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your copy*

DEPARTMENT OF THE NAVY

ATLANTIC DIVISION
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IN REPLY REFER TO:

5090

1143CFB

25 APR 1986



U.S. Environmental Protection Agency
Attn: Arthur G. Linton, P.E.
Regional Federal Facilities Coordinator
Region IV
345 Courtland Street
Atlanta, GA 30365

Gentlemen:

In response to both your letter of February 3, 1986 and subsequent conversations between Jim Holdaway and Wayne Mathis of your office and Paul Rakowski and Cherryl Barnett of this office, we are enclosing all the analytical data from testing of the monitoring and potable wells at the Marine Corps Base, Camp Lejeune. Enclosure (1) is a preliminary report from NACIP Phase II initial sampling prepared by Environmental Science and Engineering, Incorporated (ESE). Enclosure (2) is the set of lab reports from sampling conducted by Camp Lejeune and analyses performed by our contract laboratory, JTC Environmental Consultants, Incorporated. The State of North Carolina also did some sampling and analyses; their reports are forwarded as enclosure (3).

Since much of the data is still in raw form, we would like to present a brief discussion of each enclosure to provide you with some background on the objectives of the investigation, the time frames involved, and the resulting actions that have been taken.

ESE is conducting the Phase II Confirmation Study at Camp Lejeune. This study is divided into three steps: verification, characterization, and development of feasible alternatives for remediation. The verification step is subdivided into three rounds of sampling. We believe that three rounds of data from groundwater and surface water samples are the minimum requirement for denying the existence of contamination and deleting a site from the NACIP program or proceeding with characterization and feasibility evaluation for the site. The contract for each step and round is independently negotiated; enclosure (1) is based on round one verification step sampling only. Since contamination has been verified in the Hadnot Point area, we are proceeding with the next two steps in the study. Round two verification step sampling as well as characterization and feasibility steps in the Hadnot Point area are currently being negotiated. We have enclosed a proposed milestone chart for these activities as enclosure (4).

Upon receipt of ESE's raw analytical data, a comprehensive sampling program for Volatile Organic Compounds (VOCs) was initiated at all potable wells and water treatment plants. This began in December of 1984 with sampling of wells in the Hadnot Point system. VOC analyses on all wells was completed by March 1985 and additional contamination was discovered in the Tarawa Terrace

system. After confirmatory sampling of all wells showing VOC contaminants, 10 wells were shut down: 601, 602, 608, 634, 637, 651, 652, 653, TT-26, and TT-New. Since July 1985, Camp Lejeune has conducted weekly sampling of the finished effluent from the Hadnot Point and Tarawa Terrace plants and monthly sampling of TT-25, the closest operational well to the two contaminated wells in Tarawa Terrace. In addition, they collected another round of samples from the Hadnot Point wells in January 1986 and plan to sample all other wells for VOCs in the next month. No additional VOC problems have been discovered.

Additional samples and analyses conducted by the State of North Carolina included potable wells, treatment plants, and points in the Holcomb Boulevard and Tarawa Terrace distribution systems. The dramatic drop in VOC levels in the distribution system between February 8, 1985 to February 22, 1985 corresponds to the time the contaminated well 651 was shut down. As a quality control check, samples were split between JTC and the North Carolina laboratory on two occasions. These data have been compiled in enclosure (5).

The State conducted a separate investigation into the Tarawa Terrace contamination and concluded that a dry cleaner located off base is the likely source. We have not yet been provided a copy of their report or informed of any steps they will take to determine the extent of the contamination and to initiate remedial measures as required. Your support and coordination with the State on this matter would be appreciated to ensure that remedial measures are identified and implemented to prevent further contamination of Camp Lejeune's Tarawa Terrace well field. This well field is currently strained to meet water demand requirements and rapid groundwater cleanup is required.

We hope the enclosed information will alleviate any concerns you may have regarding the extent and sensitivity of our analytical procedures and the thoroughness of our investigation. Closure of the contaminated wells has eliminated detectable VOCs in the Hadnot Point and Tarawa Terrace distribution systems. We believe the well closures and the ongoing sampling of treatment plant effluents and operational wells are effective interim measures to minimize human exposure to hazardous substances and we are proceeding with a study to identify permanent solutions as part of the NACIP program. Other issues raised in your letter regarding analytical parameters for NACIP sampling and the National Priorities List were addressed in our letter of February 6, 1986.

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In a telephone conversation between Jim Holdaway, Cherryl Barnett, and Paul Rakowski of February 18, 1986, Mr. Holdaway suggested a review meeting at Camp Lejeune. We invite you to attend a briefing ESE will be giving at the start of additional confirmation study field activities. Our point of contact for the NACIP program, Cherryl Barnett, will let you know when the briefing is scheduled.

Sincerely,

J. R. BAILEY, P.E.
Head, Environmental Quality Branch
Utilities, Energy and Environmental
Division
By direction of the Commander

Encl:

- (1) Evaluation of Data from First Round of Verification Sample Collection and Analysis, Marine Corps Base, Camp Lejeune
- (2) JTC Lab Reports
- (3) State of North Carolina Lab Reports
- (4) Milestone Chart
- (5) Tarawa Terrace Water System, Comparison of Water Quality Data

Copy to: (w/encls (2), (3), (Summary Sheets only), (4), & (5)
MARCORB Camp Lejeune ~~██████████~~
CMC (LFL)
CNO (OP-45)
COMNAVFACENGCOM

Division of Environmental Management (w/encls 1, 2, 4, & 5)
Attn: R. Paul Williams
Director
P.O. Box 27687
Raleigh, NC 27611-7687

Division of Health Services (w/o encls)
Attn: Dr. Ronald H. Levine
Director
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Raleigh, NC 27602-2091

Environmental Science and Engineering (w/encls 2, 3, & 5)
Incorporated
Attn: Mr. Russ Bowen
P.O. Box ESE
Gainesville, FL 32602-3053

SUMMARY OF JTC LAB REPORTS

<u>Report Number</u>	<u>Date Issued</u>	<u>Sample Description</u>
4	12/18/84	HP-20 (1); potable wells in HP system
7	12/18/84	potable wells in HP system; HP-20
8	12/18/84	HP well 602; HP-20
10	12/20/84	HP-20
12	12/21/84	HP-20; FC-540 (distribution system)
17	02/06/85	potable wells in HP system
17 (addendum)	02/19/85	HP well 636
19	02/12/85	potable wells in other systems (including Tarawa Terrace (TT))
19 (addendum)	02/19/85	CHB new well
20	02/14/85	potable wells in other systems
26	03/08/85	potable wells; water treatment plants
29	02/14/85	TT wells; TT WTP effluent
36	03/18/85	WTP effluents; new wells
37	03/01/85	TT wells; TT WTP effluent
44	03/27/85	TT new well; TT WTP (samples taken before, during, and after pump tests on new well)
65	04/04/85	HP-20, TT effluent; wells LCH-4006 (2) & RR-227 (2)
66	04/26/85	HP-20, TT effluent.
67	05/02/85	TT-39A (3)
72	05/20/85	TT effluent; Well RR-227; TT-39A
77	06/07/85	Well AS-106 (2)
84	07/05/85	HP-20
86	07/05/85	HP-20
92	07/11/85	HP-20, TT effluents; Well TC-600 (2)
93	07/11/85	AS-110 (4), AS-2800 (distribution system)
97	07/11/85	HP-20, TT effluents
99	07/19/85	HP, TT effluents
101	07/29/85	HP, TT effluents
113	08/21/85	HP, TT effluents
120	08/21/85	HP, TT effluents
130	09/12/85	HP, TT effluents
132	09/18/85	HP, TT effluents
138	09/24/85	HP, TT effluents
141	09/24/85	HP, TT effluents

- (1) HP-20 is the Hadnot Point Water Treatment Plant (WTP).
- (2) These wells were out of service when the other wells were sampled VOC analysis was done on each well before it was brought back on line.
- (3) TT-39A (same as TT STT 39A) is the pump house that distributes Tarawa Terrace finished water. Sampling point is the same for TT WTP effluent.
- (4) AS-110 is the water treatment plant for the Marine Corps Air Station, New River.

SUMMARY OF JTC LAB REPORTS

<u>Report Number</u>	<u>Date Issued</u>	<u>Sample Description</u>
149	09/30/85	HP, TT effluents
153	10/03/85	HP, TT effluents
157	10/11/85	HP, TT effluents
161	10/17/85	HP, TT effluents
166	10/25/85	HP, TT effluents
171	10/31/85	Well TT-25
172	10/31/85	HP, TT effluents
175	11/07/85	HP, TT effluents
176	11/06/85	Well TT-25
180	11/14/85	Well TT-25
181	11/14/85	HP, TT effluents
183	11/27/85	HP, TT effluents
187	11/27/85	HP, TT effluents
191	12/04/85	Well TT-25
192	12/09/85	HP, TT effluents
199	12/18/85	HP, TT effluents
201	12/31/85	HP, TT effluents
208	01/02/86	HP, TT effluents
209	01/02/86	HP, TT effluents
214	01/21/86	potable wells, HP area
218	01/17/86	Well TT-25; HP, TT effluents
221	01/30/86	potable wells, HP area
226	02/20/86	Well TT-25; HP, TT effluents
229	02/25/86	HP, TT effluents
231	02/26/86	HP, TT effluents
237	02/28/86	HP, TT effluents
243	03/12/86	HP, TT effluents; Well TT-25
253	03/27/86	HP-20
261	03/27/86	HP, TT effluents
265	04/14/86	HP, TT effluents; Well TT-25

SUMMARY OF NORTH CAROLINA DIVISIONS OF
ENVIRONMENTAL MANAGEMENT AND HEALTH SERVICES LAB REPORTS

<u>Report Date</u>	<u>Description</u>
02/04/85	HP-20; Holcomb Boulevard (HB) distribution system (fed by HP-20)
02/08/85	HP-20; Building 670 (1); HB distribution system
02/22/85	TT new well; Well TT-26; TT WTP; HP WTP; HB WTP and distribution system
03/11/85	TT new well; Well TT-26; TT WTP
06/21/85	TT new well; Well TT-26; Well TT-25

(1) Building 670 is the HB plant.

MILESTONE CHART

<u>Milestone</u>	<u>Day</u>
Government Issuance of Change Order	0
Submit POA&M and Safety/Contingency Plan for Characterization Effort	10
Government Approval of POA&M and Safety/Contingency Plan	17
Initiate Characterization On-Site Investigations for Hadnot Point Industrial Area	45
Initiate Round Two Sampling, Verification Step	45
Initiate Potable Well Sampling	45
Submit Report with Round Two Results, Potable Well Results	125
Return of Government Comments	155
Complete Characterization On-Site Investigation	260
Submit Preliminary Report with Hadnot Point Characterization Step Results	290
Return of Government Comments	320
Submit Characterization Step Draft Report for Hadnot Point	350
Submit Preliminary Feasibility Step Report for Hadnot Point	380
Return of Government Comments	410
Submit Feasibility Step Draft Report for Hadnot Point	440

TARAWA TERRACE WATER SYSTEM
COMPARISON OF WATER QUALITY DATA (ug/l)
SAMPLE DATE

<u>Location</u>	<u>VOC Parameters</u>	<u>19 Feb (N)</u>	<u>19 Feb (L) (#37)</u>	<u>11 Mar (N)</u>	<u>11 Mar (L) (#44)</u>	
TT 26 Well	TCE	3.91	4.1			
	TetraCE	55.17	64			
	trans 1,2-DCE	trace	9.5			
	Benzene	ND	ND			
TT New Well				Pumped 2 Hours		
	TCE	53.53	ND	ND	1.3*	
	TetraCE	26.17	ND	14.9	16	
	trans 1,2-DCE	trace	13	ND	1.2*	
	Benzene	ND	6.3	**	6.7	
				Pumped 24 Hours		
	TCE			ND	2.4*	
	TetraCE			40.6	48	
	trans 1,2-DCE			ND	2.8*	
	Benzene			**	4.3*	
	TT Finished Water				W/O New Well	
		TCE			ND	ND
TetraCE				ND	ND	
trans 1,2-DCE				ND	ND	
Benzene				**	ND	
				Upstream of Reservoir at 24 Hours		
TCE				ND	1.1*	
TetraCE				21.3	20	
trans 1,2-DCE				ND	1.2*	
Benzene				**	2.2*	
				Downstream of Reservoir at 24 Hours		
TCE				ND	ND	
TetraCE			6.6	8.9*		
trans 1,2-DCE			ND	ND		
Benzene			**	1.6*		

LEGEND

ND = Not Detectable at limit of 10 ppb.

TCE = Trichloroethylene

TetraCE = Tetrachloroethylene

trans 1,2-DCE = 1,2-trans-dichloroethylene

(L) = LANTNAVFACENCOM Laboratory, JTC Environmental Consultants, Inc.

(N) = State of NC Laboratory

*Below method detection limit.

**State lab did not test for benzene.