fish, shell-fish and wildlife, or impair the waters for any other best usage established for this class.

b. pH.

Shall be normal for the waters in the area, which generally shall tange between 6.0 and \$.5, except that swamp waters may have a minthum of 4.1.

c. Dissolved oxygen.

Not less than 5.0 mg/1, except that swamp waters may have a minimum of 4.0 mg/1.

d. Toxic wastes; oils; deleterious substances; colored or other wastes.

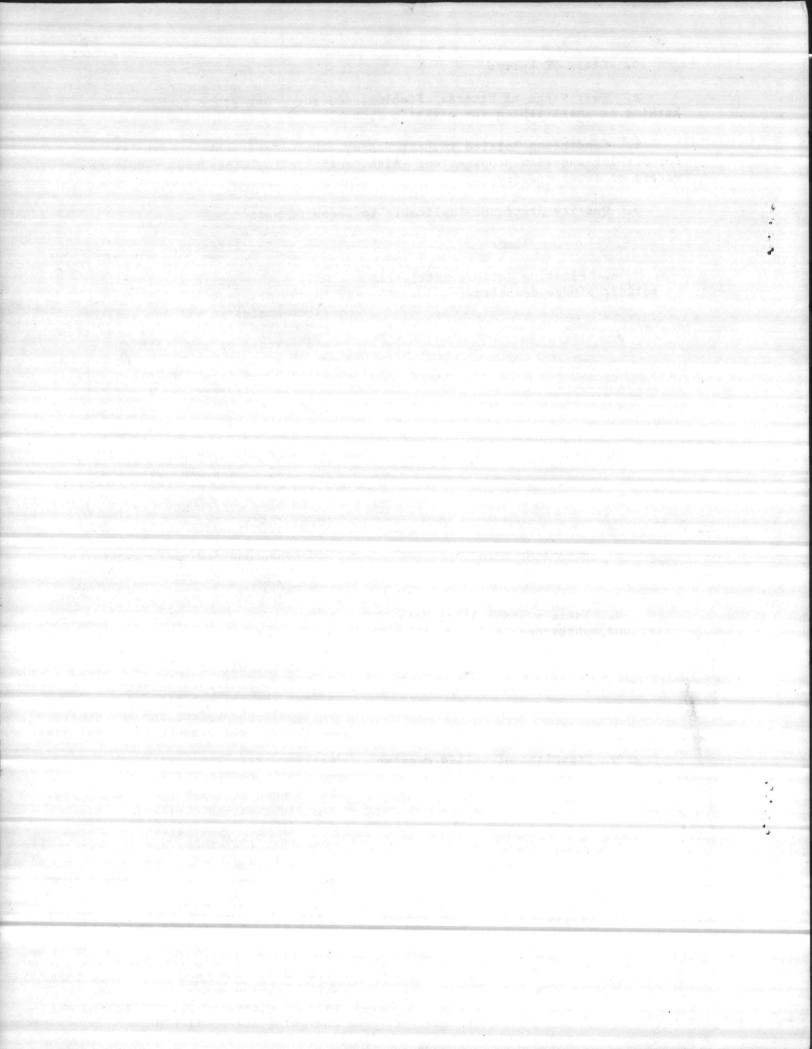
Only such amounts, whether alone of in combination with other subplances or wastes as will not wender the waters injurious to
plant and shellfish, adversely
offect the palatability of same,
or impair the waters for any other best usage established for this class.

e. Organisms of coliform group.

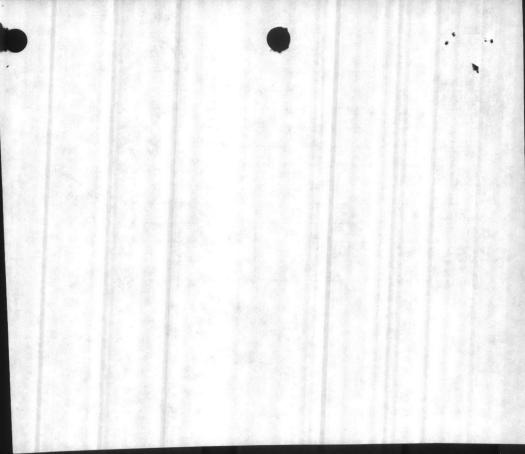
Fecal coliforms not to exceed a log mean of 1,000/100 ml (MPN or MF count) based upon at least five consecutive samples examined during any 30-day period; nor exceed 2,000/100 ml in more than 20% of the samples examined during such period. (Not applicable during or immediately following periods of rainfall.)

f. Temperature.

Shall not be increased above the natural water temperature by more than 1.5°F. during the months of June, July, and August nor more than 4.0°F. during other months, and in no case to exceed 90°F., due to the discharge of heated liquids.



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ASSISTANT CHIEF OF STAFF, FACILITIES HEADQUARTERS, MARINE CORPS BASE

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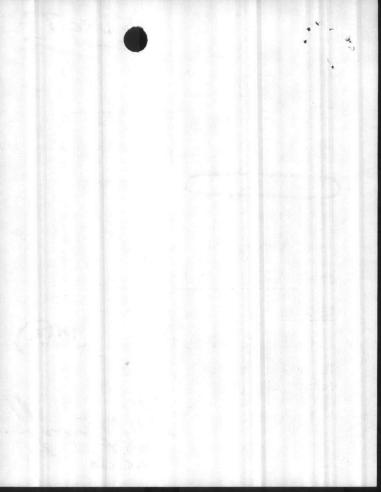
REMARKS:

- 1. (Attached ltr is forwarded f/action)
- 2. Please initial, or comment, and return all papers to this office.
- 3. (Your file copy.)

W. D. DRUMMOND, UR.

SDec 72

By direction



NAVAL HOSPITAL CAMP LEJEUNE, N. C. 28542

IN REPLY REFER TO: 35-pwb 8 December 1972

Commanding Officer, Naval Hospital, Camp Lejeune, N. C. 28542 From: Commanding General, Marine Corps Base, Camp Lejeune, N.C. 28542 To: ATTN: Assistant Chief of Staff Facilities

Information for Environmental Protection Agency concerning Subj: Knox Trailer Park water problem

(a) Your Memo request 4/JFM/mkc over P-11101/4 of 130ct72

1. In accordance with the provisions of reference (a), the following information is submitted for the period 1 November 1972 to 1 December 1972.

CURTIS LEMAN KENNEDY Lot 2106 Knox Trailer Park, Box 754 Age: 3 years 10 months, male, seen 10 November 1972 Diagnosis: Viral Gastroenteritis Symptoms: Vomiting and fever Number in Family: Three (3)

B. Laboratory records reveal no positive results on any gastroenteric examinations for the entire month.

EARL R. PETERS N

DEC 15 2 15 PM "72 BASE MAINTER HOE BIY. MARINE COMPS BASE CAMP LESEUME, M. C. RECEIVED
BASE MAINTENANCE DIV.
MARINE CORPS BASE
CAMP LEJEUNE, N. C.

DEC 15 2 15 PM '72

LET OUR WATERS LIVE

You can help fight pollute. Detergents contain large amounts of phosphates, an essential nutrient for algae. Over sundance of nutrients result in trge growths of algae, which choke up many of our waterways now. The death of these masses of algae results in oxygen removal from the water, thereby killing fish. The decaying, smelly masses of algae either wash up on our beaches or gradually fill our waterways. Buy low phosphate detergents and help fight pollution! NSBE has compiled the following list of detergent products and the units (grams) of phosphate added with each wash load. Stay below 25 units. Whichever detergent you use, avoid waste, use no more than the quantity specified on the box.

no more than the quanti		Units of			Units of
		Phosphates per			Phosphates per
Detergents	Washload		Detergents		Washload
Add-it	½ c.	0	Easy Life Heavy		
Culligan Soap	any	0	Cheer	1½ c.	33
Diaper Sweet	any	0	Fab	1½ c.	34
Ivory Flakes	any	0	Oxydol Plus	1½ c.	34
Diaper Pure	14 Tbsp	. 1	Punch	1½ c.	35
Trend	1½ c.	6	Breeze	2 c.	36
Special-T Laundry	½ c.	7	222	3/4 c.	. 37
Instant Fels	1½ c.	8	Concentrate All	1 c.	38
Blue Magic	1½ c.	19	Sears	⅓ c.	38
Anway SA-8	½ c.	20	Ad	Îc.	38
Bestline B-7	½ c.	20	Easy Life Enzyme		38
Wisk	½ c.	21	Duz	1½ c.	39
Montgomery Wards	2/3 c.	21	Easy Life Blue	1½ c.	39
Surf	1½ c.	24	Tide XK	l½ c.	40
Launder Maid Blue	1 c.	25	American Family	l¼ c.	40
Gain	1½ c.	$-\frac{25}{27}$	Drive	l½ c.	41
Dreft	l¹₂ c.	27	Cold Water All	l½ c.	42
Silver Dust	2 c.	28	Vim	4 tblts.	44
Cold Power	1½ c.	29	Fluffy All	l½ c.	52
하고 어느리를 가는 것이 가는 그렇게 되었다면 하다는 것이 되었다. 그 사람들은 사람들이 되었다면 하다고 있다.				2 c.	
Bold	1½ c.	29	Bonus		55
Ajax	1½ c.	31	Salvo	2 tblts.	59
Cold Water All (liquid)		31	Dash	1 c.	60
Rinso	1½ c.	32	71 1 2 71 4		
Enzyme Presoaks	1	20	Bleaches & Bluin		•
Brion	½ c.	30	LaFrance Bluing	½ c.	0
Axion	½ c.	34	Miracle White Bl		14
Biz	½ c.	37	Action	l pkt.	24
Sears	½ c.	55	Snowy	3/4 c.	27
Additives			Beads 0' Bleach	2 oz.	41
Fels Naphtha Bar	any	0	Boosters		
Borateem	any	0	Climalene	½ c.	14
Borax	any	0	Easy White	½ c.	24
Right Fabric Softener	any	0	Anything Goes	½ c.	27
Sal Soda	any	0	Miracle White	½ c.	41
Calgon	½ c.	57	Dishwashing Liqu		
Automatic Dishwashing C	ompounds (pe	er washload)	Generally Contai	n no Phosp	hates
Special-T	1 Tbsp.	1	All Purpose Clea		*
Calgonite	2 Tbsp.	6 9	Amway L.O.C.	any	0
Advance	2 Tbsp.	6	20 Mule Team Hou	sehold	0
Finish	1½ Tbsp.	6	Ajax Floor & Wal		4
Electra-Sol	2 Tbsp.	6	Janitor in a Dru	Charles and the second of the	9
Dishwasher All	2 Tbsp.	9	Soilax	3 Tbsp	이 전하다 같아 보급에 투자하는데 내 소개를 하는데 있다.
Cascade	2½ Tbsp.	11	Spic & Span	½ c.	23

Phosphates can be eliminated from detergents. Help back legislation banning phosphates by writing your Congressmen and Senators.

Analyses performed by Northwestern Students for a Better Environment, Cresap Lab, Northwestern University, Evanston, Illinois 60201 (312) 491-9627

