3/7/03-3259

Baker

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March 7, 2003

Commanding General
ACS-EMD Building 58
PSC Box 20004
Marine Corps Base
Camp Lejeune, North Carolina 28542-0004

Attn: Mr. Rick Raines

Re: Contract N62470-95-D-6007
Navy CLEAN II, District III
Contract Task Order (CTO) 0143
Marine Corps Base, Camp Lejeune, North Carolina
Borrow Pit Investigation Letter Report

Dear Mr. Raines:

Michael Baker Jr., Inc. (Baker) is pleased to submit this letter report regarding the field effort in support of the investigation for the Borrow Pit at Marine Corps Base (MCB), Camp Lejeune, North Carolina. This letter report contains some background information to provide a context for the fieldwork. This letter report also contains a brief discussion of investigative methods, analytical results, and provides recommendations.

BACKGROUND

The Base began establishing a well field in the area of the Borrow Pit for a potential source of a potable groundwater supply. The Base initiated an exploration program in January 2003 to characterize aquifer characteristics (groundwater flow, yield rates, well drawn down) in the area of Marines Road and Sneads Ferry Road. The exploration program included installation of test wells and exploratory well borings by Geo Solutions Ltd. During the exploration program, a Base water treatment plant operator identified the Borrow Pit as historically receiving petroleum, oil and lubricant (POL) compounds, grease, and wastewater treatment plant sludge disposal.

An investigation of the Borrow Pit area was needed to assess the reported disposal. The Borrow Pit investigation was performed by Baker during scheduled fieldwork activities at Operable Unit (OU) No. 1, Site 78. The field investigation was conducted between January 27 and 29, 2003. The investigation consisted of the following tasks: a site walk through with representatives of the Environmental Quality Branch (EQB); advancement of nine soil borings with a Geoprobe® rig and subsequent installation of nine temporary monitoring wells; collection of soil and groundwater samples from the temporary monitoring

boring/wells and one nearby permanent test well (#16); and a site survey. The following sections discuss the results of the field tasks in greater detail.

SITE DESCRIPTION

The Borrow Pit is located on the main side of the Base off of Sneads Ferry Road, as shown on Figure 1. The site is accessed from Sneads Ferry Road to a gravel road that runs parallel to Marines Road on the north-west, as shown on Figure 2 and Photo 1 (Attachment A). The Borrow Pit is located on the east side of the dirt/gravel road, approximately 4,000 ft or 0.76 miles from Sneads Ferry Road. An unimproved dirt road runs along the south end of the Borrow Pit, as shown on Photo 2. The oval shape of the Borrow Pit is approximately 90,000 square feet or a little over two acres in size, and dips to 5 to 10 ft in areas and levels out. Located in the center of the oval is a large mound covered with grass, as shown on Photos 3 and 4. The remainder of the pit is relatively flat, as shown on Photo 5, with mature pine trees along the edges of the oval. Refer to Photos 6 and 7 for a picture of the south wall of the Borrow Pit. The ground in this area is a very soft white sand, making this area ideal for the purpose that it has once served as a borrow pit. Around the outside of the Borrow Pit on the north and east, recent clearing has been performed as shown on Photo 19.

A possible remnant mound is visible on the south end of the Borrow Pit across the dirt access road, as shown on Figure 2. Refer to Photo 8 for a picture of the remnant mound with noticeable debris scattered on and around the mound. A close-up of the mound reveals that the debris consists of rusted metal spools, metal wire, garbage, and a paint can, as shown on Photos 9 through 12. Miscellaneous debris consisting of soda cans, and food ration containers were also found scattered across the site. South of the Borrow Pit toward French Creek a foxhole was identified, as shown on Photo 13. From the types of debris found it is apparent that Marine training activities have taken place in this area.

Approximately 405 feet from the south wall of the Borrow Pit is French Creek (refer to Figure 2 for the location of the creek, and Photo 14 for a picture of the wetlands and vegetation of the creek). French Creek runs below the main gravel road through a series of three large culverts, as shown on Photos 15 through 18.

INVESTIGATIVE METHODS

Locations for the temporary monitoring wells were discussed during the site walk through with Baker and representatives of the Base's EQB. The EQB suggested placing temporary monitoring wells around the outside perimeter of the Borrow Pit, and sampling of the test well #16 (northwest of the main gravel road). The outside limit of the Borrow Pit on the south side was difficult to distinguish due to the terrain, but the main portion of the pit was primary focus of the investigation.

Nine temporary monitoring wells were installed in the locations of the soil borings. In addition, one nearby test well (#16) from the previous exploratory investigation, located west of the main gravel road, was sampled during this investigation. The sample locations are around the outside of the visible Borrow Pit area, as shown on Figure 1. The paragraphs that follow discuss sample methods.

Nine soil samples were collected immediately above the water table. Soil samples were analyzed for target compound list (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), target analyte list (TAL) metals, and percent moisture. Table 1 provides a summary of requested laboratory analyses and sample identifications for soil. Samples were collected continuously from the ground surface to the top of groundwater. Samples were collect using the Geoprobe® Marco-Core Sampler with acetate liners. Samples for VOC analysis were collected in three 5-gram Encore Samplers. Samples for SVOCs, PCBs, pesticides, and metals were homogenized stainless steel spoons and aluminum pans. Sample was then directly placed into one 8-ounce glass container (SVOCs and metals) and one 4-ounce ounce glass container (pesticides and PCBs).

Soil boring lithology is included in Attachment B. The upper four feet of soil is primarily a soft white sand, with some silt. The subsurface soil (5-12 ft below ground surface [bgs]) is a combination of tan and gray sands with a trace of silt.

Nine temporary monitoring wells were installed using 1-inch outside diameter (OD) polyvinyl chloride (PVC) casing with a 10-foot long, 0.01-inch slotted screen. The wells were installed at a depth to intersect the groundwater table, with the wells bottoms typically 7 to 8 feet below the groundwater table. The wells were driven to depth using 2-1/4-inch Geoprobe® casing with a disposable drive point. Clean, fine sand was placed around the well screen, with a granular bentonite seal above the top of sand to ground surface.

In addition to the newly installed temporary monitoring wells, the permanent monitoring well installed during the exploratory investigation was sampled and analyzed. Table 2 provides monitoring well construction details.

Groundwater samples were collected and analyzed for TCL VOCs, TCL SVOCs, pesticides, PCBs, and TAL metals. Table 3 provides a summary of requested laboratory analyses and sample identifications for groundwater. In addition, all field parameters collected prior to sample collection to ensure aquifer stabilization were recorded, as provided on Table 4. Groundwater turbidity was measured before sample collection to ensure a representative sample was collected below 50 Nephelometric units (N.T.Us.). Groundwater samples were obtained from a peristaltic pump and polyethylene tubing, using the low-flow technique.

All soil and groundwater samples were shipped to a fixed base laboratory for analysis, and handled and shipped following Baker standard operating procedures. One trip blank (SB-TB01) was prepared prior to the sampling event at the Borrow Pit, and kept with the samples during field collection, shipment, and laboratory analysis. Two VOCs (methylene chloride and xylenes) were detected in this trip blank at concentrations of 0.6 JB micrograms per liter (μg/L) and 0.4 JB (μg/L). Trip blank analytical results are provided in Attachment C.

Static water elevations were also collected during the field event, as provided on Table 5. Figure 3 shows the groundwater flows in a southwesterly direction across the Borrow Pit toward French Creek.

DATA QUALITY CONTROL

This section summarizes steps taken to ensure data quality and usability.

Laboratory Qualifiers

Analytical data from this investigation were not currently sent to a third party validator. Data are qualified by the laboratory in accordance with Contract Laboratory Program (CLP) guidelines. The following list summarizes common qualifiers used by the laboratory and their respective definitions (USEPA, 1989):

Organic Chemical Data

U Compound was analyzed for; but not detected.

J Value is estimated.

B Analyte was found in the associated blank, as well as in the sample. (See guidance concerning blank contamination.)

E Concentration exceeds calibration range of Gas Chromatography/Mass Spectrophotometry (GC/MS) instrument.

D Compound was identified in an analysis at a secondary dilution factor.

Inorganic Chemical Data

B The reported value is less than Contract-Required Detection Limits (CRDL), but greater than Instrument Detection Limits (IDL).

U Compound was analyzed for; but not detected.

E Value is estimated due to matrix interference.

N Spiked sample recovery not within control limits.

- *Duplicate analysis was not within control limits.*

The laboratory has qualified a number of compounds with a "JB" qualifier due to detections of these compounds in the associated laboratory blank. The compounds qualified with a "JB" qualifier will not be considered as a detection (USEPA, 1989). All analytical data is provided in Attachment C.

RESULTS

The sections that follow discuss the results of the field program. Tables 6 through 9 present the positive detections in soil and groundwater, and Tables 10 through 12 provide comparisons of the data to various screening criteria. The soil data were compared to Base Background Subsurface results from the 2001 Base Background Study and the North Carolina Soil to Groundwater values. Groundwater data were compared to the North Carolina Water Quality Standards (NCWQS), the Federal Maximum Concentration Levels (MCLs), and the Groundwater Base Background values (inorganics) from 2002 study. Complete analytical results are presented in Attachment C.

Soil

Tables 6 and 7 provide a summary of organic and inorganic results in soil, respectively. Methylene chloride was the only organic compound detected from the nine samples collected, including VOCs, SVOCs, pesticides, and PCBs. This compound was detected in four of the nine samples at concentrations less than 12 milligrams per kilograms (mg/kg). As shown on Table 7, numerous inorganics were detected in all nine samples; however, none of the samples exceeded the screening criteria.

Groundwater

Tables 8 and 9 provide a summary of organic and inorganic results in groundwater, respectively. Six VOCs were detected including: 2-butanone, carbon disulfide, chloroform, o-xylene, toluene, and trichloroethene (TCE). Seven of the ten chloroform detections exceeded the NCQWS value of 0.19 µg/L, but the maximum detection was only 4 µg/L. The SVOC bis (2-ethylhexyl)phthalate was detected in one sample at 11 µg/L, which is above both the NCWQS (3 µg/L) and MCL (6 µg/L). Pesticides and PCBs were not detected in the any of the groundwater samples.

Numerous inorganics were detected as shown on Table 9. Only manganese and iron exceeded the NCWQS. Several inorganics, including aluminum, chromium, copper, lead, nickel, and silver exceeded the Base background levels.

RECOMMENDATIONS

Based on the results of the soil and groundwater data collected, there does not appear to be an immediate impact to these media in the Borrow Pit area. Although organic and inorganic were found in soil and groundwater, the concentrations are relatively low in comparison to the criteria the data were screened against. In addition, there was no visual evidence of contamination noted during the drilling activities or site walk through. Accordingly, Baker does not recommended any further sampling from the Borrow Pit area. If the Base requires further confirmation that there is no waste present in the immediate pit area (i.e., buried material in the pit), this could be confirmed through geophysical methods (e.g., ground penetrating radar [GPR]) and exploratory test pits.

REFERENCES

Baker, 2001. Baker Environmental, Inc. Final Base Background Study. Marine Corps Base Camp Lejeune, North Carolina. April 2001.

Baker appreciates the opportunity to serve Camp Lejeune on this important project. Should you have any questions regarding this submittal, please contact me at 412-269-2033.

Sincerely,

MICHAEL BAKER JR., INC.

Richard E. Bonelli, P.G.
Activity Manager

NCM/pl
Attachments

cc: Ms. Beth Collier, LANTDIV, Code AQ115 (w/o attachments)
Mr. Kirk Stevens, LANTDIV, Code EV23 (one copy)
Mr. Daniel Hood, LANTDIV, Code EV23 (one copy)
Mr. Thomas Burton, MCB, Camp Lejeune, (one copy)
Mr. Scott Bailey, CH2M Hill (one copy)
Mr. Christopher Bozzini, CH2M Hill (one copy)

TABLES

TABLE 1
SOIL SAMPLE SUMMARY
BORROW PIT INVESTIGATION - JANUARY 2003
CTO - 0143
MCB CAMP LEJEUNE, NORTH CAROLINA

Sample ID	Date Sampled	Time Sampled	Depth Interval (ft)	TCL VOA	TCL SVOC	TAL Metals	Pesticides	PCBs	Moisture
BP-SB01-06	1/27/03	1420	12-14	X	X	X	X	X	X
BP-SB02-06	1/27/03	1450	12-14	X	X	X	X	X	X
BP-SB03-07	1/27/03	1510	15-17	X	X	X	X	X	X
BP-SB04-05	1/27/03	1535	9-11	X	X	X	X	X	X
BP-SB05-04	1/27/03	1605	7-9	X	X	X	X	X	X
BP-SB06-02	1/27/03	1630	2-4	X	X	X	X	X	X
BP-SB07-02	1/28/03	0800	2-4	X	X	X	X	X	X
BP-SB08-03	1/28/03	1102	5-7	X	X	X	X	X	X
BP-SB09-04	1/28/03	1125	7-9	X	X	X	X	X	X

Notes:
Samples were collected directly above the water table.

TCL = Target Compound List
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
TAL = Target Analyte List
PCB = Polychlorinated Biphenyl
X = Requested Analysis
SB = Soil Boring

TABLE 2

SUMMARY OF MONITORING WELL CONSTRUCTION DETAILS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO - 0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

Monitoring Well	Date Installed	Top of PVC Casing Elevation (feet above msl)	Ground Surface Elevation (feet above msl)	Bottom Screen (feet bgs)	Top Screen (feet bgs)
BP-TW01	1/27/03	32.03	31.61	20.0	10.0
BP-TW02	1/27/03	32.64	31.88	20.0	10.0
BP-TW03	1/27/03	34.71	33.03	21.0	11.0
BP-TW04	1/27/03	31.55	29.67	17.0	7.0
BP-TW05	1/27/03	28.15	31.40	18.0	8.0
BP-TW06	1/27/03	24.01	22.85	14.0	4.0
BP-TW07	1/28/03	24.53	22.97	14.0	4.0
BP-TW08	1/28/03	24.90	23.33	14.0	4.0
BP-TW09	1/28/03	28.28	26.17	18.0	8.0
BP-GW16	8/7/02	NA	NA	90.0	50.0

Notes:

msl = Mean sea level
bgs = Below ground surface
NA = Not Available
All wells constructed of 1" diameter schedule 80 PVC casing and 10 feet of 0.01" slotted screen.

TABLE 3

GROUNDWATER SAMPLE SUMMARY
BORROW PIT INVESTIGATION - JANUARY 2003
CTO - 0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

Location and Sample Identification	Media	TCL VOCs	TCL SVOCs	TAL Metals	Pesticides	PCBs
BP-TW01	Groundwater	X	X	X	X	X
BP-TW02	Groundwater	X	X	X	X	X
BP-TW03	Groundwater	X	X	X	X	X
BP-TW04	Groundwater	X	X	X	X	X
BP-TW05	Groundwater	X	X	X	X	X
BP-TW06	Groundwater	X	X	X	X	X
BP-TW07	Groundwater	X	X	X	X	X
BP-TW08	Groundwater	X	X	X	X	X
BP-TW09	Groundwater	X	X	X	X	X
BP-GW16	Groundwater	X	X	X	X	X

Notes:

TCL	=	Target Compound List
VOC	=	Volatile Organic Compound
SVOC	=	Semi-volatile Organic Compound
TAL	=	Target Analyte List
PCB	=	Polychlorinated Biphenyl
X	=	Requested Analysis
TW	=	Temporary Well

TABLE 4

TEMPORARY MONITORING WELL
GROUNDWATER FIELD PARAMETERS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO - 0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

Well Number Sample Date	Measuring Time	Well Volumes	Field Parameters					
			Temperature (°C)	pH (S.U.)	Specific Conductance (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (N.T.U.)	Oxidation Reduction Potential (mv)
BP-TW01 1/29/03	1346	2.0	17.8	5.83	130	NA	ER2	-14.6
	1353	3.5	17.6	5.65	122	NA	216	-21.8
	1402	5.0	17.5	5.53	118	NA	137.8	-40.1
	1409	7.0	17.4	5.51	117	NA	12.0	-42.7
BP-TW02 1/29/03	1400	2.0	18.1	6.16	127	1.67	ER3	-67.7
	1415	5.0	18.0	5.97	103	2.04	240	-48.2
	1419	6.0	17.93	5.80	98	2.17	65	-52.0
	1425	8.0	NA	NA	NA	NA	38	NA
	1430	10.0	NA	NA	NA	NA	15	NA
BP-TW03 1/29/03	1520	4.5	17.71	5.69	101	1.96	ER3	-62.1
	1535	9.0	17.36	5.36	97	1.80	1,000	-51.7
	1545	11.0	17.07	5.41	91	2.11	290	-59.2
	1600	13.5	17.20	5.38	91	2.14	85	-66.1
	1605	16.0	NA	NA	NA	1.0 (1)	40	NA
BP-TW04 01/29/03	1115	2.0	16.45	5.92	95	2.60	140	-61.1
	1135	10.0	16.61	5.80	88	3.31	16	-55.5
	1138	11.0	16.34	5.74	88	3.52	9.8	-55.3
	1150	NA	NA	NA	NA	3.5 (1)	NA	NA
BP-TW05 1/29/03	1055	2.0	15.81	6.12	130	NA	641	-48.8
	1104	4.5	15.95	5.91	124	NA	657	-102.2
	1113	7.0	15.86	5.73	114	NA	273	-82.0
	1124	9.0	16.40	5.60	106	NA	663	-62.9
	1135	11.0	16.12	5.50	102	NA	114	-54.7
	1140	14.0	16.37	5.38	101	NA	97.6	-44.5
	1146	15.0	16.46	5.37	100	NA	73	-45.7
	1151	16.0	16.43	5.40	98	0.7 (1)	92.1	-47.3
BP-TW06 1/29/03	0820	2.0	11.74	5.99	142	NA	600	-56.5
	0832	3.5	12.05	5.93	132	NA	404	-58.5
	0847	5.0	12.73	5.89	135	NA	373	-55.4
	0900	7.0	13.10	5.84	132	NA	205	-49.4
	0907	9.0	12.7	5.85	132	NA	142	-45.0
	0916	11.0	12.7	5.81	126	NA	103	-39.9
	0926	12.5	12.8	5.79	128	NA	92	-40.4
	0935	14.0	12.7	5.77	127	NA	86	-39.6
	0945	16.0	12.9	5.82	126	NA	70	-27.7
	0955	18.0	13.52	5.76	124	1 (1)	47	-39.7

TABLE 4 *(Cont.)*

TEMPORARY MONITORING WELL
GROUNDWATER FIELD PARAMETERS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO - 0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

Well Number Sample Date	Measuring Time	Well Volumes	Field Parameters					
			Temperature (°C)	pH (S.U.)	Specific Conductance (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (N.T.U.)	Oxidation Reduction Potential (mv)
BP-TW07 1/29/03	0840	2.0	14.06	5.51	170	1.92	ER3	-54.9
	0846	3.0	13.96	5.22	144	2.47	950	-44.9
	0900	6.0	13.60	5.85	132	2.10	390	-66.5
	0905	7.0	13.72	5.58	132	1.76	290	-60.5
	0910	8.0	13.70	5.23	129	1.52	170	-79.0
	0920	9.0	13.69	5.86	128	1.73	130	-64.0
	0935	12.0	NA	NA	NA	NA	75	NA
	0940	13.0	NA	NA	NA	NA	65	NA
	0945	14.0	13.47	5.30	123	2 (1)	50	NA
BP-TW08 1/28/03	1635	1.0	12.4	6.18	158	4.28	NA (2)	-22.1
	1640	2.0	14.4	6.11	140	2.59	NA (2)	-10.5
	1645	3.0	14.5	6.03	134	2.69	NA (2)	-4.7
	1653	4.0	14.4	6.04	137	2.95	NA (2)	-1.9
	1655	5.0	14.7	5.96	127	2.95	NA (2)	4.3
	1700	6.0	14.9	5.96	128	2.95	NA (2)	10.4
BP-TW09 1/28/03	1445	1.0	12.7	6.57	173	3.07	NA (2)	-77.8
	1525	3.0	14.0	6.59	160	2.62	NA (2)	-53.5
	1540	4.0	13.8	6.09	137	3.63	NA (2)	-10.5

Notes:

°C = Degrees Centigrade
S.U. = Standard Units
µmhos/cm = micro ohms per centimeter
mg/L = milligrams per liter
mv = millivolts
N.T.U. = Nephlometric Turbidity Units
NA = Not Available
ER2/ER3 = Turbidity levels too high for the machine to read
(1) = Dissolved oxygen reading taken with a Chemet ampule.
(2) = Turbidity meter not functioning. Sample was taken when water stabilized and was visibly clear.

TABLE 5

SUMMARY OF WATER LEVEL MEASUREMENTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO - 0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

Temporary Monitoring Well	Reference Elevation[1]	**SWL 1/29/03**	**SWE 1/29/03**
BP-TW01	32.03	13.34	18.69
BP-TW02	32.64	13.4	19.24
BP-TW03	34.71	15.80	18.91
BP-TW04	31.55	13.15	18.40
BP-TW05	28.15	12.6	15.55
BP-TW06	24.01	7.2	16.81
BP-TW07	24.53	6.25	18.28
BP-TW08	24.90	7.00	17.90
BP-TW09	28.28	10.15	18.13
BP-GW16	NA	15.78	NA

Notes:

(1)	=	Top of PVC casing expressed in feet above mean sea level
SWL	=	Static water level taken from top of PVC casing
SWE	=	Static water elevation expressed in feet above mean sea level
NA	=	Data not available
	=	The SWL was taken on 1/28/03 in the afternoon.

TABLE 6

POSITIVE DETECTIONS IN SOIL - ORGANICS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-SB01-06	BP-SB02-06	BP-SB03-07	BP-SB04-05	BP-SB05-04	BP-SB06-02	BP-SB07-02	BP-SB08-03	BP-SB09-04
SAMPLE DATE	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-28-2003	01-28-2003	01-28-2003
DEPTH RANGE (feet)	12-14	12-14	15-17	9-11	7-9	2-4	2-4	5-7	7-9
VOLATILES (mg/kg)									
Methylene Chloride	7 U	6 U	7 U	6 U	5 U	12	7	4 J	6 U
SEMIVOLATILES (mg/kg)	**NO DETECTIONS**								
PESTICIDES (mg/kg)	**NO DETECTIONS**								
PCBs (mg/kg)	**NO DETECTIONS**								

TABLE 7

POSITIVE DETECTIONS IN SOIL - INORGANICS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-SB01-06		BP-SB02-06		BP-SB03-07		BP-SB04-05		BP-SB05-04		BP-SB06-02		BP-SB07-02		BP-SB08-03		BP-SB09-04	
SAMPLE DATE	01-27-2003		01-27-2003		01-27-2003		01-27-2003		01-27-2003		01-27-2003		01-28-2003		01-28-2003		01-28-2003	
DEPTH RANGE (feet)	12-14		12-14		15-17		9-11		7-9		2-4		2-4		5-7		7-9	
METALS (mg/kg)																		
Aluminum	3480		2830		4630		650		3830		1220		484		3290		2020	
Antimony	0.14	B	0.12	U	0.13	U	0.11	U	0.1	U	0.1	U	0.1	U	0.12	U	0.11	U
Arsenic	0.22	B	0.2	B	0.17	U	0.14	U	0.47	B	0.13	U	0.13	U	0.22	B	0.14	U
Barium	8.1		7.2		9.4		2.5		7.6		3.7		2.4		7.1		5.2	
Beryllium	0.07	B	0.04	B	0.05	B	0.03	U	0.04	B	0.03	U	0.03	U	0.05	B	0.03	U
Cadmium	0.31	B	0.27	U	0.28	U	0.23	U	0.21	U	0.21	U	0.21	U	0.26	U	0.24	U
Calcium	42.7		18		40.3		19.3		24.1		75.6		31.5		185		81.8	
Chromium	4.6		3.5		5.1		1.4		4.5		1.9		1.3		4.5		6.9	
Cobalt	0.27	B	0.42	B	0.89	B	0.1	B	0.64	B	0.12	B	0.05	U	0.43	B	0.24	B
Copper	0.67	B	0.46	B	0.74	B	0.21	U	1.2	B	0.44	B	0.2	B	0.96	B	0.82	B
Iron	1020		730		1200		298		1280		320		305		898		1020	
Lead	2.6		2		2.4		1.2		3.5		1.8		1.5		2.2		2.4	
Magnesium	168		119		200		49.9		170		48.2		35.1		140		114	
Manganese	5.8		5.4		11.5		4.5		4.7		2.7		5.6		5.4		7.5	
Mercury	0.02	B	0.01	U	0.02	B	0.01	U	0.01	B	0.01	U	0.01	B	0.01	B	0.02	B
Nickel	0.99	U	1.5	B	1.8	B	0.92	U	2.4	B	0.82	U	0.84	U	1.9	B	0.92	U
Potassium	163		68.1	B	148		42.47	U	112		48.7	B	38.83	U	126		107	
Silver	0.24	U	0.25	U	0.32	B	0.22	U	0.2	U	0.26	B	0.2	U	0.24	U	0.22	U
Sodium	28.4	B	30.3	B	26.8	B	18.2	B	29.4	B	17.3	B	29.5	B	35	B	19.3	B
Thallium	1.3	B	0.3	U	0.31	U	0.26	U	0.23	U	0.23	U	0.23	U	0.28	U	0.26	U
Vanadium	3.8		2.7		3.6		0.96	B	3.9		1.3	B	1.1	B	2.9		2.8	
Zinc	2.3	B	2	B	3.2		0.75	B	2.6		0.72	B	0.94	B	2.4	B	3.5	
Total Solids	78		80		79		95		94		94		94		90		86	

TABLE 8

POSITIVE DETECTIONS IN GROUNDWATER - ORGANICS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-GW16	BP-TW01	BP-TW02	BP-TW03	BP-TW04	BP-TW05	BP-TW06	BP-TW07	BP-TW08	BP-TW09	BP-TB01
SAMPLE DATE	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-28-2003	01-28-2003	01-29-2003
VOLATILES (ug/L)											
2-Butanone	120	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U	0.2 J	0.2 J	5 U	5 U	5 U	5 U
Chloroform	5 U	3 J	4 J	1 J	4 J	2 J	0.3 J	5 U	5 U	2 J	5 U
O-Xylene	5 U	1 JB	0.2 JB	5 U	5 U	0.9 J	0.5 J	0.4 J	0.2 J	0.2 J	5 U
Toluene	5 U	4 JB	0.4 JB	0.4 JB	0.3 JB	0.5 J	0.3 J	5 U	0.2 J	0.3 J	5 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U	1 J	0.6 J	5 U	5 U	5 U	5 U
SEMIVOLATILES (ug/L)											
Bis(2-Ethylhexyl) Phthalate	11	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
PESTICIDES (ug/L)	**NO DETECTIONS**										
PCBs (ug/L)	**NO DETECTIONS**										

TABLE 9

POSITIVE DETECTIONS IN GROUNDWATER - INORGANICS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-GW16	BP-TW01	BP-TW02	BP-TW03	BP-TW04	BP-TW05	BP-TW06	BP-TW07	BP-TW08	BP-TW09	BP-TB01
SAMPLE DATE	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-28-2003	01-28-2003	01-29-2003
METALS (ug/L)											
Aluminum	19.25 U	4630	178 B	2090	120 B	2350	2100	1370	391	13400	NA
Arsenic	1.56 U	1.56 U	1.56 U	1.56 U	1.56 U	1.56 U	1.56 U	1.56 U	1.56 U	2.3 B	NA
Barium	11.6	31.9	27.3	32.2	22.3	32.2	22.5	25.4	20.8	67.1	NA
Calcium	54600	4030	1340	1210	1450	1870	11700	11700	12800	7680	NA
Chromium	0.42 U	8.2 B	0.44 B	3 B	0.42 U	9.9 B	2.8 B	2.2 B	1.2 B	48.3	NA
Cobalt	0.55 U	0.62 B	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	2 B	NA
Copper	2.37 U	2.37 U	2.37 U	3 B	2.37 U	3.4 B	2.37 U	2.37 U	2.37 U	12.7 B	NA
Iron	839	6050	5800	3560	2760	6600	4540	3940	2860	12900	NA
Lead	0.87 U	2.4 B	0.87 U	1.8 B	0.87 U	1.4 B	1.3 B	0.87 U	1 B	7.5	NA
Magnesium	1360	1800	1450	1400	1510	1370	1090	1640	1000	1980	NA
Manganese	12.5	69.6	102	37.8	64.4	73.1	43.4	53.5	33.2	107	NA
Mercury	0.12 B	0.03 U	0.07 B	0.1 B	0.1 B	0.13 B	0.13 B	0.13 B	0.1 B	0.11 B	NA
Nickel	0.64 U	7.4 B	6.2 B	3.7 B	6.6 B	7.3 B	2.6 B	2.2 B	3.7 B	20.9 B	NA
Potassium	628 B	1200	1180	1340	1060	1150	1000	1020	638 B	2210	NA
Silver	2.45 U	2.45 U	2.45 U	2.7 B	2.45 U	2.45 U	2.45 U	2.9 B	2.45 U	2.45 U	NA
Sodium	4530	11400	10500	10200	10300	10100	9650	10200	7700	7600	NA
Vanadium	5.17 U	5.9 B	5.17 U	5.17 U	5.17 U	5.17 U	5.17 U	5.17 U	5.17 U	10.7 B	NA
Zinc	2.5 B	19 B	12.2 B	8.8 B	3.3 B	24.1 B	7.4 B	5.4 B	6.4 B	38.1	NA

TABLE 10

COMPARISON SUMMARY OF CONTAMINATION
SOIL - INORGANICS
BORROW PIT INVETIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

Media	Fraction	Contaminant	Comparison Criteria	Comparison Criteria	Site Contamination					
					Minimum Concentration Detected	Maximum Concentration Detected	Maximum Concentration Location	Detection Frequency	Number of Detections Above Comparison Criteria	Number of Detections Above Comparison Criteria
			Base Background Subsurface Soil	North Carolina Soil to Groundwater Concentrations					Base Background Subsurface Soil	North Carolina Soil to Groundwater Concentrations
Soil	Metals		(mg/kg)		(mg/kg)				(ug/kg)	
		Aluminum	9,900	NE	484	4630	BP-SB03-07	9/9	0	NA
		Antimony	0.41	5.42	0.14 B	0.14 B	BP-SB01-06	1/9	0	0
		Arsenic	1.4	26.2	0.2 B	0.47 B	BP-SB05-04	4/9	0	0
		Barium	18.2	848	2.4	9.4	BP-SB03-07	9/9	0	0
		Beryllium	0.097	3.38	0.04 B	0.07 B	BP-SB01-06	5/9	0	0
		Cadmium	NE	2.72	0.31 B	0.31 B	BP-SB01-06	1/9	NA	0
		Calcium	499	NE	18	185	BP-SB08-03	9/9	0	NA
		Chromium	13.2	27.2	1.3	6.9	BP-SB09-04	9/9	0	0
		Cobalt	1.4	NE	0.1 B	0.89 B	BP-SB03-07	8/9	0	NA
		Copper	3.3	704	0.2 B	1.2 B	BP-SB05-04	8/9	0	0
		Iron	4,600	151	298	1280	BP-SB05-04	9/9	0	0
		Lead	6	270	1.2	3.5	BP-SB05-04	9/9	0	0
		Magnesium	216	NE	35.1	200	BP-SB03-07	9/9	0	NA
		Manganese	7.1	65.2	2.7	11.5	BP-SB03-07	9/9	0	0
		Mercury	0.061	0.0154	0.01 B	0.02 B	BP-SB01-06,BP-SB03-07,BP-SB09-04	6/9	0	0
		Nickel	3.6	56.4	1.5 B	2.4 B	BP-SB05-04	4/9	0	0
		Potassium	292	NE	48.7 B	163	BP-SB01-06	7/9	0	NA
		Silver	0.1	0.223	0.26 B	0.32 B	BP-SB03-07	2/9	0	0
		Sodium	NE	NE	17.3 B	35 B	BP-SB08-03	9/9	NA	NA
		Thallium	NE	0.512	1.3 B	1.3 B	BP-SB01-06	1/9	NA	0
		Vanadium	13.7	NE	0.96 B	3.9	BP-SB05-04	9/9	0	NA
		Zinc	7.9	1,100	0.72 B	3.5	BP-SB09-04	9/9	0	0

Notes:

North Carolina Soil to Groundwater Concentrations = Soil to groundwater concentrations are based on the current North Carolina Water Quality Standards (North Carolina Administrative Code, Title 15A, Subchapter 2L) or Interim Maximum Allowable Concentrations (IMACS). If there is no IMAC, the soil screening number is based on the recommended 2L, or if not available the UCLG.

Base Background Subsurface Soil = Base Background Study for Metals in Soil at Camp Lejuene, sandy subsurface soils were used (Baker, September 2002).

J = Value is estimated
NA = Not Applicable
NE = Not Established
B = Reported value is < CRDL, but > IDL

TABLE 11

COMPARISON SUMMARY OF CONTAMINATION
GROUNDWATER - ORGANICS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

Media	Fraction	Contaminant	Comparison Criteria	Comparison Criteria	Site Contamination					
					Minimum Concentration Detected	Maximum Concentration Detected	Maximum Concentration Location	Detection Frequency	Number of Detections Above Comparison Criteria	Number of Detections Above Comparison Criteria
			North Carolina Water Quality Standard	Federal MCL					North Carolina Water Quality Standard	Federal MCL
GroundWater	Volatile Organic Compounds		(ug/L)		(ug/L)				(ug/L)	
		2-Butanone	170	NE	120	120	BP-GW16	1/11	0	NA
		Carbon Disulfide	700 (1)	NE	0.2 J	0.2 J	BP-TW05,BP-TW06	2/11	0	NA
		Chloroform	0.19	80 (p)*	0.3 J	4 J	BP-TW02,BP-TW04	7/11	7	0
		O-Xylene	530	1,000	0.2 J	0.9 J	BP-TW05	5/11	0	NA
		Toluene	1,000	1,000	0.2 J	0.5 J	BP-TW05	4/11	0	0
		Trichloroethene	3	5	0.6 J	0.6 J	BP-TW06	1/11	0	0
	Semivolatile Organic Compounds	Bis(2-Ethylhexyl) Phthalate	3	6	11	11	BP-GW16	1/10	1	1

Notes:

MCL = Federal Maximum Contaminant Level Maximum permissible level of a contaminant in water which is delivered to users of public water systems (U.S. Environmental Protection Agency - Drinking Water Regulations and Health Advisories).

North Carolina Water Quality Standard - North Carolina Administrative Code, Title 15A, Subchapter 2L.

(I) = Interim Standard or IMAC (Interim Maximum Allowable Concentration)

(P) = Proposed Level

* = Total for all THM's combined can not exceed 80 ug/L (proposed level). The current regulatory level for total THM's is 100 ug/L.

J = Value is estimated

NA = Not Applicable

NE = Not Established

TABLE 12

COMPARISON SUMMARY OF CONTAMINATION
GROUNDWATER - INORGANICS
BORROW PIT INVETIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

Media	Fraction	Contaminant	Comparison Criteria	Comparison Criteria	Site Contamination					
					Minimum Concentration Detected	Maximum Concentration Detected	Maximum Concentration Location	Detection Frequency	Number of Detections Above Comparison Criteria	Number of Detections Above Comparison Criteria
			North Carolina Water Quality Standard	Base Background Shallow Groundwater					North Carolina Water Quality Standard	Base Background Shallow Groundwater
GroundWater	Metals		(ug/L)		(ug/L)				(ug/L)	
		Aluminum	NE	3,650	120 B	13,400	BP-TW09	9/10	NA	2
		Arsenic	10	19	2.3 B	2.3 B	BP-TW09	1/10	0	0
		Barium	2,000	143	11.6	67.1	BP-TW09	10/10	0	0
		Calcium	NE	176,000	1210	54,600	BP-GW16	10/10	NA	0
		Chromium	50	8.4	0.44 B	48.3	BP-TW09	8/10	0	2
		Cobalt	NE	5.6	0.62 B	2 B	BP-TW09	2/10	NA	0
		Copper	1,000	5.1	3 B	12.7 B	BP-TW09	3/10	0	1
		Iron	300	32,700	839	12,900	BP-TW09	10/10	10	0
		Lead	15	4	1 B	7.5	BP-TW09	6/10	0	1
		Magnesium	NE	11,500	1000	1,980	BP-TW09	10/10	NA	0
		Manganese	50	359	12.5	107	BP-TW09	10/10	6	0
		Mercury	1.1	0	0.07 B	0.13 B	BP-TW05,BP-TW06,BP-TW07	9/10	0	0
		Nickel	100	16.5	2.2 B	20.9 B	BP-TW09	9/10	0	1
		Potassium	NE	4,410	628 B	2,210	BP-TW09	10/10	NA	0
		Silver	18	0.95	2.7 B	2.9 B	BP-TW07	2/10	0	2
		Sodium	NE	23,000	4530	11,400	BP-TW01	10/10	NA	0
		Vanadium	NE	11.5	5.9 B	10.7 B	BP-TW09	2/10	NA	0
		Zinc	2,100	129	2.5 B	38.1	BP-TW09	10/10	0	0

Notes:

North Carolina Water Quality Standard - North Carolina Administrative Code, Title 15A, Subchapter 2L.

Base Background Shallow Groundwater = Base Background Study for Metals in Groundwater at Camp Lejeune (Baker, September 2002).

B = Value is < CRDL, but > IDL
NA = Not Applicable
NE = Not Established

FIGURES

8000 0 4000 8000

1 inch = 8000 ft.

Baker

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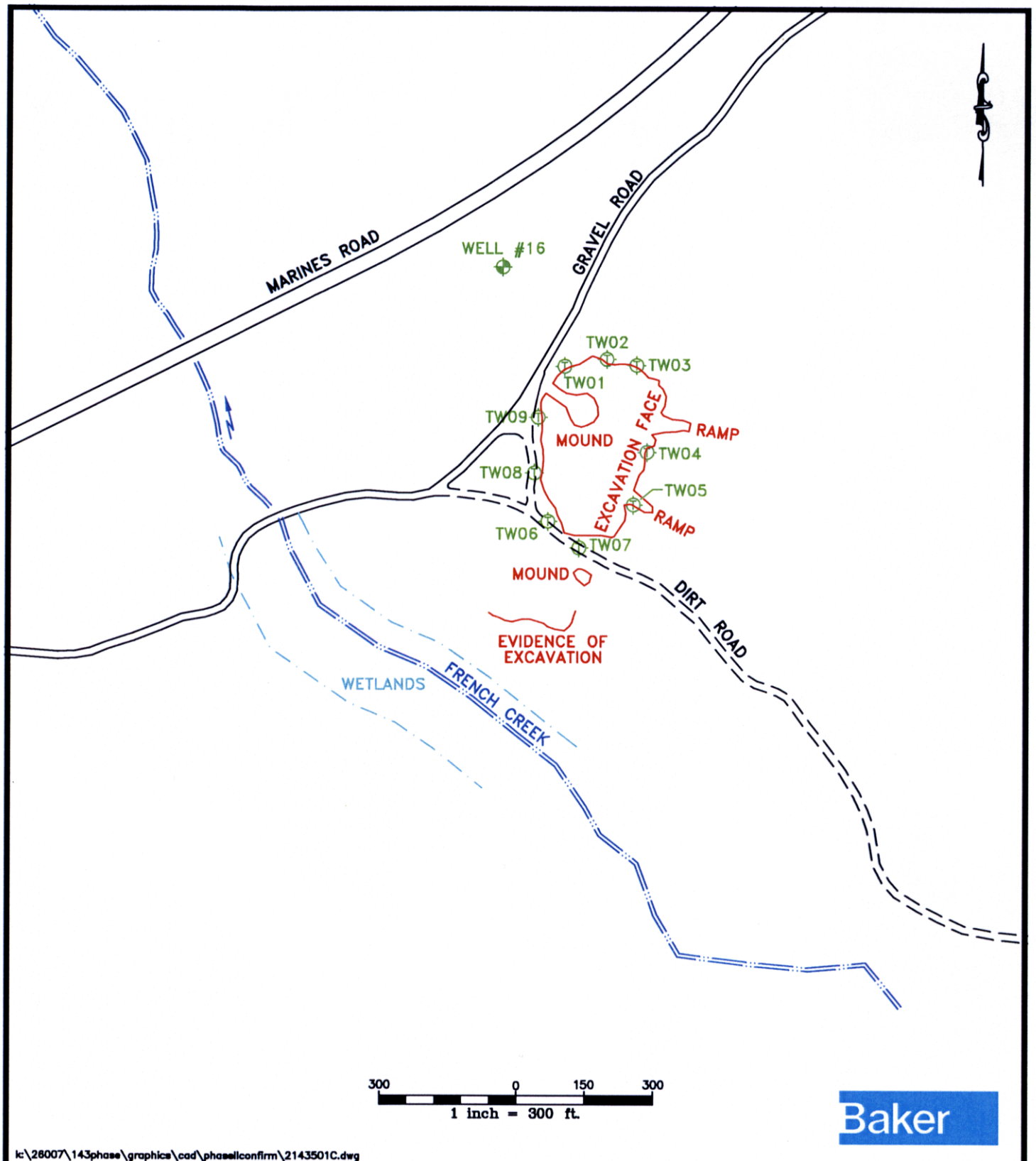
LEGEND

SOURCE: U.S.G.S. QUADRANGLES JACKSONVILLE SOUTH, CAMP LEJEUNE, SNEADS FERRY AND NEW RIVER INLET.

FIGURE 1
SITE LOCATION MAP
BORROW PIT INVESTIGATION
JANUARY 2003
CTO – 0143
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



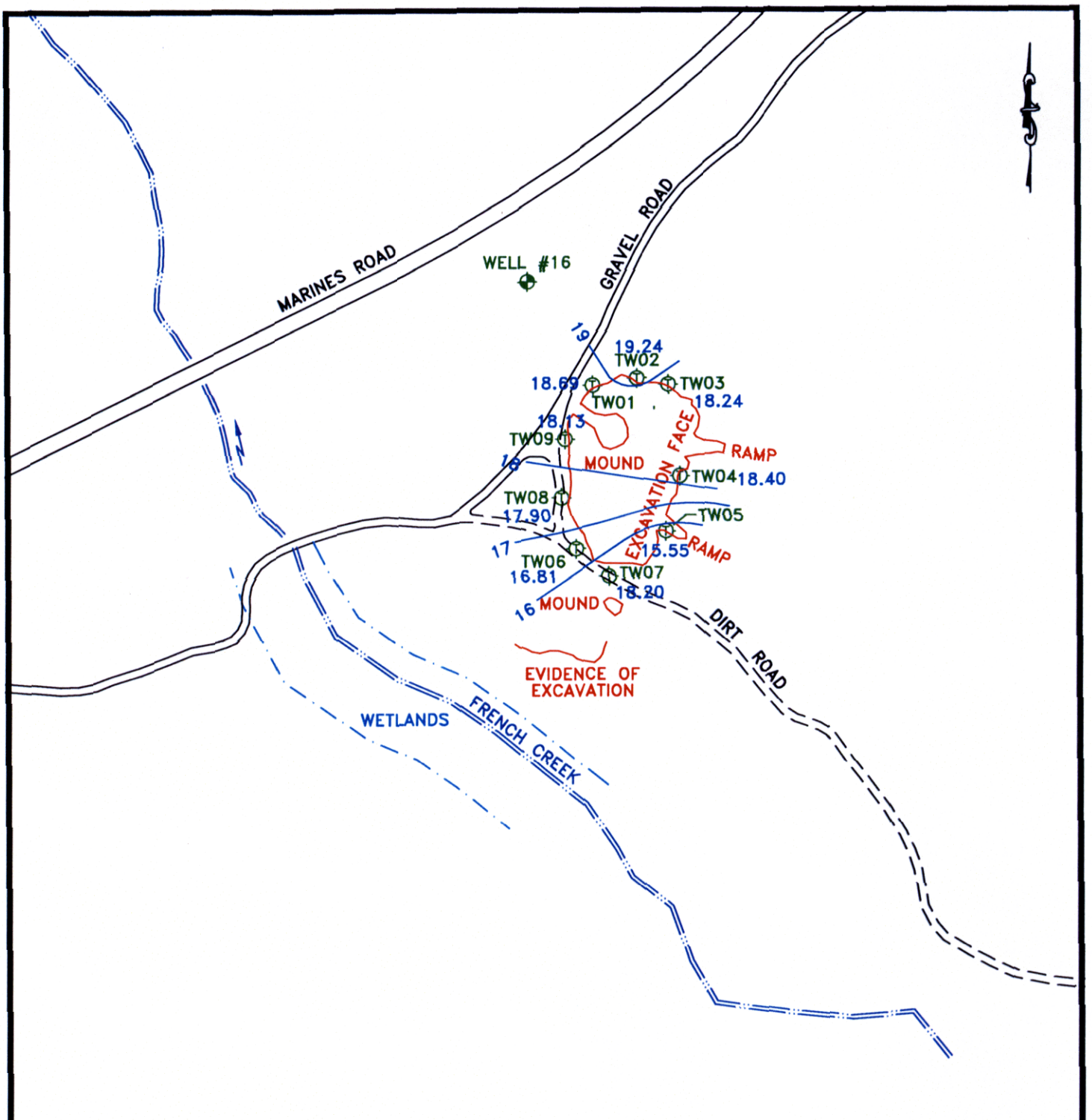
LEGEND

- WATER OUTLINE
- APPROXIMATE WETLAND BOUNDARY
- STREAM FLOW DIRECTION
- LIMITS OF BORROW EXCAVATION AREA
- ROAD
- TW08 – TEMPORARY WELL (Baker)
- WELL#16 – TEST WELL (Geo Solutions, Ltd.)

SOURCE: LANTDIV, 2002.

FIGURE 2

SITE FEATURES MAP
BORROW PIT INVESTIGATION
JANURAY 2003
CTO – 0143
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



NOTE:
STATIC GROUNDWATER ELEVATION AT TW07 NOT USED; APPEARS TO BE HIGH [ANOMALOUSLY]

300 0 150 300
1 inch = 300 ft.

Baker

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LEGEND

- WATER OUTLINE
- 19 – GROUNDWATER ELEVATION
- GROUNDWATER CONTOUR
- STREAM FLOW DIRECTION
- LIMITS OF BORROW EXCAVATION AREA
- ROAD
- TW08 – TEMPORARY WELL (Baker)
- WELL#16 – TEST WELL (Geo Solutions, Ltd.)

SOURCE: LANTDIV, 2002.

FIGURE 3
GROUNDWATER CONTOUR MAP
BORROW PIT INVESTIGATION
JANURAY 2003
CTO – 0143
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

Baker

Michael Baker Jr., Inc.

ATTACHMENT A

Photographs

PHOTO 1
LOOKING SOUTHWEST, MAIN DIRT ROAD TO BORROW PIT

PHOTO 2
LOOKING FROM MAIN DIRT ROAD, SOUTH OF PIT, SHOWING DIRT ACCESS ROAD

03259EB2Y

PHOTO 3
LOOKING EAST, INSIDE THE BORROW PIT, SHOWING MOUND INSIDE

PHOTO 4
LOOKING NORTH, INSIDE OF BORROW PIT SHOWING MOUND

PHOTO 5
LOOKING SOUTH-EAST, INSIDE THE BORROW PIT, SHOWING DIRT ACCESS ROAD ON RIGHT

PHOTO 6
LOOKING NORTH-EAST, AT SOUTH WALL OF BORROW PIT, SHOWING TW06

PHOTO 7
CLOSE UP OF WALL TO BORROW PIT

PHOTO 8
LOOKING NORTH, SOUTH OF PIT NEAR DIRT ROAD, REMNANT MOUND SHOWING SPOOLS

PHOTO 9
CLOSE UP OF TOP OF REMNANT MOUND, SHOWING SPOOL AND METAL DEBRIS

PHOTO 10
CLOSE UP OF TOP OF REMNANT MOUND, SHOWING METAL DEBRIS

PHOTO 11
BOTTOM OF REMNANT MOUND, SHOWING MORE DEBRIS AND OLD SPRAY PAINT CAN

PHOTO 12
CLOSE UP OF A SPOOL, SPOOLS SCATTERED AROUND ENTIRE SITE

PHOTO 13
FOXHOLE SHOWN, FOUND SOUTH OF PIT, TOWARD FRENCH CREEK

PHOTO 14
LOOKING SOUTH, SOUTH OF PIT, SHOWING WETLANDS OF FRENCH CREEK

PHOTO 15
LOOKING EAST, ON MAIN DIRT ROAD AT FRENCH CREEK, WETLANDS AND CREEK SHOWN

PHOTO 16
LOOKING EAST, ON MAIN DIRT ROAD AT FRENCH CREEK, CLOSE UP OF WETLANDS, CREEK AND CULVERTS

PHOTO 17
LOOKING WEST ON MAIN DIRT ROAD AT FRENCH CREEK, CLOSE UP OF WETLANDS, CREEK AND CULVERTS

PHOTO 18
WEST OF DIRT ROAD, CLOSE UP OF FRENCH CREEK

PHOTO 19
LOOKING WEST, CLEARED AREA EAST OF PIT, VEHICLE SHOWN ON LEFT ON DIRT ACCESS ROAD

Baker

Michael Baker Jr., Inc.

ATTACHMENT B

Boring Logs

CTO-143

BP-SB01

Time	Depth	ID	Recovery
1410	0-4	S-1	3.0
1415	4-8	S-2	3.0
1425	8-12	S-3	4.0
BP-SB01-06		(11-12')	
1428	12-16	S-4	4.0

BP-SB02

Time	Depth	ID	Recovery
1431	0-4	S-1	3.0
1433	4-8	S-2	3.0
1435	8-12	S-3	3.5
BP-SB02-06		(11-12')	

MKO 1/27

CTO-143

Description

F SAND, little silt; near black, then brown; some silt; little clay 3-4

F SAND, trace silt; tan

[sample for TCL VOA, SVOA, Pest/PCB & TAL Metals]

wet @ 13.0' ft

F SAND, some silt; brown; damp
blacke 0-0.5'

5.0'

F SAND, trace silt; tan; damp

As above; damp/wet @ 12'

1/27 MKO

CTO-143

BP-SB03

Time	Depth	ID	Recovery
1453	0-4	S-1	2.3
1455	4-8	S-2	3.3
1458	8-12	S-3	3.7
1501	12-16	S-4	3.7

BP-SB03-07 (12-13')

BP-SB04

Time	Depth	ID	Recovery
1522	0-4	S-1	3.0
1525	4-8	S-2	3.3
1529	8-12	S-3	4.0

BP-SB04-05 (10-11')

MKD 1/27

CTO-143

Description	
black F SAND, little silt changing to brown F SAND, some silt; damp	
	6.5
F SAND little silt; tan; damp	
wet @ 13.5 ft	

Description	
F SAND, little silt; dk gray-gray; damp; brown below 12'	
	6.0
F SAND, little silt; tan; damp	
tan; brown w/some silt	
wet @ 11.0'	

1/27 MKD

CTO-143

BP-SB05

Time	Depth	ID	Recovery
1553	0-4	S-1	2.3
1556	4-8	S-2	3.3
BP-SB05-04 (7-8')			
1558	8-12	S-3	3.5

BP-SB06

Time	Depth	ID	Recovery
1620	0-4	S-1	3.0
BP-SB06-02 (3-4')			
1622	4-8	S-2	3.4

MKD 1/27

CTO-143

Description
F SAND, trace silt; dk gray, then gray; damp/ little silt; brn @ ≈2'
F SAND, little silt, lt. brown; damp
some silt; lt brown; becoming tan @ 11' w/ little silt; wet @ 19'

Description
F SAND, trace silt; tan; damp.
F SAND, little silt; gray/ tan; wet @ 6.0-ft

1/27 MKD

CTO-143

BP-SB07

Time	Depth	ID	Recovery
0748	0-4	S-1	3.7
BP-SB07-02 (3-4')			
0750	4-8	S-2	3.8

BP-SB08

Time	Depth	ID	Recovery
1100	0-4	S-1	2.8
1102	4-8	S-2	3.6
BP-SB08-03 (5-6')			

BP-SB09

Time	Depth	ID	Recovery
1121	0-4	S-1	3.0
1123	4-8	S-2	3.2
1125	8-12	S-3	3.0
BP-SB09-04 (8-9')			

MAD 1/28

CTO-143

Description
F SAND little silt; tan to 2' then lt gray; damp wet @ 5.0-ft

Description
F SAND, little silt; lt brown, then tan - lt gray; damp wet @ 6.0-ft

Description
F SAND, trace silt w/ zones of little silt; tan - lt. gray; damp south F SAND, little - some silt; lt brn; damp
F SAND, little silt; clay ~2.5' otherwise little silt; lt gray; wet @ 9.0-ft

1/28 MAD

DRILLER'S LOG

WELL # 16

0-50 PIPE
50-90 SCREEN
90-150 PIPE
150-160 SCREEN
160-165 TAIL PIPE
SAND 40-175

0	to	14	WHITE AND ORANCE CLAY
14	to	32	MED TO COARSE SAND
32	to	33	CLAY-GRAY IN COLOR
33	to	40	MED TO COARSE SAND
40	to	45	CLAY
45	to	85	ROCK AND STONE
85	to	115	SOFT ROCK SANDSTONE WITH TRACES OF CLAY
115	to	160	SAND PHOSPHATE, MED TO FINE
160	to	200	ROCK LAYERS WITH CLAY AND FINE SAND

Baker

Michael Baker Jr., Inc.

ATTACHMENT C

Laboratory Data

ATTACHMENT C

SOIL ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-SB01-06	BP-SB02-06	BP-SB03-07	BP-SB04-05	BP-SB05-04	BP-SB06-02	BP-SB07-02	BP-SB08-03	BP-SB09-04
SAMPLE DATE	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-28-2003	01-28-2003	01-28-2003
DEPTH RANGE (feet)	12-14	12-14	15-17	9-11	7-9	2-4	2-4	5-7	7-9
VOLATILES (mg/kg)									
1,1,1-Trichloroethane	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethylene (Total)	13 U	13 U	14 U	12 U	10 U	12 U	11 U	12 U	11 U
2-Butanone	27 U	26 U	27 U	24 U	21 U	24 U	23 U	24 U	23 U
2-Hexanone	27 U	26 U	27 U	24 U	21 U	24 U	23 U	24 U	23 U
4-Methyl-2-Pentanone	27 U	26 U	27 U	24 U	21 U	24 U	23 U	24 U	23 U
Acetone	27 U	26 U	27 U	24 U	21 U	24 U	23 U	24 U	23 U
Benzene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Bromodichloromethane	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Bromoform	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Bromomethane	13 U	13 U	14 U	12 U	10 U	12 U	11 U	12 U	11 U
Carbon Disulfide	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Chlorobenzene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Chloroethane	13 U	13 U	14 U	12 U	10 U	12 U	11 U	12 U	11 U
Chloroform	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Chloromethane	13 U	13 U	14 U	12 U	10 U	12 U	11 U	12 U	11 U
Cis-1,2-Dichloroethene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Cis-1,3-Dichloropropene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Dibromochloromethane	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Ethylbenzene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
M-,P-Xylene	13 U	13 U	14 U	12 U	10 U	12 U	11 U	12 U	11 U
Methylene Chloride	7 U	6 U	7 U	6 U	5 U	12	7	4 J	6 U
O-Xylene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Styrene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Tetrachloroethene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Toluene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Trans-1,2-Dichloroethene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Trans-1,3-Dichloropropene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Trichloroethene	7 U	6 U	7 U	6 U	5 U	6 U	6 U	6 U	6 U
Vinyl Chloride	13 U	13 U	14 U	12 U	10 U	12 U	11 U	12 U	11 U
Xylenes (Total)	20 U	20 U	20 U	18 U	16 U	18 U	17 U	18 U	17 U

ATTACHMENT C

SOIL ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-SB01-06	BP-SB02-06	BP-SB03-07	BP-SB04-05	BP-SB05-04	BP-SB06-02	BP-SB07-02	BP-SB08-03	BP-SB09-04
SAMPLE DATE	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-28-2003	01-28-2003	01-28-2003
DEPTH RANGE (feet)	12-14	12-14	15-17	9-11	7-9	2-4	2-4	5-7	7-9
SEMIVOLATILES (mg/kg)									
1,2,4-Trichlorobenzene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
1,2-Dichlorobenzene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
1,3-Dichlorobenzene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
1,4-Dichlorobenzene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
2,2'-Oxybis(1-Chloropropane)	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
2,4,5-Trichlorophenol	1000 U	1000 U	1000 U	860 U	870 U	870 U	870 U	910 U	950 U
2,4,6-Trichlorophenol	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
2,4-Dichlorophenol	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
2,4-Dimethylphenol	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
2,4-Dinitrophenol	1000 U	1000 U	1000 U	860 U	870 U	870 U	870 U	910 U	950 U
2,4-Dinitrotoluene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
2,6-Dinitrotoluene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
2-Chloronaphthalene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
2-Chlorophenol	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
2-Methylnaphthalene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
2-Methylphenol	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
2-Nitroaniline	1000 U	1000 U	1000 U	860 U	870 U	870 U	870 U	910 U	950 U
2-Nitrophenol	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
3,3'-Dichlorobenzidine	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
3-Nitroaniline	1000 U	1000 U	1000 U	860 U	870 U	870 U	870 U	910 U	950 U
4,6-Dinitro-2-Methylphenol	1000 U	1000 U	1000 U	860 U	870 U	870 U	870 U	910 U	950 U
4-Bromophenyl Phenyl Ether	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
4-Chloro-3-Methylphenol	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
4-Chloroaniline	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
4-Chlorophenyl Phenyl Ether	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
4-Methylphenol	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
4-Nitroaniline	1000 U	1000 U	1000 U	860 U	870 U	870 U	870 U	910 U	950 U
4-Nitrophenol	1000 U	1000 U	1000 U	860 U	870 U	870 U	870 U	910 U	950 U
Acenaphthene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Acenaphthylene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Anthracene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Benzo(A)Anthracene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Benzo(A)Pyrene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Benzo(B)Fluoranthene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Benzo(K)Fluoranthene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Benzo[G,H,I]Perylene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Bis(2-Chloroethoxy) Methane	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U

ATTACHMENT C

SOIL ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-SB01-06	BP-SB02-06	BP-SB03-07	BP-SB04-05	BP-SB05-04	BP-SB06-02	BP-SB07-02	BP-SB08-03	BP-SB09-04
SAMPLE DATE	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-28-2003	01-28-2003	01-28-2003
DEPTH RANGE (feet)	12-14	12-14	15-17	9-11	7-9	2-4	2-4	5-7	7-9
SEMIVOLATILES (mg/kg) (cont'd)									
Bis(2-Chloroethyl) Ether	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Bis(2-Ethylhexyl) Phthalate	35 JB	410 U	420 U	29 JB	350 U	350 U	34 JB	88 JB	38 JB
Butyl Benzyl Phthalate	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Carbazole	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Chrysene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Di-N-Butyl Phthalate	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Di-N-Octylphthalate	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Dibenzo(A,H)Anthracene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Dibenzofuran	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Diethyl Phthalate	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Dimethyl Phthalate	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Fluoranthene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Fluorene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Hexachlorobenzene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Hexachlorobutadiene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Hexachlorocyclopentadiene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Hexachloroethane	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Indeno(1,2,3-Cd)Pyrene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Isophorone	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
N-Nitroso-Di-N-Propylamine	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
N-Nitrosodiphenylamine	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Naphthalene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Nitrobenzene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Pentachlorophenol	1000 U	1000 U	1000 U	860 U	870 U	870 U	870 U	910 U	950 U
Phenanthrene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Phenol	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
Pyrene	420 U	410 U	420 U	350 U	350 U	350 U	350 U	360 U	380 U
PESTICIDES (mg/kg)									
4,4'-DDD	4.2 U	4.1 U	4.2 U	3.5 U	3.5 U	3.5 U	3.5 U	3.6 U	3.8 U
4,4'-DDE	4.2 U	4.1 U	4.2 U	3.5 U	3.5 U	3.5 U	3.5 U	3.6 U	3.8 U
4,4'-DDT	4.2 U	4.1 U	4.2 U	3.5 U	3.5 U	3.5 U	3.5 U	3.6 U	3.8 U
Aldrin	2.2 U	2.1 U	2.2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	2 U
Alpha Bhc	2.2 U	2.1 U	2.2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	2 U
Alpha-Chlordane	2.2 U	2.1 U	2.2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	2 U
Beta Bhc	2.2 U	2.1 U	2.2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	2 U
Delta Bhc	2.2 U	2.1 U	2.2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	2 U
Dieldrin	4.2 U	4.1 U	4.2 U	3.5 U	3.5 U	3.5 U	3.5 U	3.6 U	3.8 U

ATTACHMENT C

SOIL ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-SB01-06	BP-SB02-06	BP-SB03-07	BP-SB04-05	BP-SB05-04	BP-SB06-02	BP-SB07-02	BP-SB08-03	BP-SB09-04
SAMPLE DATE	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-28-2003	01-28-2003	01-28-2003
DEPTH RANGE (feet)	12-14	12-14	15-17	9-11	7-9	2-4	2-4	5-7	7-9
PESTICIDES (mg/kg) (cont'd)									
Endosulfan I	2.2 U	2.1 U	2.2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	2 U
Endosulfan Ii	4.2 U	4.1 U	4.2 U	3.5 U	3.5 U	3.5 U	3.5 U	3.6 U	3.8 U
Endosulfan Sulfate	4.2 U	4.1 U	4.2 U	3.5 U	3.5 U	3.5 U	3.5 U	3.6 U	3.8 U
Endrin	4.2 U	4.1 U	4.2 U	3.5 U	3.5 U	3.5 U	3.5 U	3.6 U	3.8 U
Endrin Aldehyde	4.2 U	4.1 U	4.2 U	3.5 U	3.5 U	3.5 U	3.5 U	3.6 U	3.8 U
Endrin Ketone	4.2 U	4.1 U	4.2 U	3.5 U	3.5 U	3.5 U	3.5 U	3.6 U	3.8 U
Gamma Bhc	2.2 U	2.1 U	2.2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	2 U
Gamma-Chlordane	2.2 U	2.1 U	2.2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	2 U
Heptachlor	2.2 U	2.1 U	2.2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	2 U
Heptachlor Epoxide	2.2 U	2.1 U	2.2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	2 U
Methoxychlor	22 U	21 U	22 U	18 U	18 U	18 U	18 U	19 U	20 U
Toxaphene	42 U	41 U	42 U	35 U	35 U	35 U	35 U	36 U	38 U
PCBs (mg/kg)									
Aroclor-1016	22 U	21 U	22 U	18 U	18 U	18 U	18 U	19 U	20 U
Aroclor-1221	22 U	21 U	22 U	18 U	18 U	18 U	18 U	19 U	20 U
Aroclor-1232	22 U	21 U	22 U	18 U	18 U	18 U	18 U	19 U	20 U
Aroclor-1242	22 U	21 U	22 U	18 U	18 U	18 U	18 U	19 U	20 U
Aroclor-1248	22 U	21 U	22 U	18 U	18 U	18 U	18 U	19 U	20 U
Aroclor-1254	22 U	21 U	22 U	18 U	18 U	18 U	18 U	19 U	20 U
Aroclor-1260	22 U	21 U	22 U	18 U	18 U	18 U	18 U	19 U	20 U
METALS (mg/kg)									
Aluminum	3480	2830	4630	650	3830	1220	484	3290	2020
Antimony	0.14 B	0.12 U	0.13 U	0.11 U	0.10 U	0.10 U	0.10 U	0.12 U	0.11 U
Arsenic	0.22 B	0.20 B	0.17 U	0.14 U	0.47 B	0.13 U	0.13 U	0.22 B	0.14 U
Barium	8.1	7.2	9.4	2.5	7.6	3.7	2.4	7.1	5.2
Beryllium	0.07 B	0.04 B	0.05 B	0.03 U	0.04 B	0.03 U	0.03 U	0.05 B	0.03 U
Cadmium	0.31 B	0.27 U	0.28 U	0.23 U	0.21 U	0.21 U	0.21 U	0.26 U	0.24 U
Calcium	42.7	18.0	40.3	19.3	24.1	75.6	31.5	185	81.8
Chromium	4.6	3.5	5.1	1.4	4.5	1.9	1.3	4.5	6.9
Cobalt	0.27 B	0.42 B	0.89 B	0.1 B	0.64 B	0.12 B	0.05 U	0.43 B	0.24 B
Copper	0.67 B	0.46 B	0.74 B	0.21 U	1.2 B	0.44 B	0.20 B	0.96 B	0.82 B
Iron	1020	730	1200	298	1280	320	305	898	1020
Lead	2.6	2.0	2.4	1.2	3.5	1.8	1.5	2.2	2.4
Magnesium	168	119	200	49.9	170	48.2	35.1	140	114
Manganese	5.8	5.4	11.5	4.5	4.7	2.7	5.6	5.4	7.5
Mercury	0.02 B	0.01 U	0.02 B	0.01 U	0.01 B	0.01 U	0.01 B	0.01 B	0.02 B
Nickel	0.99 U	1.5 B	1.8 B	0.92 U	2.4 B	0.82 U	0.84 U	1.9 B	0.92 U

ATTACHMENT C

SOIL ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-SB01-06	BP-SB02-06	BP-SB03-07	BP-SB04-05	BP-SB05-04	BP-SB06-02	BP-SB07-02	BP-SB08-03	BP-SB09-04
SAMPLE DATE	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-27-2003	01-28-2003	01-28-2003	01-28-2003
DEPTH RANGE (feet)	12-14	12-14	15-17	9-11	7-9	2-4	2-4	5-7	7-9
METALS (mg/kg) (cont.)									
Potassium	163	68.1 B	148	42.47 U	112	48.7 B	38.83 U	126	107
Selenium	0.21 U	0.22 U	0.23 U	0.19 U	0.17 U	0.17 U	0.17 U	0.21 U	0.19 U
Silver	0.24 U	0.25 U	0.32 B	0.22 U	0.20 U	0.26 B	0.20 U	0.24 U	0.22 U
Sodium	28.4 B	30.3 B	26.8 B	18.2 B	29.4 B	17.3 B	29.5 B	35.0 B	19.3 B
Thallium	1.3 B	0.30 U	0.31 U	0.26 U	0.23 U	0.23 U	0.23 U	0.28 U	0.26 U
Vanadium	3.8	2.7	3.6	0.96 B	3.9	1.3 B	1.1 B	2.9	2.8
Zinc	2.3 B	2.0 B	3.2	0.75 B	2.6	0.72 B	0.94 B	2.4 B	3.5
Total Solids	78	80	79	95	94	94	94	90	86

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-GW16	BP-TW01	BP-TW02	BP-TW03	BP-TW04	BP-TW05	BP-TW06	BP-TW07
SAMPLE DATE	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003
VOLATILES (ug/L)								
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethylene (Total)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	120	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U	0.2 J	0.2 J	5 U
Carbon Tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5 U	3 J	4 J	1 J	4 J	2 J	0.3 J	5 U
Chloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	0.2 JB	0.9 JB	0.1 JB	0.3 JB	0.2 JB	0.8 JB	0.4 JB	0.3 JB
M-,P-Xylene	0.5 JB	3 JB	0.6 JB	0.6 JB	0.5 JB	3 JB	1 JB	1.0 JB
Methylene Chloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
O-Xylene	5 U	1 JB	0.2 JB	5 U	5 U	0.9 J	0.5 J	0.4 J
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	4 JB	0.4 JB	0.4 JB	0.3 JB	0.5 J	0.3 J	5 U
Trans-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U	1 J	0.6 J	5 U
Vinyl Chloride	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Xylenes (Total)	0.5 JB	4 JB	0.8 JB	0.6 JB	0.5 JB	4 JB	2 JB	1 JB

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-GW16	BP-TW01	BP-TW02	BP-TW03	BP-TW04	BP-TW05	BP-TW06	BP-TW07
SAMPLE DATE	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003
SEMIVOLATILES (ug/L)								
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,2'-Oxybis(1-Chloropropane)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4,6-Dinitro-2-Methylphenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Bromophenyl Phenyl Ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl Phenyl Ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Nitrophenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(A)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(A)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(B)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(K)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo[G,H,I]Perylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-GW16	BP-TW01	BP-TW02	BP-TW03	BP-TW04	BP-TW05	BP-TW06	BP-TW07
SAMPLE DATE	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003	01-29-2003
Bis(2-Chloroethoxy) Methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-Chloroethyl) Ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-Ethylhexyl) Phthalate	11	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butyl Benzyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES (ug/L) (cont'd)								
Carbazole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-N-Butyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-N-Octylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(A,H)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dimethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-Cd)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-Di-N-Propylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PESTICIDES (ug/L)								
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aldrin	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Alpha BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Alpha-Chlordane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Beta Bhc	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Delta Bhc	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-GW16		BP-TW01		BP-TW02		BP-TW03		BP-TW04		BP-TW05		BP-TW06		BP-TW07	
SAMPLE DATE	01-29-2003		01-29-2003		01-29-2003		01-29-2003		01-29-2003		01-29-2003		01-29-2003		01-29-2003	
Endosulfan I	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Endosulfan II	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endosulfan Sulfate	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endrin	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endrin Aldehyde	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endrin Ketone	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
PESTICIDES (ug/L) (cont'd)																
Gamma Bhc	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Gamma-Chlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor Epoxide	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toxaphene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
PCBs (ug/L)																
Aroclor-1016	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Aroclor-1221	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Aroclor-1232	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Aroclor-1242	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Aroclor-1248	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Aroclor-1254	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Aroclor-1260	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
METALS (ug/L)																
Aluminum	19.25	U	4630		178	B	2090		120	B	2350		2100		1370	
Antimony	1.19	U	1.19	U	1.19	U	1.19	U	1.19	U	1.19	U	1.19	U	1.19	U
Arsenic	1.56	U	1.56	U	1.56	U	1.56	U	1.56	U	1.56	U	1.56	U	1.56	U
Barium	11.6		31.9		27.3		32.2		22.3		32.2		22.5		25.4	
Beryllium	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
Cadmium	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
Calcium	54600		4030		1340		1210		1450		1870		11700		11700	
Chromium	0.42	U	8.2	B	0.44	B	3.0	B	0.42	U	9.9	B	2.8	B	2.2	B
Cobalt	0.55	U	0.62	B	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U
Copper	2.37	U	2.37	U	2.37	U	3.0	B	2.37	U	3.4	B	2.37	U	2.37	U
Iron	839		6050		5800		3560		2760		6600		4540		3940	
Lead	0.87	U	2.4	B	0.87	U	1.8	B	0.87	U	1.4	B	1.3	B	0.87	U
Magnesium	1360		1800		1450		1400		1510		1370		1090		1640	
Manganese	12.5		69.6		102		37.8		64.4		73.1		43.4		53.5	
Mercury	0.12	B	0.03	U	0.07	B	0.10	B	0.10	B	0.13	B	0.13	B	0.13	B
Nickel	0.64	U	7.4	B	6.2	B	3.7	B	6.6	B	7.3	B	2.6	B	2.2	B
Potassium	628	B	1200		1180		1340		1060		1150		1000		1020	

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-GW16		BP-TW01		BP-TW02		BP-TW03		BP-TW04		BP-TW05		BP-TW06		BP-TW07	
SAMPLE DATE	01-29-2003		01-29-2003		01-29-2003		01-29-2003		01-29-2003		01-29-2003		01-29-2003		01-29-2003	
Selenium	2.12	U	2.12	U	2.12	U	2.12	U	2.12	U	2.12	U	2.12	U	2.12	U
Silver	2.45	U	2.45	U	2.45	U	2.7	B	2.45	U	2.45	U	2.45	U	2.9	B
Sodium	4530		11400		10500		10200		10300		10100		9650		10200	
Thallium	2.85	U	2.85	U	2.85	U	2.85	U	2.85	U	2.85	U	2.85	U	2.85	U
Vanadium	5.17	U	5.9	B	5.17	U	5.17	U	5.17	U	5.17	U	5.17	U	5.17	U
Zinc	2.5	B	19.0	B	12.2	B	8.8	B	3.3	B	24.1	B	7.4	B	5.4	B

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-TW08		BP-TW09		BP-TB01	
SAMPLE DATE	01-28-2003		01-28-2003		01-29-2003	
VOLATILES (ug/L)						
1,1,1-Trichloroethane	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	5	U	5	U	5	U
1,1,2-Trichloroethane	5	U	5	U	5	U
1,1-Dichloroethane	5	U	5	U	5	U
1,1-Dichloroethene	5	U	5	U	5	U
1,2-Dichloroethane	5	U	5	U	5	U
1,2-Dichloropropane	5	U	5	U	5	U
1,2-Dichloroethylene (Total)	5	U	5	U	5	U
2-Butanone	10	U	10	U	10	U
2-Hexanone	10	U	10	U	10	U
4-Methyl-2-Pentanone	10	U	10	U	10	U
Acetone	10	U	10	U	10	U
Benzene	5	U	5	U	5	U
Bromodichloromethane	5	U	5	U	5	U
Bromoform	5	U	5	U	5	U
Bromomethane	5	U	5	U	5	U
Carbon Disulfide	5	U	5	U	5	U
Carbon Tetrachloride	5	U	5	U	5	U
Chlorobenzene	5	U	5	U	5	U
Chloroethane	5	U	5	U	5	U
Chloroform	5	U	2	J	5	U
Chloromethane	5	U	5	U	5	U
Cis-1,2-Dichloroethene	5	U	5	U	5	U
Cis-1,3-Dichloropropene	5	U	5	U	5	U
Dibromochloromethane	5	U	5	U	5	U
Ethylbenzene	0.2	JB	0.2	JB	5	U
M-,P-Xylene	0.8	JB	0.7	JB	0.4	JB
Methylene Chloride	5	U	0.4	JB	0.6	JB
O-Xylene	0.2	J	0.2	J	5	U
Styrene	5	U	5	U	5	U
Tetrachloroethene	5	U	5	U	5	U
Toluene	0.2	J	0.3	J	5	U
Trans-1,2-Dichloroethene	5	U	5	U	5	U
Trans-1,3-Dichloropropene	5	U	5	U	5	U
Trichloroethene	5	U	5	U	5	U
Vinyl Chloride	2	U	2	U	2	U
Xylenes (Total)	1	JB	0.9	JB	0.4	JB

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-TW08		BP-TW09		BP-TB01
SAMPLE DATE	01-28-2003		01-28-2003		01-29-2003
SEMIVOLATILES (ug/L)					
1,2,4-Trichlorobenzene	10	U	10	U	NA
1,2-Dichlorobenzene	10	U	10	U	NA
1,3-Dichlorobenzene	10	U	10	U	NA
1,4-Dichlorobenzene	10	U	10	U	NA
2,2'-Oxybis(1-Chloropropane)	10	U	10	U	NA
2,4,5-Trichlorophenol	25	U	25	U	NA
2,4,6-Trichlorophenol	10	U	10	U	NA
2,4-Dichlorophenol	10	U	10	U	NA
2,4-Dimethylphenol	10	U	10	U	NA
2,4-Dinitrophenol	25	U	25	U	NA
2,4-Dinitrotoluene	10	U	10	U	NA
2,6-Dinitrotoluene	10	U	10	U	NA
2-Chloronaphthalene	10	U	10	U	NA
2-Chlorophenol	10	U	10	U	NA
2-Methylnaphthalene	10	U	10	U	NA
2-Methylphenol	10	U	10	U	NA
2-Nitroaniline	25	U	25	U	NA
2-Nitrophenol	10	U	10	U	NA
3,3'-Dichlorobenzidine	10	U	10	U	NA
3-Nitroaniline	25	U	25	U	NA
4,6-Dinitro-2-Methylphenol	25	U	25	U	NA
4-Bromophenyl Phenyl Ether	10	U	10	U	NA
4-Chloro-3-Methylphenol	10	U	10	U	NA
4-Chloroaniline	10	U	10	U	NA
4-Chlorophenyl Phenyl Ether	10	U	10	U	NA
4-Methylphenol	10	U	10	U	NA
4-Nitroaniline	25	U	25	U	NA
4-Nitrophenol	25	U	25	U	NA
Acenaphthene	10	U	10	U	NA
Acenaphthylene	10	U	10	U	NA
Anthracene	10	U	10	U	NA
Benzo(A)Anthracene	10	U	10	U	NA
Benzo(A)Pyrene	10	U	10	U	NA
Benzo(B)Fluoranthene	10	U	10	U	NA
Benzo(K)Fluoranthene	10	U	10	U	NA
Benzo[G,H,I]Perylene	10	U	10	U	NA

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-TW08		BP-TW09		BP-TB01
SAMPLE DATE	01-28-2003		01-28-2003		01-29-2003
Bis(2-Chloroethoxy) Methane	10	U	10	U	NA
Bis(2-Chloroethyl) Ether	10	U	10	U	NA
Bis(2-Ethylhexyl) Phthalate	10	U	10	U	NA
Butyl Benzyl Phthalate	10	U	10	U	NA
SEMIVOLATILES (ug/L) (cont'd)					
Carbazole	10	U	10	U	NA
Chrysene	10	U	10	U	NA
Di-N-Butyl Phthalate	10	U	10	U	NA
Di-N-Octylphthalate	10	U	10	U	NA
Dibenzo(A,H)Anthracene	10	U	10	U	NA
Dibenzofuran	10	U	10	U	NA
Diethyl Phthalate	10	U	10	U	NA
Dimethyl Phthalate	10	U	10	U	NA
Fluoranthene	10	U	10	U	NA
Fluorene	10	U	10	U	NA
Hexachlorobenzene	10	U	10	U	NA
Hexachlorobutadiene	10	U	10	U	NA
Hexachlorocyclopentadiene	10	U	10	U	NA
Hexachloroethane	10	U	10	U	NA
Indeno(1,2,3-Cd)Pyrene	10	U	10	U	NA
Isophorone	10	U	10	U	NA
N-Nitroso-Di-N-Propylamine	10	U	10	U	NA
N-Nitrosodiphenylamine	10	U	10	U	NA
Naphthalene	10	U	10	U	NA
Nitrobenzene	10	U	10	U	NA
Pentachlorophenol	25	U	25	U	NA
Phenanthrene	10	U	10	U	NA
Phenol	10	U	10	U	NA
Pyrene	10	U	10	U	NA
PESTICIDES (ug/L)					
4,4'-DDD	0.1	U	0.1	U	NA
4,4'-DDE	0.1	U	0.1	U	NA
4,4'-DDT	0.1	U	0.1	U	NA
Aldrin	0.05	U	0.05	U	NA
Alpha BHC	0.05	U	0.05	U	NA
Alpha-Chlordane	0.05	U	0.05	U	NA
Beta Bhc	0.05	U	0.05	U	NA
Delta Bhc	0.05	U	0.05	U	NA
Dieldrin	0.1	U	0.1	U	NA

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
BORROW PIT INVESTIGATION - JANUARY 2003
CTO-0143
MCB, CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	BP-TW08		BP-TW09		BP-TB01
SAMPLE DATE	01-28-2003		01-28-2003		01-29-2003
Endosulfan I	0.05	U	0.05	U	NA
Endosulfan II	0.1	U	0.1	U	NA
Endosulfan Sulfate	0.1	U	0.1	U	NA
Endrin	0.1	U	0.1	U	NA
Endrin Aldehyde	0.1	U	0.1	U	NA
Endrin Ketone	0.1	U	0.1	U	NA
PESTICIDES (ug/L) (cont'd)					
Gamma Bhc	0.05	U	0.05	U	NA
Gamma-Chlordane	0.05	U	0.05	U	NA
Heptachlor	0.05	U	0.05	U	NA
Heptachlor Epoxide	0.05	U	0.05	U	NA
Methoxychlor	0.5	U	0.5	U	NA
Toxaphene	1	U	1	U	NA
PCBs (ug/L)					
Aroclor-1016	0.5	U	0.5	U	NA
Aroclor-1221	0.5	U	0.5	U	NA
Aroclor-1232	0.5	U	0.5	U	NA
Aroclor-1242	0.5	U	0.5	U	NA
Aroclor-1248	0.5	U	0.5	U	NA
Aroclor-1254	0.5	U	0.5	U	NA
Aroclor-1260	0.5	U	0.5	U	NA
METALS (ug/L)					
Aluminum	391		13400		NA
Antimony	1.19	U	1.19	U	NA
Arsenic	1.56	U	2.3	B	NA
Barium	20.8		67.1		NA
Beryllium	0.32	U	0.32	U	NA
Cadmium	0.15	U	0.15	U	NA
Calcium	12800		7680		NA
Chromium	1.2	B	48.3		NA
Cobalt	0.55	U	2.0	B	NA
Copper	2.37	U	12.7	B	NA
Iron	2860		12900		NA
Lead	1.0	B	7.5		NA
Magnesium	1000		1980		NA
Manganese	33.2		107		NA
Mercury	0.10	B	0.11	B	NA
Nickel	3.7	B	20.9	B	NA
Potassium	638	B	2210		NA

ATTACHMENT C

GROUNDWATER ANALYTICAL RESULTS
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SAMPLE ID	BP-TW08		BP-TW09		BP-TB01
SAMPLE DATE	01-28-2003		01-28-2003		01-29-2003
Selenium	2.12	U	2.12	U	NA
Silver	2.45	U	2.45	U	NA
Sodium	7700		7600		NA
Thallium	2.85	U	2.85	U	NA
Vanadium	5.17	U	10.7	B	NA
Zinc	6.4	B	38.1		NA