

June 19, 2006

Commanding Officer
I&E/EMD/EQB (Attn.: Mr. Andrew Smith)
PSC Box 20004
Marine Corps Base
Camp Lejeune, North Carolina 28542-0004

**Re: FINAL – Annual Groundwater Monitoring Report, FC-201E
NCDENR Incident #23741
Gauging and Groundwater Sampling Event, October 2005 – April 2006
Marine Corps Base, Camp Lejeune, North Carolina**

Dear Mr. Smith:

Sovereign Consulting Inc. (Sovereign) is pleased to submit this monitoring report for gauging and sampling work performed at FC-201E. Sovereign was authorized to perform this work by Naval Facilities Engineering Command Atlantic North Carolina IPT Division under Navy Contract N62470-04-D-0205, Task Order No. 0007. Gauging and sampling activities at the project site show groundwater contamination does not exist above applicable North Carolina groundwater quality standards (NCGWQSS). This report presents the data collected during Sovereign's field activities from October 2005 through April 2006.

Background

The subject site, NCDENR Incident #23741, was identified as a result of tank removal actions in 1992. The former 550-gallon waste oil tank was removed by Jones and Frank, Inc. on July 1, 1992. The underground storage tank (UST) closure report, dated September 15, 1992, did not report whether any lines were abandoned or removed, nor did it indicate if native soils were replaced into the excavation. Two soil samples were obtained from the tank excavation and analyzed for oil and grease via EPA methods 9071. Each sample was taken from approximately seven (7) feet below ground surface, and results indicated the presence of petroleum hydrocarbons at 1,800 ppm and 25,000 ppm.

A Three Well Site Check was conducted by Groundwater Technology Government Services, Inc. in 1993. Soil and groundwater contamination was confirmed at the site. Law Engineering and Environmental Services (Law) subsequently performed a Comprehensive Site Assessment (CSA), dated October 10, 1994. Free product, as well as soil and groundwater contaminants were further delineated during the investigation. As a result, a Draft Corrective Action Plan (CAP) was prepared by CATLIN Engineers

and Scientists, (CATLIN) in 1995. This draft report recommended the removal of free product and soil contamination via soil excavation, as well as groundwater monitoring to assess groundwater conditions.

Approximately 110 cubic yards of petroleum impacted soil in the vicinity of the former UST was removed and properly disposed of from August 19-26, 1998 by J.A. Jones Environmental Services, Inc. As of the preparation of this report, Sovereign could not locate information pertaining to this removal activity as J.A. Jones did not prepare a findings report. Monitoring well MW-03 in the former tank basin was replaced after excavation and gauged and monitored on a regular basis.

The site has been gauged and monitored by various environmental contractors since the removal action. Engineering and Environment, Inc. (EEI) provided the most recent annual report, dated January 11, 2006, for the site. This report detailed gauging and sampling activities from November 2004 through August 2005. EEI did not detect measurable free product during any of their field events. Only two groundwater contaminants were observed above groundwater quality standards during the EEI November 2004 sampling event. Those compounds were 4-isopropyltoluene and C₉-C₂₂ aromatics.

Field Activities and Discussion

Sovereign gauged monitoring well USTFC201E-MW03R three times and sampled the well once as a part of this tasking. Well USTFC201E-MW03R was the well that historically contained free product. Gauging events were conducted on October 14, 2005, January 20, 2006, and April 5, 2006, and sampling of the well was performed during the April event. Table 1 summarizes gauging data from the three events. Sovereign personnel gauged USTFC201E-MW03R using an interface probe. No measurable free product was detected during any of the gauging events. Groundwater elevation contours could not be generated since only one well was monitored. Historical groundwater data, however, shows that the general groundwater flow is toward the north and northwest.

Field personnel sampled groundwater at the site on April 5, 2006. The sample was sent under chain of custody for analysis to Paradigm Analytical Laboratories Inc. (Paradigm) in Wilmington, NC (NC Certification Number 481). The lab tested the groundwater sample for volatiles via EPA method 6210D, semivolatiles using EPA method 625, lead using EPA method 6010B, and volatile and extractable petroleum hydrocarbons with the MADEP methods. Laboratory reports and chain of custody documentation are attached.

Naphthalene was the only VOC detected in the groundwater, with a concentration of 0.610 µg/L as compared to the standard of 21 µg/L. The compound, however, was not detected in the semivolatile analysis (EPA Method 625). In addition, no tentatively identified compounds (TICs) were detected.

Groundwater from the site also exhibited MADEP constituents; however, none of the petroleum hydrocarbon concentrations were above the applicable NCGWQSs. The C₉-C₁₈ aliphatics and C₁₉-C₃₆ aliphatics were detected at concentrations of <470 µg/L and 3,500 µg/L, respectively. These concentrations are each below the 2L standards of 4,200 and 42,000 µg/L. Overall, the number of detected groundwater contaminants decreased since the EEI February 2005 groundwater sampling event.

Summary and Conclusions

Sovereign did not detect free product at the site in USTFC201E-MW03R during the 2005-2006 monitoring period. Including EEI data, there have been seven consecutive quarters without the presence of product. In addition, groundwater contamination does not exist above applicable NCGWQSs based on the April 2006 sampling event. Since free product and soil and groundwater contamination has been remediated to below applicable standards, this site is a candidate for No Further Action status. Since record of the J.A. Jones removal could not be located, soil samples from the former tank basin are required to demonstrate soils are below applicable MSCCs. One sample should be taken from each sidewall and the excavation bottom and analyzed via EPA Methods 8260 with IPE & MTBE, 8270, 3050 (Total Metals – Chromium and Lead), and MADEP VPH/EPH. Results should then be provided to NCDENR/DWM/UST. If you have further questions or need additional information, please feel free to contact us at your convenience.

Sincerely,
Sovereign Consulting Inc.



Nicole L. Hall, P.E.
Senior Engineer



Attachments: Figures 1-2, Tables 1-6, Laboratory Analytical Reports

Cc: Mr. David. T. Cleland, P.G. (NAVFAC)
Mr. Chris Murray (Sovereign)

Table 1
Summary of Groundwater Gauging for 2005-2006

Well ID	Depth to Water from TOC (feet)		
	10/14/2005	1/20/2006	4/5/2006
USTFC201E-MW03R	4.26	5.46	6.14

Table 2
Analytical Method: EPA Method 6210D

Contaminant of Concern →			Naphthalene	All Other Compounds
Well ID	Sample ID	Date Collected		
USTFC201E-MW03R	USTFC201E-MW03R	4/5/2006	0.610	BQL
2L Standard (µg/l)			21	Varies
GCL (µg/l)			15,500	Varies

Table 3
Analytical Method: EPA Method 625

Contaminant of Concern →			All Compounds
Well ID	Sample ID	Date Collected	
USTFC201E-MW03R	USTFC201E-MW03R	4/5/2006	BQL
2L Standard (µg/l)			Varies
GCL (µg/l)			Varies

- No TICs identified.
- All results reported in µg/l
- µg/L = micrograms per liter
- GCL = Gross Contaminant Level
- NE = Not Established
- **BOLD** = detected concentration
- **BOLD** and **SHADED** = detected concentration above applicable standard

Table 4
Analytical Method: EPA method 6010B

Contaminant of Concern →			Lead	Chromium
Well ID	Sample ID	Date Collected		
USTFC201E-MW03R	USTFC201E-MW03R	4/5/2006	BQL	BQL

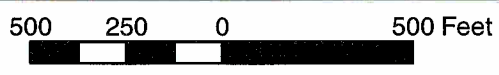
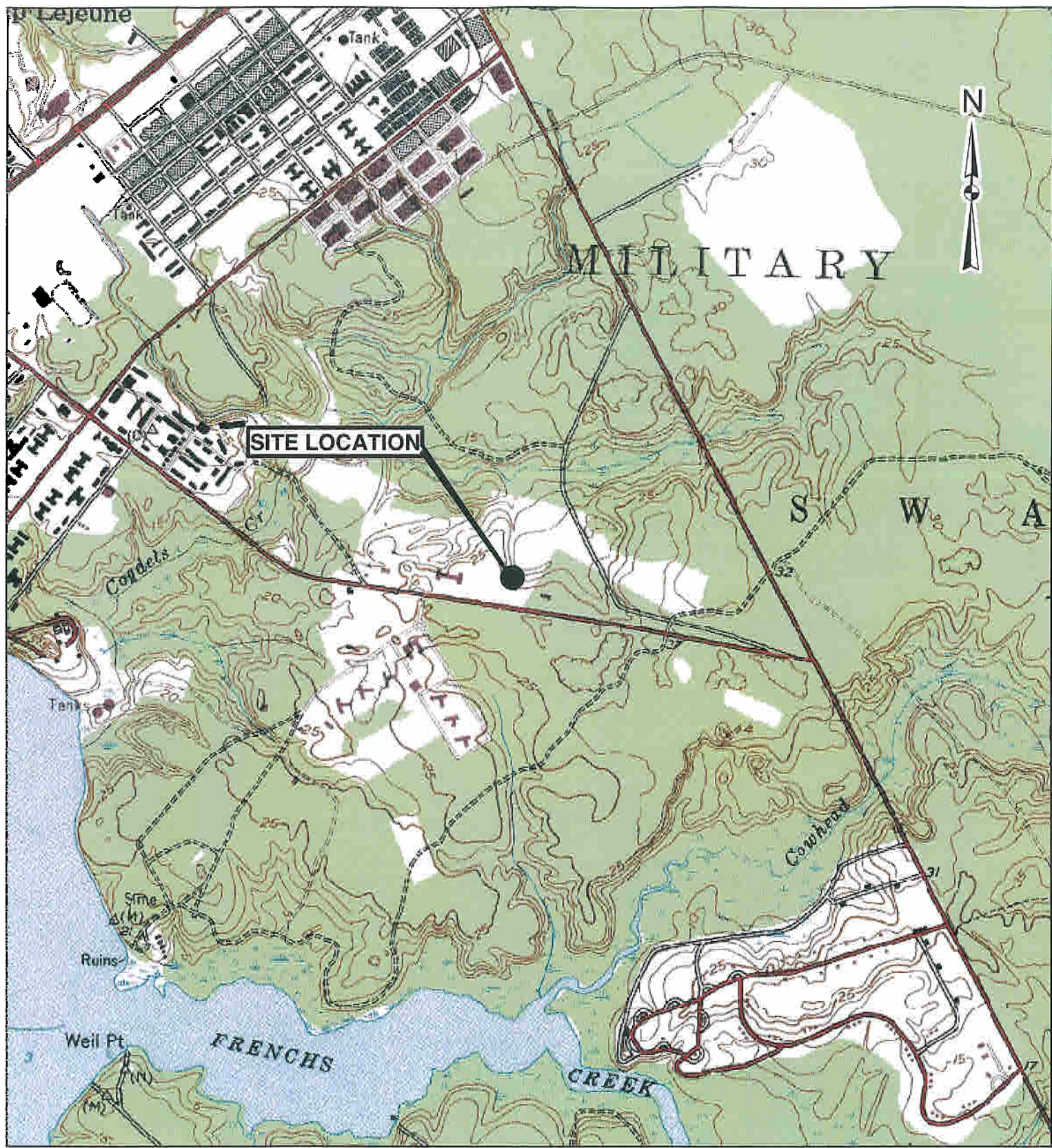
Table 5
Analytical Method: MADEP Method VPH/EPH

Contaminant of Concern →			C ₅ -C ₈ Aliphatics	C ₉ -C ₁₂ Aliphatics	C ₉ -C ₁₀ Aromatics	C ₉ -C ₁₈ Aliphatics	C ₁₉ -C ₃₆ Aliphatics	C ₁₁ -C ₂₂ Aromatics
Well ID	Sample ID	Date Collected						
USTFC201E-MW03R	USTFC201E-MW03R	4/5/2006	<100	<100	<100	370	3,500	<100

Table 6
Analytical Method: MADEP Method VPH/EPH as compared to NCDENR 2L Interim GWQS


Contaminant of Concern →			C ₅ -C ₈ Aliphatics	C ₉ -C ₁₈ Aliphatics	C ₁₉ -C ₃₆ Aliphatics	C ₉ -C ₂₂ Aromatics
Well ID	Sample ID	Date Collected				
USTFC201E-MW03R	USTFC201E-MW03R	4/5/2006	<100	<470	3,500	<200
2L Interim Standard (µg/l)			420	4,200	42,000	210
GCL (µg/l)			NE	NE	NE	NE

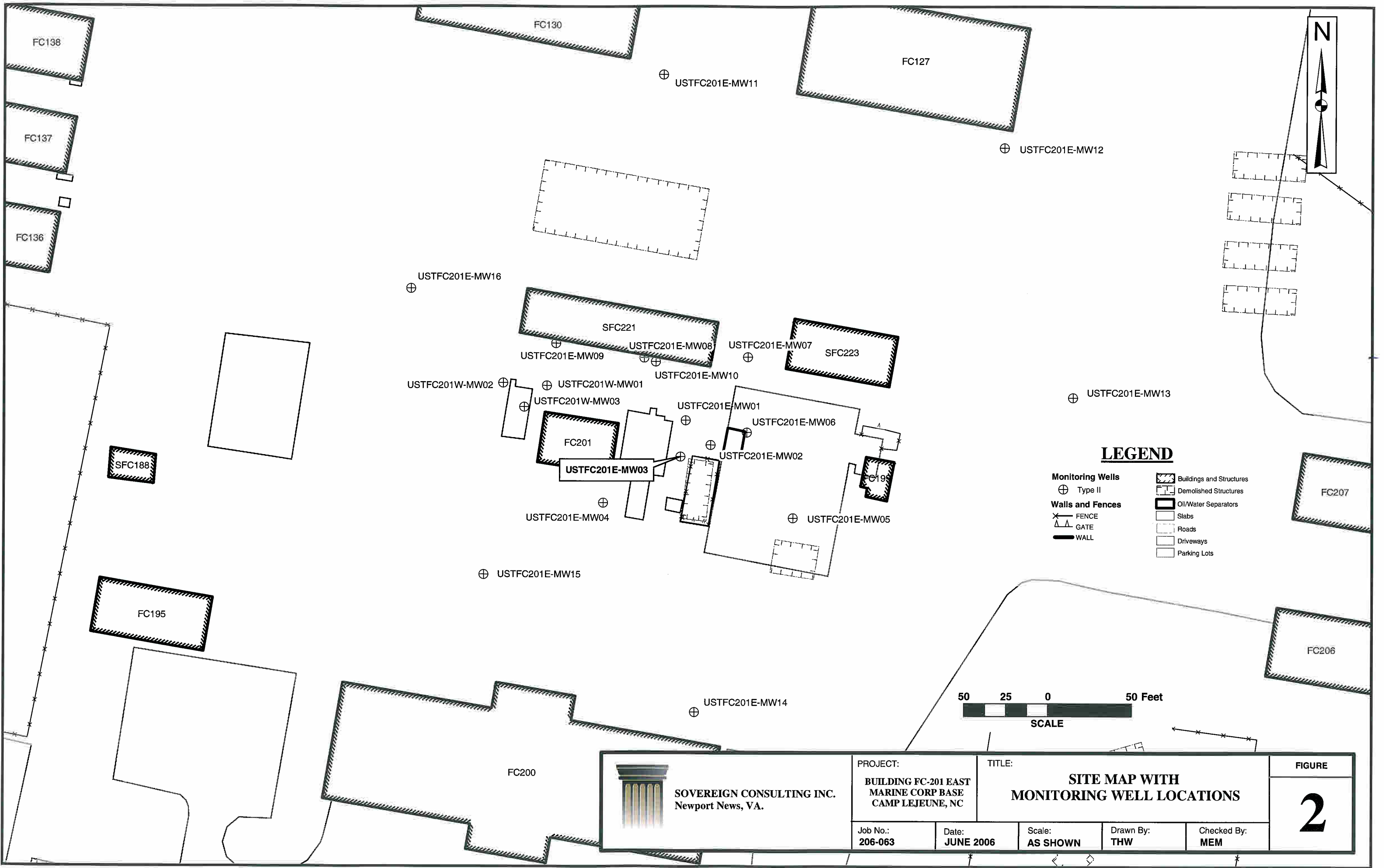
- All results reported in µg/l
- µg/L = micrograms per liter
- GCL = Gross Contaminant Level
- NE = Not Established
- **BOLD** = detected concentration
- **BOLD and SHADED** = detected concentration above applicable standard



From: USGS Camp Lejeune, NC. Topographic Quadrangle (Dated 1971)

SCALE


 <p>SOVEREIGN CONSULTING INC. NEWPORT NEWS, VIRGINIA</p>	<p>PROJECT</p> <p>BUILDING FC-201 EAST MARINE CORPS BASE CAMP LEJEUNE, N.C.</p>	<p>TITLE</p> <p>GENERAL VICINITY TOPOGRAPHIC MAP</p>		<p>FIGURE</p> <p>1</p>
	<p>JOB NO.</p> <p>206-063</p>	<p>DATE</p> <p>JUNE 2006</p>	<p>SCALE</p> <p>1"=500'</p>	<p>DRAWN BY</p> <p>LCJ</p>



LEGEND

- | | |
|-------------------------|--------------------------|
| Monitoring Wells | Buildings and Structures |
| Type II | Demolished Structures |
| Walls and Fences | Oil/Water Separators |
| FENCE | Slabs |
| GATE | Roads |
| WALL | Driveways |
| | Parking Lots |



 SOVEREIGN CONSULTING INC. Newport News, VA.	PROJECT: BUILDING FC-201 EAST MARINE CORP BASE CAMP LEJEUNE, NC		TITLE: SITE MAP WITH MONITORING WELL LOCATIONS		FIGURE 2
	Job No.: 206-063	Date: JUNE 2006	Scale: AS SHOWN	Drawn By: THW	Checked By: MEM



Mr. Chris Murray
Sovereign Consulting
606 Thimble Shoals Rd.
Suite A1
Newport-News VA 23606
Report Number: G650-39

Client Project: NV007

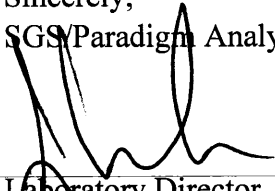
Dear Mr. Murray:

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call SGS/Paradigm at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS/Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
SGS/Paradigm Analytical Laboratories, Inc.



Laboratory Director
J. Patrick Weaver

4/25/2006

Date



**Results for 6210D Volatiles
by GCMS 8260**

Client Sample ID: USTFC201E-MW03
 Client Project ID: NV007
 Lab Sample ID: G650-39-1A
 Lab Project ID: G650-39

Analyzed By: JTF
 Date Collected: 4/5/2006 10:51
 Date Received: 4/7/2006
 Matrix: Water

Compound	Result	Quantitation	Dilution	Date
	UG/L	Limit UG/L	Factor	Analyzed
Benzene	BQL	0.500	1	4/19/2006
Bromobenzene	BQL	0.500	1	4/19/2006
Bromochloromethane	BQL	0.500	1	4/19/2006
Bromodichloromethane	BQL	0.500	1	4/19/2006
Bromoform	BQL	0.500	1	4/19/2006
Bromomethane	BQL	0.500	1	4/19/2006
n-Butylbenzene	BQL	0.500	1	4/19/2006
sec-Butylbenzene	BQL	0.500	1	4/19/2006
tert-Butylbenzene	BQL	0.500	1	4/19/2006
Carbon tetrachloride	BQL	0.500	1	4/19/2006
Chlorobenzene	BQL	0.500	1	4/19/2006
Chloroethane	BQL	0.500	1	4/19/2006
Chloroform	BQL	0.500	1	4/19/2006
Chloromethane	BQL	0.500	1	4/19/2006
2-Chlorotoluene	BQL	0.500	1	4/19/2006
4-Chlorotoluene	BQL	0.500	1	4/19/2006
Dibromochloromethane	BQL	0.500	1	4/19/2006
1,2-Dibromo-3-chloropropane	BQL	5.00	1	4/19/2006
Dibromomethane	BQL	0.500	1	4/19/2006
1,2-Dibromoethane (EDB)	BQL	0.500	1	4/19/2006
1,2-Dichlorobenzene	BQL	0.500	1	4/19/2006
1,3-Dichlorobenzene	BQL	0.500	1	4/19/2006
1,4-Dichlorobenzene	BQL	0.500	1	4/19/2006
1,1-Dichloroethane	BQL	0.500	1	4/19/2006
1,1-Dichloroethene	BQL	0.500	1	4/19/2006
1,2-Dichloroethane	BQL	0.500	1	4/19/2006
cis-1,2-Dichloroethene	BQL	0.500	1	4/19/2006
trans-1,2-dichloroethene	BQL	0.500	1	4/19/2006
1,2-Dichloropropane	BQL	0.500	1	4/19/2006
1,3-Dichloropropane	BQL	0.500	1	4/19/2006
2,2-Dichloropropane	BQL	0.500	1	4/19/2006
1,1-Dichloropropene	BQL	0.500	1	4/19/2006
Dichlorodifluoromethane	BQL	5.00	1	4/19/2006
Diisopropyl ether (DIPE)	BQL	0.500	1	4/19/2006
Ethylbenzene	BQL	0.500	1	4/19/2006
Hexachlorobutadiene	BQL	0.500	1	4/19/2006
Isopropylbenzene	BQL	0.500	1	4/19/2006
4-Isopropyltoluene	BQL	0.500	1	4/19/2006
Methylene chloride	BQL	5.00	1	4/19/2006
Methyl-tert-butyl ether (MTBE)	BQL	0.500	1	4/19/2006
Naphthalene	0.610	0.500	1	4/19/2006
n-Propyl benzene	BQL	0.500	1	4/19/2006



**Results for 6210D Volatiles
by GCMS 8260**

Client Sample ID: USTFC201E-MW03
 Client Project ID: NV007
 Lab Sample ID: G650-39-1A
 Lab Project ID: G650-39

Analyzed By: JTF
 Date Collected: 4/5/2006 10:51
 Date Received: 4/7/2006
 Matrix: Water

Compound	Result UG/L	Quantitation Limit UG/L	Dilution Factor	Date Analyzed
Styrene	BQL	0.500	1	4/19/2006
1,1,1,2-Tetrachloroethane	BQL	0.500	1	4/19/2006
1,1,2,2-Tetrachloroethane	BQL	0.500	1	4/19/2006
Tetrachloroethene	BQL	0.500	1	4/19/2006
Toluene	BQL	0.500	1	4/19/2006
1,2,3-Trichlorobenzene	BQL	0.500	1	4/19/2006
1,2,4-Trichlorobenzene	BQL	0.500	1	4/19/2006
Trichloroethene	BQL	0.500	1	4/19/2006
1,1,1-Trichloroethane	BQL	0.500	1	4/19/2006
1,1,2-Trichloroethane	BQL	0.500	1	4/19/2006
Trichlorofluoromethane	BQL	0.500	1	4/19/2006
1,2,3-Trichloropropane	BQL	0.500	1	4/19/2006
1,2,4-Trimethylbenzene	BQL	0.500	1	4/19/2006
1,3,5-Trimethylbenzene	BQL	0.500	1	4/19/2006
Vinyl chloride	BQL	0.500	1	4/19/2006
m-,p-Xylene	BQL	1.00	1	4/19/2006
o-Xylene	BQL	0.500	1	4/19/2006

	Spike Added	Spike Result	Percent Recovered
4-Bromofluorobenzene	10	9.2	92
1,2-Dichloroethane-d4	10	8.95	90
Toluene-d8	10	9.44	94

Comments:

Flags:

Reviewed By: 



VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Sovereign Consulting

Project Name: NV007

Sample Information and Analytical Results	
Sample Identification	USTFC201E-MW03
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	04/05/06
Date Received	04/07/06
Date Extracted	04/12/06
Date Analyzed	04/12/06
Dry Weight	
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₂ Aliphatics**	< 100 (µg/L)
C ₉ -C ₁₀ Aromatics**	< 100 (µg/L)
Surrogate % Recovery - PID	100
Surrogate % Recovery - FID	110

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: g650-39-1d

Reviewed By: 



Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information
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FID Initial Calibration Date: 02/11/06PID Initial Calibration Date: 02/11/06**Calibration Ranges and Limits**

Range	MDL (07/15/2004) (µg/L)	ML (µg/L)	RL	
			(µg/L)	(mg/Kg)
C ₅ -C ₈ Aliphatics	4.4	14	100	10
C ₉ -C ₁₂ Aliphatics	3.4	11	100	10
C ₉ -C ₁₀ Aromatics	0.13	0.41	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	%RSD or CCC	Method of Quantitation
C ₅ -C ₈ Aliphatics	40	10.8	Calibration Factor
	1000		
	2000		
	3000		
	4000		
C ₉ -C ₁₂ Aliphatics	10	0.99	Linear Regression
	250		
	500		
	750		
	1000		
C ₉ -C ₁₀ Aromatics	10	19.30	Calibration Factor
	250		
	500		
	750		
	1000		

Calibration Check Date: 04/12/06**Calibration Check**

Range	Levels (µg/L)		RPD
	(mg/Kg)		
C ₅ -C ₈ Aliphatics	2000	200	11.5
C ₉ -C ₁₂ Aliphatics	500	50	-8.6
C ₉ -C ₁₀ Aromatics	500	50	4.5

MDL = Method Detection Limit

ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve



**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTFC201E-MW03
 Client Project ID: NV007
 Lab Sample ID: G650-39-1K
 Lab Project ID: G650-39

Analyzed By: MRC
 Date Collected: 4/5/2006 10:51
 Date Received: 4/7/2006
 Date Extracted: 4/10/2006
 Matrix: Water

Compound	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Acenaphthene	BQL	10.0	1	4/14/2006
Acenaphthylene	BQL	10.0	1	4/14/2006
Anthracene	BQL	10.0	1	4/14/2006
Benzo[a]anthracene	BQL	10.0	1	4/14/2006
Benzo[a]pyrene	BQL	10.0	1	4/14/2006
Benzo[b]fluoranthene	BQL	10.0	1	4/14/2006
Benzo[g,h,i]perylene	BQL	10.0	1	4/14/2006
Benzo[k]fluoranthene	BQL	10.0	1	4/14/2006
Bis(2-chloroethoxy)methane	BQL	10.0	1	4/14/2006
Bis(2-chloroethyl)ether	BQL	10.0	1	4/14/2006
Bis(2-chloroisopropyl)ether	BQL	10.0	1	4/14/2006
Bis(2-ethylhexyl)phthalate	BQL	10.0	1	4/14/2006
4-bromophenyl phenyl ether	BQL	10.0	1	4/14/2006
Butylbenzylphthalate	BQL	10.0	1	4/14/2006
2-Chloronaphthalene	BQL	10.0	1	4/14/2006
2-Chlorophenol	BQL	10.0	1	4/14/2006
4-Chloro-3-methylphenol	BQL	10.0	1	4/14/2006
4-Chlorophenyl phenyl ether	BQL	10.0	1	4/14/2006
Chrysene	BQL	10.0	1	4/14/2006
Dibenzo[a,h]anthracene	BQL	10.0	1	4/14/2006
Di-n-Butylphthalate	BQL	10.0	1	4/14/2006
1,2-Dichlorobenzene	BQL	10.0	1	4/14/2006
1,3-Dichlorobenzene	BQL	10.0	1	4/14/2006
1,4-Dichlorobenzene	BQL	10.0	1	4/14/2006
3,3'-Dichlorobenzidine	BQL	20.0	1	4/14/2006
2,4-Dichlorophenol	BQL	10.0	1	4/14/2006
Diethylphthalate	BQL	10.0	1	4/14/2006
Dimethylphthalate	BQL	10.0	1	4/14/2006
2,4-Dimethylphenol	BQL	10.0	1	4/14/2006
Di-n-octylphthalate	BQL	10.0	1	4/14/2006
4,6-Dinitro-2-methylphenol	BQL	50.0	1	4/14/2006
2,4-Dinitrophenol	BQL	50.0	1	4/14/2006
2,4-Dinitrotoluene	BQL	10.0	1	4/14/2006
2,6-Dinitrotoluene	BQL	10.0	1	4/14/2006
Diphenylamine *	BQL	10.0	1	4/14/2006
Fluoranthene	BQL	10.0	1	4/14/2006
Fluorene	BQL	10.0	1	4/14/2006
Hexachlorobenzene	BQL	10.0	1	4/14/2006
Hexachlorobutadiene	BQL	10.0	1	4/14/2006
Hexachlorocyclopentadiene	BQL	20.0	1	4/14/2006
Hexachloroethane	BQL	10.0	1	4/14/2006
Indeno(1,2,3-c,d)pyrene	BQL	10.0	1	4/14/2006
Isophorone	BQL	10.0	1	4/14/2006
Naphthalene	BQL	10.0	1	4/14/2006



**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTFC201E-MW03
 Client Project ID: NV007
 Lab Sample ID: G650-39-1K
 Lab Project ID: G650-39

Analyzed By: MRC
 Date Collected: 4/5/2006 10:51
 Date Received: 4/7/2006
 Date Extracted: 4/10/2006
 Matrix: Water

Compound	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Nitrobenzene	BQL	10.0	1	4/14/2006
2-Nitrophenol	BQL	10.0	1	4/14/2006
4-Nitrophenol	BQL	50.0	1	4/14/2006
N-Nitrosodi-n-propylamine	BQL	10.0	1	4/14/2006
Pentachlorophenol	BQL	50.0	1	4/14/2006
Phenanthrene	BQL	10.0	1	4/14/2006
Phenol	BQL	10.0	1	4/14/2006
Pyrene	BQL	10.0	1	4/14/2006
1,2,4-Trichlorobenzene	BQL	10.0	1	4/14/2006
2,4,6-Trichlorophenol	BQL	10.0	1	4/14/2006

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.6	96
2-Fluorophenol	10	9.1	91
Nitrobenzene-d5	10	10	100
Phenol-d6	10	8.2	82
2,4,6-Tribromophenol	10	10.7	107
4-Terphenyl-d14	10	8.3	83

Comments:

* N-Nitrosodiphenylamine is reported as the breakdown product Diphenylamine.

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 



Results of Library Search for Semivolatile Compounds

by GCMS

Client Sample ID: USTFC201E-MW03
 Client Project ID: NV007
 Lab Sample ID: G650-39-1K
 Lab Project ID: G650-39
 Sample Wt/Vol: 500 ML
 Dilution: 1

Analyzed By: MRC
 Date Collected: 4/5/2006 10:51
 Date Received: 4/7/2006
 Date Extracted: 4/10/2006
 Date Analyzed: 4/14/2006
 Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	No library search compounds detected.				
2					
3					
4					
5					
6					
7					
8					
9					
10					

Comment:

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak area of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak area is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: hw



EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Sovereign Consulting


Project Name: NV007

Sample Information and Analytical Results	
Sample Identification	USTFC201E-MW03
Sample Matrix	Water
Date Collected	04/05/06
Date Received	04/07/06
Date Extracted	04/11/06
Date Analyzed	04/13/06
Dry Weight	
Dilution Factor	1:1
C ₉ -C ₁₈ Aliphatics*	370 (ug/L)
C ₁₉ -C ₃₆ Aliphatics*	3500 (ug/L)
C ₁₁ -C ₂₂ Aromatics*	< 100 (ug/L)
Aliphatic Surrogate % Recovery	51
Aromatic Surrogate % Recovery	41
Fractionation Surrogate 1 % Recovery	80

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G650-39-1L

Reviewed By: 



EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 12/28/05

Calibration Ranges and Limits

Range	MDL (2/2004) (µg/L)	ML (µg/L)	RL (µg/L)	RL (mg/Kg)
C ₉ -C ₁₈ Aliphatics	3.84	12.2	100	10
C ₁₉ -C ₃₆ Aliphatics	0.57	1.8	100	10
C ₁₁ -C ₂₂ Aromatics	4.54	14.4	100	10

Calibration Concentration Levels

Range	Levels (µg/mL)	%RSD or CCC	Method of Quantitation
C ₉ -C ₁₈ Aliphatics	6	24.90	Calibration Factor
	30		
	60		
	120		
	240		
C ₁₉ -C ₃₆ Aliphatics	8	15.4	Calibration Factor
	40		
	80		
	160		
	320		
C ₁₁ -C ₂₂ Aromatics	17	9.8	Calibration Factor
	85		
	170		
	340		
	680		

Calibration Check Date: 04/13/06

Calibration Check

Range	Levels (µg/mL)	RPD
C ₉ -C ₁₈ Aliphatics	120	19.2
C ₁₉ -C ₃₆ Aliphatics	160	8.9
C ₁₁ -C ₂₂ Aromatics	340	-5.6

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit

RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve



Results for Metals

Client Sample ID: USTFC201E-MW03
 Client Project ID: NV007
 Lab Sample ID: G650-39-1
 Lab Project ID: G650-39
 Batch ID: 4984

Analyzed By: RML
 Date Collected: 4/5/2006 10:51
 Date Received: 4/7/2006
 Matrix: WATER

Metals	Result	RL	DF	Units	Method	Date Analyzed
Chromium	BQL	0.0100	1	MG/L	6010B	4/26/2006
Lead	BQL	0.0100	1	MG/L	6010B	4/26/2006

Comments

BQL = Below Quantitation Limits
 DF = Dilution Factor
 J = Between MDL and RL
 B= Amount in Prep Blank > MDL

Reviewed By: _____
 MET_LIMS_4.0



List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL = Reporting Limit

RPD = Relative Percent Difference

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% solids = Percent Solids

Special Notes:

1) Metals and mercury samples are digested with a hot block, see the standard operating procedure document for details.

2) Uncertainty for all reported data is less than or equal to 30 percent.



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1 CLIENT: SOVEREIGN CONSULTING

CONTACT: Thomas Elkman PHONE NO: (910) 526-3944

PROJECT: NW007 SITE/PWSID#: FG201 EAST

REPORTS TO: Chris Murray FAX NO: (910) 594-9297

INVOICE TO: Chris Murray QUOTE #
106 THIMBLE SHOPS BLVD STE A1
Newport News VA 23606 P.O. NUMBER

SGS Reference: G650-39

PAGE 1 OF 1

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX
	UST EQ201E - MW03	4/5/06	1051	GV
	TRIP BLANKS	4/5/06	1050	W

No	CONTAINERS	SAMPLE TYPE C= COMP G= GRAB	Preservative Used	Analysis Required	REMARKS
X	X	X	X	X	6210D
X	X	X	X	X	VPH
X	X	X	X	X	695 + 10 TICs
X	X	X	X	X	EPH
X	X	X	X	X	6210B (CR+PB)

5 Collected/Relinquished By: (1) Chris Murray Date: 4/1/06 Time: 0850 Received By: Julie Brown

Relinquished By: (2) _____ Date: _____ Time: _____ Received By: _____

Relinquished By: (3) _____ Date: _____ Time: _____ Received By: _____

Relinquished By: (4) SGS Date: _____ Time: _____ Received By: _____

4 Shipping Carrier: _____ Samples Received Cold? (Circle) YES NO
 Temperature (C): 6.1 3.3

Shipping Ticket No.: _____ Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Deliverable Requirements: _____ Requested Turnaround Time and Special Instructions: _____

Standard Turnaround - _____
 Email: results@sovereign.com
EDD Format: nhall@sovereign.com

