



June 20, 2008

Commanding General
I&E/EMD/EQB (Attn.: Ms. Johanna Arnold)
PSC Box 20004
Marine Corps Base
Camp Lejeune, North Carolina 28542-0004

**Re: FINAL - Annual Monitoring Report, S-2633
NCDENR Incident #20385
Gauging and Groundwater Sampling Event, June 2007 – May 2008
Marine Corps Base, Camp Lejeune, North Carolina**

Dear Ms. Arnold:

Sovereign Consulting Inc. (Sovereign) is pleased to submit this monitoring report for gauging and sampling work performed at site S-2633. Sovereign was authorized to perform this work by Naval Facilities Engineering Command Mid Atlantic North Carolina IPT Division under Navy Contract N62470-04-D-0205, Task Order No. 0019. Gauging and sampling activities at the project site show groundwater contamination persists. This report presents the data collected during Sovereign's field activities from June 2007 through May 2008.

Background

Site S-2633, NCDENR Incident #20385, was identified as a result of tank removal actions in 1996. The former 150 gallon gasoline tank was removed by Rubeck Engineering and Construction, Inc. on January 24, 1996. The tank was described to be in poor condition, and field personnel noted product in the groundwater filled excavation. Groundwater analytical tests indicated the presence of ethylbenzene, toluene, xylenes, naphthalene, and lead above applicable groundwater standards. Approximately 2.21 tons of impacted soil was removed from the tank basin. One soil sample was taken in the tank basin and one was taken from the stockpiled soils. Only the stockpiled soil sample exhibited total petroleum hydrocarbon contamination.

CATLIN Engineers and Scientists (CATLIN) subsequently performed a Comprehensive Site Assessment (CSA), dated May 29, 1998. Free product and groundwater contaminants were identified during the investigation. No soil contamination was identified in this investigation. The CSA recommended that MCB Camp Lejeune gauge well USTS2633-MW01 for free product. CATLIN did not specify the length of time for the well to be gauged.

The site has been gauged and monitored by various environmental contractors since the CSA. Sovereign provided the most recent annual report, dated June 19, 2006, for the site. This report detailed gauging and sampling activities from October 2005 through April 2006. No free product was detected. Groundwater contaminants were observed to be

above the North Carolina groundwater quality standards (NCGWQSs), but below gross contaminant levels (GCLs).

Field Activities and Discussion

Sovereign gauged and sampled monitoring well USTS2633-MW01 one time during the monitoring period as a part of this task order Scope of Work. The monitoring and sampling event took place on January 31, 2008. Table 1 summarizes gauging data from the event. Sovereign personnel gauged USTS2633-MW01 using an oil-water interface probe. No measurable free product was detected during the gauging event. 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 west at this site.

Field personnel sampled groundwater at the site on January 31, 2008. The sample was sent under chain of custody for analysis to SGS-Paradigm Analytical Laboratories Inc. (SGS) in Wilmington, North Carolina (NC Certification Number 481). The lab tested the groundwater sample for volatiles via EPA method 602, semivolatiles plus 10 peaks using EPA method 625, and volatile and extractable petroleum hydrocarbons with the MADEP methods. Laboratory reports and chain of custody documentation are attached.

Benzene was the only VOC that was detected above 2L NCGWQSs, at a concentration of 342 µg/L. Bis (2-ethylhexyl) phthalate was the only semi-VOC that was detected above the 2L NCGWQSs, at a concentration of 4.10 µg/L. The concentration for both compounds, however, were below their established GCLs. One tentatively identified compound (TIC) was reported 1,2,4-Trimethylbenzene, with a 90% match probability. Its concentration was 19.4 µg/L, as compared to its groundwater quality standard of 350 µg/L. Two unknown TICs were also reported with concentrations of 28.8 µg/L and 17.3 µg/L. Each of these concentrations has shown a decrease since the Sovereign January 2006 groundwater sampling event. No VOCs or semiVOCs were present above their established GCLs.

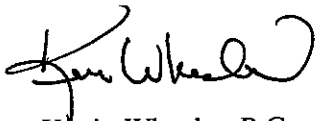
MADEP constituents were also present in the groundwater sample. The C₅-C₈ aliphatics were reported at a concentration of 2,710 µg/L, as compared to the standard of 420 µg/L. The C₉-C₁₂ aliphatics were reported at a concentration of 794 µg/L and the C₉-C₁₀ aromatics were reported at a concentration of 239 µg/L. C₉-C₂₂ aromatic concentrations were present at a concentration of 239 µg/L which is above the 2L NCGWQS of 210 µg/L. Each of these concentrations has shown a decrease since the Sovereign January 2006 groundwater sampling event. GCLs have not been established for these petroleum hydrocarbon fractions.

Summary and Conclusions

Sovereign did not detect free product at the site in USTS2633-MW01 during the 2007-2008 monitoring period. Including EEI data, there have been 12 consecutive quarters without the presence of free phase product. Groundwater contamination exists above NCGWQSs; however, it does not approach applicable GCLs. Sovereign recommends continuing gauging and sampling of monitoring well USTS2633-MW01 one time on an

every other year basis (again in 2010). However, during the next monitoring event it is recommended to include gauging and sampling of all five monitoring wells (USTS2633-MW01 through MW05, Figure 2), in order to verify groundwater flow direction and assess current groundwater conditions. Should any of the monitoring wells be found to exhibit no impacts above NCGWQSs, then those monitoring wells should be properly abandoned. This recommendation is based off site discussions during the February 2006 UST partnering meeting, and subsequent discussions. If you have further questions or need additional information, please feel free to contact us at your convenience.

Sincerely,
Sovereign Consulting Inc.



Kevin Wheeler, P.G.
Senior Geologist



Attachments: Figures 1-2, Tables 1-5, Laboratory Analytical Reports

Cc: Ms. Lori Reuther (NAVFAC)
Mr. Marc Cicalese (Sovereign)

Table 1
Summary of Groundwater Gauging

Well ID	Depth to Water from TOC (feet)
	1/31/2008
USTS2633-MW01	6.01

Table 2
Analytical Method: EPA Method 602

Contaminant of Concern →			Benzene	Diisopropyl ether (DIPE)	Ethylbenzene	Methyl-tert butyl ether (MTBE)	Toluene	Total Xylenes
Well ID	Sample ID	Date Collected						
USTS2633-MW01	USTS2633-MW01	1/31/2008	342	BQL	80.8	BQL	7.40J	54.0
2L Standard (µg/l)			1	70	550	200	1,000	530
GCL (µg/l)			5,000	70,000	84,500	200,000	257,500	87,500

Table 3
Analytical Method: EPA Method 625

Contaminant of Concern →			Bis(2-ethylhexyl)phthalate	2,4-Dimethylphenol	Naphthalene	Phenol	All Other Compounds
Well ID	Sample ID	Date Collected					
USTS2633-MW01	USTS2633-MW01	1/31/2008	4.10	BQL	19.8	6.50	BQL
2L Standard (µg/l)			2.5	140	21	300	Varies
GCL (µg/l)			2,500	140,000	15,500	300,000	Varies

- One TIC identified with 90% match probability: **1,2,4-Trimethylbenzene** at 19.4 µg/l.
- **Two unknown TICs identified at 28.8 µg/L and 17.3 µg/L**
- All results reported in µg/l
- µg/L = micrograms per liter
- GCL = Gross Contaminant Level
- NE = Not Established
- BOLD and SHADED = concentration above 2L standard

Table 4
Analytical Method: MADEP Method VPH/EPH

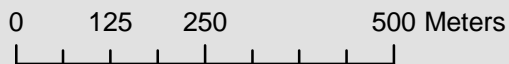
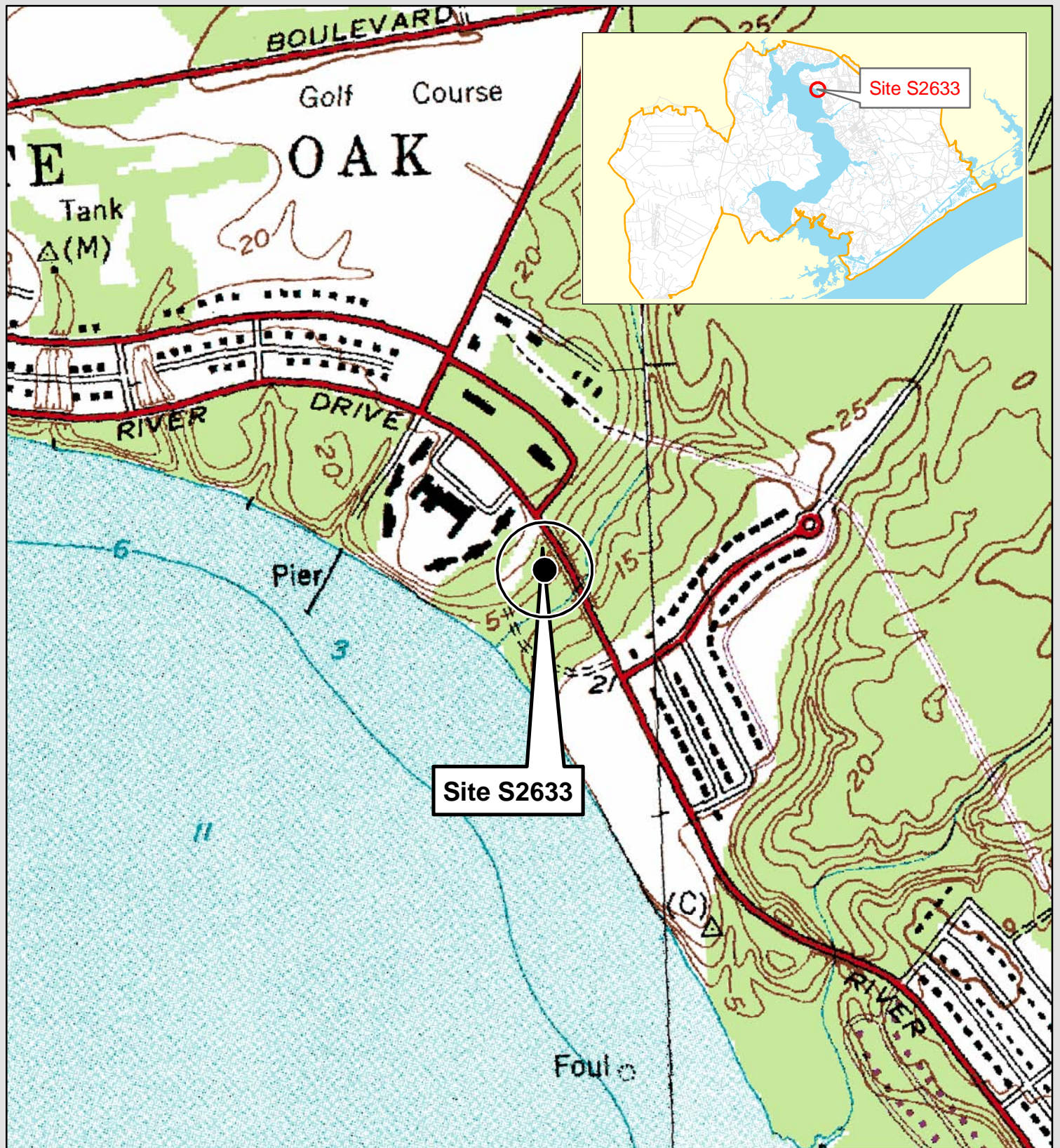
Contaminant of Concern →			C ₅ -C ₈ Aliphatics	C ₉ -C ₁₂ Aliphatics	C ₉ -C ₁₀ Aromatics	C ₉ -C ₁₈ Aliphatics	C ₁₉ -C ₃₆ Aliphatics	C ₁₁ -C ₂₂ Aromatics
Well ID	Sample ID	Date Collected						
USTS2633-MW01	USTS2633-MW01	1/31/2008	2,710	794	239	<100	<100	<100

Table 5
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				
USTS2633-MW01	USTS2633-MW01	1/19/2006	2,710	794	<100	239
2L 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 and SHADED = concentration above 2L standard

**FIGURE 1: LOCATION AND TOPOGRAPHY OF SITE S2633
PORTION OF U.S.G.S. QUADRANGLE - CAMP LEJEUNE**



1:10,000

Date: 03/24/08

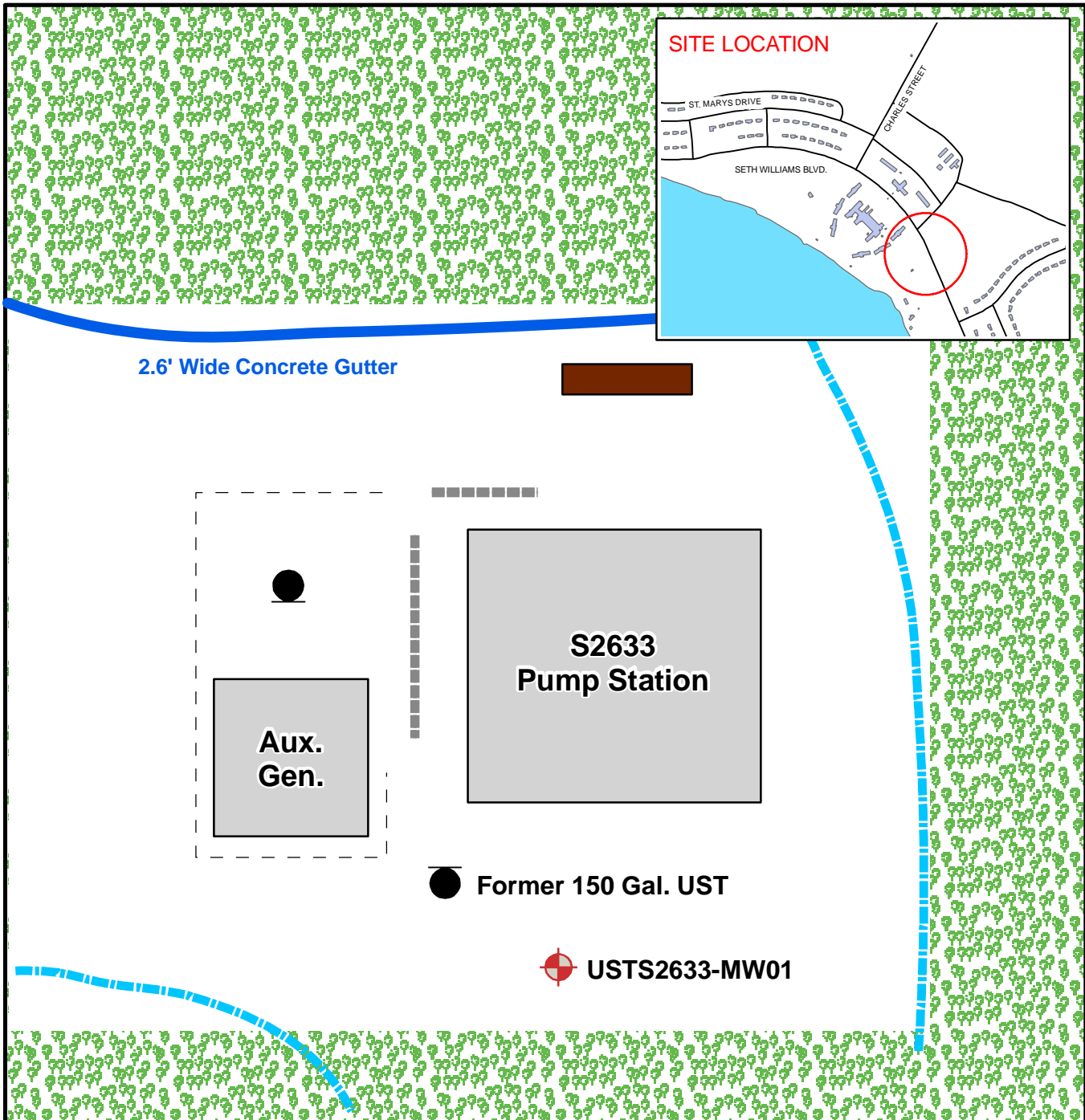
Drawn By: GM



Sovereign Consulting Inc.
Virginia Beach, VA
www.sovcon.com



Applied Services and Information Systems
Virginia Beach, VA
www.asisinfo.net



Marine Corps Base Camp Lejeune
Camp Lejeune, NC



Figure 2 - Site Map with Monitoring Well Location



Sovereign Consulting Inc.
Virginia Beach, Virginia



Applied Services &
Information Systems, LLC
Virginia Beach, Virginia

Legend

- ▬▬▬▬▬▬ Stairs
- ▬▬▬▬▬▬ Fence
- UST
- AST
- Monitoring Well
- Gutter
- Dense Woods
- Structures
- Drainage Ditch
- Concrete Wall

1" = approx. 10'

GMM 2/2008



Mr. Chris Murray
Sovereign Consulting
405 Oakmeads Crescent
Suite 1
Virginia Beach VA 23462
Report Number: G650-132
Client Project: NV018

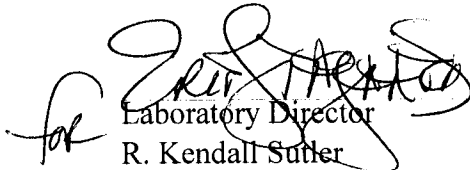
Dear Mr. Murray:

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 at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS Environmental Services for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
SGS Environmental Services, Inc.


Laboratory Director
R. Kendall Sutler

2/18/08
Date



**EPH CASE NARRATIVE
NVO18**

SGS Laboratory Number: G650-132

SAMPLE RECEIPT OBSERVATIONS:

The samples were received January 31, 2008 at 1440 via courier in good condition. The samples arrived with temperature of 5.9° C.

EPH REPORT:

The samples were analyzed for Extractable Petroleum Hydrocarbons.

The initial calibration verifications met acceptance criteria.

The continuing calibration verifications met acceptance criteria.


The surrogate standard percent recoveries were within quality control criteria.


The method blank was free of interference at the RL.

The laboratory control and matrix spike duplicate failed recovery low for aliphatics C9-C18, but passed for matrix spike. Insufficient volume was present for re-extract.

The Quantitation limits (RL) are adjusted for dilution factors, extraction volumes and percent solids as applicable.

The sampling to extraction holding time and extraction to analysis holding time was met for the samples.

 Date 02/08/2008
Data Review

 Date 2/8/08
Secondary Review

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.

**Results for Volatiles**

by GC 602

Client Sample ID: USTS2633-MW01

Analyzed By: RSB

Client Project ID: NV018

Date Collected: 1/31/2008 11:10

Lab Sample ID: G650-132-1A

Date Received: 1/31/2008

Lab Project ID: G650-132

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	342	20.0	3.66	20	2/4/2008	
Diisopropyl ether (DIPE)	BQL	20.0	4.58	20	2/4/2008	
Ethylbenzene	80.8	20.0	3.62	20	2/4/2008	
Methyl-tert butyl ether (MTBE)	BQL	40.0	7.18	20	2/4/2008	
Toluene	7.40	20.0	3.14	20	2/4/2008	J
m/p-Xylene	54.0	40.0	9.62	20	2/4/2008	
o-Xylene	BQL	40.0	11.7	20	2/4/2008	


Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.7	96.7

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

Reviewed By: 

GG-VOL-WA

Results for Volatiles

by GC 602

Client Sample ID: USTS2633-Trip Blank

Analyzed By: RSB

Client Project ID: NV018

Date Collected: 1/31/2008 14:40

Lab Sample ID: G650-132-2A

Date Received: 1/31/2008

Lab Project ID: G650-132

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.183	1	2/6/2008	
Diisopropyl ether (DIPE)	BQL	1.00	0.229	1	2/6/2008	
Ethylbenzene	BQL	1.00	0.181	1	2/6/2008	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.359	1	2/6/2008	
Toluene	BQL	1.00	0.157	1	2/6/2008	
m/p-Xylene	BQL	2.00	0.481	1	2/6/2008	
o-Xylene	BQL	2.00	0.584	1	2/6/2008	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.5	96.3

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

**Results for Volatiles**

by GC 602

Client Sample ID: Method Blank

Analyzed By: RSB

Client Project ID:

Date Collected:

Lab Sample ID: VBLK3020508B

Date Received:

Lab Project ID:

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.183	1	2/6/2008	
Diisopropyl ether (DIPE)	BQL	1.00	0.229	1	2/6/2008	
Ethylbenzene	BQL	1.00	0.181	1	2/6/2008	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.359	1	2/6/2008	
Toluene	BQL	1.00	0.157	1	2/6/2008	
m/p-Xylene	BQL	2.00	0.481	1	2/6/2008	
o-Xylene	BQL	2.00	0.584	1	2/6/2008	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.1	95.2

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.



Summary Results for Laboratory Control Spike

Method: 602

Filename : 3020508/022R

Compound	SA	Result	Rec	LCS Limits	
	ug/L	ug/L	(%)	Lower	Upper
Benzene	10.0	9.8	98.4	39	150
Chlorobenzene	10.0	9.8	98.3	55	135
1,2-Dichlorobenzene	20.0	19.4	97.2	37	164
1,3-Dichlorobenzene	20.0	19.5	97.7	50	141
1,4-Dichlorobenzene	10.0	9.8	98.0	42	143
• Diisopropyl ether	10.0	9.8	97.9	30	170
Ethylbenzene	10.0	9.8	97.8	32	160
• MTBE	20.0	19.9	99.5	35	165
Toluene	10.0	9.9	98.8	46	148
• m,p-Xylene	20.0	19.8	98.8	0	239
• o-Xylene	20.0	20.0	100.0	36	164

Flags :

- + = out of QC limits.
- = lab generated limits.
- D = Detected
- SA = Spiked Amount



Summary Results for MS-MSD

Method: 302
 Sample : 3020508/025F::3020508/025R
 MS : 3020508/022F::3020508/022R
 MSD : 3020508/023F::3020508/023R

Compound	SA	Sam.	µg/L		REC(%)		REC Limits	
			MS	MSD	MS	MSD	Lower	Upper
Benzene	10.0	ND	9.8	10.0	98	98	39	160
Chlorobenzene	10.0	ND	9.8	9.9	98	98	56	136
1,2-Dichlorobenzene	20.0	ND	19.4	19.6	97	97	37	164
1,3-Dichlorobenzene	20.0	ND	19.5	19.7	98	98	50	141
1,4-Dichlorobenzene	10.0	ND	9.8	9.8	98	98	42	143
• Diisopropyl ether	10.0	ND	9.8	9.8	98	98	30	170
Ethylbenzene	10.0	ND	9.8	9.9	98	98	32	160
• MTBE	20.0	ND	19.9	20.1	99	99	35	166
Toluene	10.0	ND	9.9	10.0	99	99	46	148
• m,p-Xylene	20.0	ND	19.8	19.8	99	99	D	239
• o-Xylene	20.0	ND	20.0	20.2	100	100	36	164

Flags :

- + = out of QC limits.
- = lab generated limits.
- D = Detected
- ND = None Detected
- SA= Spike Added



Summary Results for QC Check

Method: 602

Filename : 3020508/021R

Compound	SA	Resul	Rec	QC Limits	
	ug/L	ug/L	(%)	Lower	Upper
Benzene	20.0	20.3	101.5	77.0	123.0
Chlorobenzene	20.0	20.2	101.0	80.5	119.5
1,2-Dichlorobenzene	40.0	39.1	97.8	68.0	132.0
1,3-Dichlorobenzene	40.0	39.5	98.8	72.6	127.5
1,4-Dichlorobenzene	20.0	19.8	98.8	69.5	130.5
• Diisopropyl ether	20.0	20.3	101.6	43.1	156.9
• Ethylbenzene	20.0	20.2	100.8	63.0	137.0
• MTBE	40.0	41.2	102.9	46.8	153.2
• Toluene	20.0	20.2	101.1	77.5	127.0
• m,p-Xylene	40.0	40.0	100.1	11.2	188.8
• o-Xylene	40.0	40.6	101.6	47.6	152.4

Flags :

- + = out of QC limits.
- = lab generated limits.
- D = Detected
- SA = Spiked Amount

Results for Volatiles

by GC 602

Client Sample ID: Method Blank

Analyzed By: RSB

Client Project ID:

Date Collected:

Lab Sample ID: VBLK3020408A

Date Received:

Lab Project ID:

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.183	1	2/4/2008	
Diisopropyl ether (DIPE)	BQL	1.00	0.229	1	2/4/2008	
Ethylbenzene	BQL	1.00	0.181	1	2/4/2008	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.359	1	2/4/2008	
Toluene	BQL	1.00	0.157	1	2/4/2008	
m/p-Xylene	BQL	2.00	0.481	1	2/4/2008	
o-Xylene	BQL	2.00	0.584	1	2/4/2008	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.5	96.2

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.



Summary Results for Laboratory Control Spike

Method: 602

Filename : 3020408/004R

Compound	SA	Result	Rec	LCS Limits	
	ug/L	ug/L	(%)	Lower	Upper
Benzene	10.0	9.9	99.0	39	150
Chlorobenzene	10.0	9.8	98.1	65	135
1,2-Dichlorobenzene	20.0	19.4	97.1	37	154
1,3-Dichlorobenzene	20.0	19.5	97.7	50	141
1,4-Dichlorobenzene	20.0	9.8	48.8	42	143
• Diisopropyl ether	10.0	9.8	97.5	30	170
Ethylbenzene	10.0	9.8	97.7	32	160
• MTBE	20.0	20.0	100.0	35	165
Toluene	10.0	9.8	97.9	46	148
• m,p-Xylene	20.0	19.6	98.1	0	239
• o-Xylene	20.0	19.9	99.4	36	164

Flags :

- + = out of QC limits.
- = lab generated limits.
- D = Detected
- SA = Spiked Amount



Summary Results for MS-MSD

Sample : 3020408/017F::3020408/017R
 MS : 3020408/019F::3020408/019R
 MSD : 3020408/020F::3020408/020R

Compound	SA	µg/L			REC(%)		REC Limits	
		Sam.	MS	MSD	MS	MSD	Lower	Upper
Benzene	10.0	ND	10.1	10.1	101	101	39	150
Chlorobenzene	10.0	ND	10.0	10.0	100	100	55	135
1,2-Dichlorobenzene	20.0	ND	19.7	19.8	98	98	37	154
1,3-Dichlorobenzene	20.0	ND	20.0	19.9	100	100	50	141
1,4-Dichlorobenzene	10.0	ND	10.0	10.0	100	100	42	143
• Diisopropyl ether	10.0	ND	9.9	9.9	99	99	30	170
Ethylbenzene	10.0	ND	10.0	10.0	100	100	32	160
• MTBE	20.0	ND	20.3	20.2	102	102	35	165
Toluene	10.0	ND	10.0	10.1	100	100	46	148
• m,p-Xylene	20.0	ND	20.1	20.2	101	101	D	239
• o-Xylene	20.0	ND	20.4	20.4	102	102	36	164

Flags :

- + = out of QC limits.
- ♦ = lab generated limits.
- D = Detected
- ND = None Detected
- SA= Spike Added



Summary Results for QC Check

Method: 602

Filename : 3020408/002R

Compound	SA	Resul	Rec	QC Limits	
	ug/L	ug/L	(%)	Lower	Upper
Benzene	20.0	20.2	101.2	77.0	123.0
Chlorobenzene	20.0	20.2	100.8	80.5	119.5
1,2-Dichlorobenzene	40.0	39.8	99.6	68.0	132.0
1,3-Dichlorobenzene	40.0	39.9	99.9	72.5	127.5
1,4-Dichlorobenzene	20.0	20.1	100.5	69.5	130.5
• Diisopropyl ether	20.0	20.1	100.6	43.1	156.9
Ethylbenzene	20.0	20.2	100.9	63.0	137.0
• MTBE	40.0	40.9	102.3	46.8	153.2
Toluene	20.0	20.3	101.4	77.5	127.0
• m,p-Xylene	40.0	40.1	100.3	11.2	188.8
• o-Xylene	40.0	40.5	101.3	47.6	152.4

Flags :

- + = out of QC limits.
- = lab generated limits.
- D = Detected
- SA = Spiked Amount



**Results for Semivolatiles
by GCMS 625**

Client Sample ID: USTS2633-MW01
 Client Project ID: NV018
 Lab Sample ID: G650-132-1H
 Lab Project ID: G650-132

Analyzed By: DCS
 Date Collected: 1/31/2008 11:10
 Date Received: 1/31/2008
 Date Extracted: 2/1/2008
 Matrix: Water

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	2/4/2008	
Acenaphthylene	BQL	10.0	1.12	1	2/4/2008	
Anthracene	BQL	10.0	1.75	1	2/4/2008	
Benzo[a]anthracene	BQL	10.0	1.36	1	2/4/2008	
Benzo[a]pyrene	BQL	10.0	1.27	1	2/4/2008	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	2/4/2008	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	2/4/2008	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	2/4/2008	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	2/4/2008	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	2/4/2008	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	2/4/2008	
Bis(2-ethylhexyl)phthalate	4.10	10.0	1.33	1	2/4/2008	JB
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	2/4/2008	
Butylbenzylphthalate	BQL	10.0	1.53	1	2/4/2008	
2-Chloronaphthalene	BQL	10.0	1.25	1	2/4/2008	
2-Chlorophenol	BQL	10.0	4.22	1	2/4/2008	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	2/4/2008	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	2/4/2008	
Chrysene	BQL	10.0	1.11	1	2/4/2008	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	2/4/2008	
Di-n-Butylphthalate	BQL	10.0	1.65	1	2/4/2008	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	2/4/2008	
2,4-Dichlorophenol	BQL	10.0	3.75	1	2/4/2008	
Diethylphthalate	BQL	10.0	1.48	1	2/4/2008	
Dimethylphthalate	BQL	10.0	1.04	1	2/4/2008	
2,4-Dimethylphenol	BQL	10.0	9.25	1	2/4/2008	
Di-n-octylphthalate	BQL	10.0	1.16	1	2/4/2008	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	2/4/2008	
2,4-Dinitrophenol	BQL	50.0	4.20	1	2/4/2008	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	2/4/2008	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	2/4/2008	
Diphenylamine *	BQL	10.0	1.53	1	2/4/2008	
Fluoranthene	BQL	10.0	1.41	1	2/4/2008	
Fluorene	BQL	10.0	1.22	1	2/4/2008	
Hexachlorobenzene	BQL	10.0	1.22	1	2/4/2008	
Hexachlorobutadiene	BQL	10.0	1.58	1	2/4/2008	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	2/4/2008	
Hexachloroethane	BQL	10.0	1.58	1	2/4/2008	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	2/4/2008	
Isophorone	BQL	10.0	1.27	1	2/4/2008	
Naphthalene	19.8	10.0	1.08	1	2/4/2008	
Nitrobenzene	BQL	10.0	1.32	1	2/4/2008	
2-Nitrophenol	BQL	10.0	3.52	1	2/4/2008	
4-Nitrophenol	BQL	50.0	3.17	1	2/4/2008	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	2/4/2008	
Pentachlorophenol	BQL	50.0	2.83	1	2/4/2008	
Phenanthrene	BQL	10.0	1.38	1	2/4/2008	



Results for Semivolatiles
by GCMS 625

Client Sample ID: USTS2633-MW01
Client Project ID: NV018
Lab Sample ID: G650-132-1H
Lab Project ID: G650-132


Analyzed By: DCS
Date Collected: 1/31/2008 11:10
Date Received: 1/31/2008
Date Extracted: 2/1/2008
Matrix: Water

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Phenol	6.50	10.0	3.38	1	2/4/2008	J
Pyrene	BQL	10.0	2.08	1	2/4/2008	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	2/4/2008	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	2/4/2008	
		Spike Added	Spike Result	Percent Recovered		
2-Fluorobiphenyl		10	7.4	74		
2-Fluorophenol		10	9.2	92		
Nitrobenzene-d5		10	8.9	89		
Phenol-d6		10	8.1	81		
2,4,6-Tribromophenol		10	8	80		
4-Terphenyl-d14		10	9.3	93		

Comments:

Flags:

BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds by GCMS

Client Sample ID: USTS2633-MW01
 Client Project ID: NV018
 Lab Sample ID: G650-132-1H
 Lab Project ID: G650-132
 Sample Wt/Vol: 500 ML
 Dilution: 1


Analyzed By: DES
 Date Collected: 1/31/2008 11:10
 Date Received: 1/31/2008
 Date Extracted: 2/1/2008
 Date Analyzed: 2/4/2008
 Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Unknown	4.17			28.8
2	1,2,4-Trimethylbenzene	4.06	000095-36-3	90	19.4
3	Unknown	4.94			17.3
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: 



**Results for Semivolatiles
by GCMS 625**

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: PB10279
Lab Project ID:

Analyzed By: DCS
Date Collected:
Date Received:
Date Extracted: 2/1/2008
Matrix: WATER

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	2/4/2008	
Acenaphthylene	BQL	10.0	1.12	1	2/4/2008	
Anthracene	BQL	10.0	1.75	1	2/4/2008	
Benzo[a]anthracene	BQL	10.0	1.36	1	2/4/2008	
Benzo[a]pyrene	BQL	10.0	1.27	1	2/4/2008	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	2/4/2008	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	2/4/2008	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	2/4/2008	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	2/4/2008	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	2/4/2008	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	2/4/2008	
Bis(2-ethylhexyl)phthalate	3.40	10.0	1.33	1	2/4/2008	J
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	2/4/2008	
Butylbenzylphthalate	BQL	10.0	1.53	1	2/4/2008	
2-Chloronaphthalene	BQL	10.0	1.25	1	2/4/2008	
2-Chlorophenol	BQL	10.0	4.22	1	2/4/2008	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	2/4/2008	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	2/4/2008	
Chrysene	BQL	10.0	1.11	1	2/4/2008	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	2/4/2008	
Di-n-Butylphthalate	BQL	10.0	1.65	1	2/4/2008	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	2/4/2008	
2,4-Dichlorophenol	BQL	10.0	3.75	1	2/4/2008	
Diethylphthalate	BQL	10.0	1.48	1	2/4/2008	
Dimethylphthalate	BQL	10.0	1.04	1	2/4/2008	
2,4-Dimethylphenol	BQL	10.0	9.25	1	2/4/2008	
Di-n-octylphthalate	BQL	10.0	1.16	1	2/4/2008	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	2/4/2008	
2,4-Dinitrophenol	BQL	50.0	4.20	1	2/4/2008	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	2/4/2008	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	2/4/2008	
Diphenylamine *	BQL	10.0	1.53	1	2/4/2008	
Fluoranthene	BQL	10.0	1.41	1	2/4/2008	
Fluorene	BQL	10.0	1.22	1	2/4/2008	
Hexachlorobenzene	BQL	10.0	1.22	1	2/4/2008	
Hexachlorobutadiene	BQL	10.0	1.58	1	2/4/2008	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	2/4/2008	
Hexachloroethane	BQL	10.0	1.58	1	2/4/2008	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	2/4/2008	
Isophorone	BQL	10.0	1.27	1	2/4/2008	
Naphthalene	BQL	10.0	1.08	1	2/4/2008	
Nitrobenzene	BQL	10.0	1.32	1	2/4/2008	
2-Nitrophenol	BQL	10.0	3.52	1	2/4/2008	
4-Nitrophenol	BQL	50.0	3.17	1	2/4/2008	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	2/4/2008	
Pentachlorophenol	BQL	50.0	2.83	1	2/4/2008	
Phenanthrene	BQL	10.0	1.38	1	2/4/2008	



Results for Semivolatiles
by GCMS 625

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: PB10279
Lab Project ID:

Analyzed By: DCS
Date Collected:
Date Received:
Date Extracted: 2/1/2008
Matrix: WATER

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Phenol	BQL	10.0	3.38	1	2/4/2008	
Pyrene	BQL	10.0	2.08	1	2/4/2008	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	2/4/2008	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	2/4/2008	
		Spike Added	Spike Result	Percent Recovered		
2-Fluorobiphenyl		10	7.5	75		
2-Fluorophenol		10	4.2	42		
Nitrobenzene-d5		10	8.8	88		
Phenol-d6		10	6.8	68		
2,4,6-Tribromophenol		10	7	70		
4-Terphenyl-d14		10	9.5	95		

Comments:

Flags:

BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By: 



Lab Name: SGS Environmental Services, Inc.

Lab Code: NC00919

Case No.:

SAS No.:

SDG No:

Matrix: (soil/water) WATER

Lab Sample ID: LCS10279

Sample wt/vol: 0.5 (L)

Lab File ID: 0204616.D

Level: (low/med) LOW

% Moisture: NA Decanted: (Y/N) NA

Date Analyzed: 02/04/08 15:08

Concentrated Extract Volume: 5000 (µL)

Dilution Factor: 1

Injection Volume: 1 (µL)

Extraction: (Type) CONT

GPC Cleanup: N

CAS NO.	COMPOUND	SPIKE AMT (µg/L)	SAMP CONC (µg/L)	% REC #	QC LIMITS
83-32-9	Acenaphthene	100	87.9	87.9	52.8-133
208-96-8	Acenaphthylene	100	99.6	99.6	52.1-145
120-12-7	Anthracene	100	93.7	93.7	50.1-138
56-55-3	Benzo [a] anthracene	100	102	102	50.6-152
50-32-8	Benzo [a] pyrene	100	83.1	83.1	46.5-154
205-99-2	Benzo [b] fluoranthene	100	78.1	78.1	49.9-144
191-24-2	Benzo [g, h, i] perylene	100	104	104	33.2-173
207-08-9	Benzo [k] fluoranthene	100	98.5	98.5	43.9-153
65-85-0	Benzoic Acid	100	206	206*	23.8-164
100-51-6	Benzyl Alcohol	100	91.6	91.6	23.8-164
111-91-1	Bis (2-chloroethoxy) methane	100	98.6	98.6	51.0-134
111-44-4	Bis (2-chloroethyl) ether	100	88.0	88.0	48.8-122
108-60-1	Bis (2-chloroisopropyl) ether	100	86.4	86.4	50.5-126
117-81-7	Bis (2-ethylhexyl) phthalate	100	98.3	98.3	35.6-155
101-55-3	4-bromophenyl phenyl ether	100	86.7	86.7	47.1-138
85-68-7	Butylbenzylphthalate	100	93.4	93.4	53.2-145
106-47-8	4-Chloroaniline	100	75.8	75.8	0.00-212
59-50-7	4-Chloro-3-methylphenol	100	87.6	87.6	51.1-135
91-58-7	2-Chloronaphthalene	100	99.8	99.8	34.9-166
95-57-8	2-Chlorophenol	100	65.4	65.4	43.7-128
7005-72-3	4-Chlorophenyl phenyl ether	100	91.4	91.4	51.1-135
218-01-9	Chrysene	100	100	100	53.7-137
84-74-2	Di-n-Butylphthalate	100	103	103	58.0-140
117-84-0	Di-n-octylphthalate	100	86.6	86.6	30.9-159
53-70-3	Dibenzo [a, h] anthracene	100	97.7	97.7	0.00-208
132-64-9	Dibenzofuran	100	84.0	84.0	54.0-130
95-50-1	1,2-Dichlorobenzene	100	70.9	70.9	32.5-111
541-73-1	1,3-Dichlorobenzene	100	66.4	66.4	26.7-109
106-46-7	1,4-Dichlorobenzene	100	68.7	68.7	30.0-110
91-94-1	3,3'-Dichlorobenzidine	100	81.1	81.1	0.00-243
120-83-2	2,4-Dichlorophenol	100	75.8	75.8	47.5-133
84-66-2	Diethylphthalate	100	93.0	93.0	58.5-144
105-67-9	2,4-Dimethylphenol	100	70.1	70.1	5.40-141
131-11-3	Dimethylphthalate	100	86.9	86.9	55.7-140
534-52-1	4,6-Dinitro-2-methylphenol	100	83.6	83.6	60.0-139
51-28-5	2,4-Dinitrophenol	100	71.0	71.0	55.4-130
121-14-2	2,4-Dinitrotoluene	100	80.5	80.5	56.3-144
606-20-2	2,6-Dinitrotoluene	100	89.4	89.4	55.0-150
206-44-0	Fluoranthene	100	99.3	99.3	55.5-132
86-73-7	Fluorene	100	99.1	99.1	55.0-136
118-74-1	Hexachlorobenzene	100	97.3	97.3	49.9-139



SGS ENVIRONMENTAL SERVICES, INC.

Paradigm Analytical Laboratories, INC.

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SGS Environmental Services, Inc.

Contract:

Lab Code: NC00919

Case No.:

SAS No.:

SDG No.:

Matrix Spike - EPA Sample No.: G650-132-1H

COMPOUND	SAMPLE CONC (µg/L)	MS SPIKE (µg/L)	MS CONC (µg/L)	MS % REC #	MSD SPIKE (µg/L)	MSD CONC (µg/L)	MSD % REC #	% RPD	QC LIMITS	
									RPD	REC
Acenaphthene	BQL	238	200	84.2	238	212	89.2	5.77	30	55.0-106
Acenaphthylene	BQL	238	225	94.5	238	239	100	5.95	30	62.0-119
Anthracene	BQL	238	215	90.1	238	228	95.9	6.24	30	44.0-96.0
Benzo[a]anthracene	BQL	238	224	94.0	238	245	103	9.04	30	50.0-109
Benzo[a]pyrene	BQL	238	190	79.7	238	205	85.9	7.49	30	39.0-100
Benzo[b]fluoranthene	BQL	238	177	74.3	238	185	77.5	4.22	30	34.0-105
Benzo[g,h,i]perylene	BQL	238	228	95.6	238	241	101	5.79	30	36.0-116
Benzo[k]fluoranthene	BQL	238	223	93.8	238	250	105	11.5	30	26.0-120
Benzoic Acid	BQL	238	778	327*	238	1010	423*	25.7	30	44.0-107
Benzyl Alcohol	BQL	238	212	89.2	238	220	92.6	3.74	30	62.0-104
Bis(2-chloroethoxy)methane	BQL	238	227	95.5	238	241	101*	5.80	30	58.0-101
Bis(2-chloroethyl)ether	BQL	238	199	83.4	238	201	84.6	1.43	30	47.0-93.0
Bis(2-chloroisopropyl)ether	BQL	238	204	85.6	238	213	89.4	4.34	30	58.0-100
Bis(2-ethylhexyl)phthalate	BQL	238	215	90.5	238	231	97.2	7.14	30	46.0-131
4-bromophenyl phenyl ether	BQL	238	191	80.3	238	202	84.8	5.45	30	36.0-112
Butylbenzylphthalate	BQL	238	212	89.1	238	228	95.7	7.14	30	54.0-117
4-Chloroaniline	BQL	238	144	60.5	238	170	71.5	16.7	30	12.0-198
4-Chloro-3-methylphenol	BQL	238	200	84.2	238	218	91.7	8.53	30	67.0-109
2-Chloronaphthalene	BQL	238	225	94.6	238	238	100	5.55	30	54.0-105
2-Chlorophenol	BQL	238	190	79.7	238	190	80.0	0.376	30	59.0-95.0
4-Chlorophenyl phenyl ether	BQL	238	211	88.5	238	228	95.7	7.82	30	51.0-114
Chrysene	BQL	238	225	94.4	238	241	101	7.05	30	52.0-114
Di-n-Butylphthalate	BQL	238	232	97.4	238	247	104	6.17	30	53.0-111
Di-n-octylphthalate	BQL	238	198	83.0	238	213	89.6	7.65	30	22.0-113
Dibenzo[a,h]anthracene	BQL	238	216	90.8	238	232	97.4	7.01	30	33.0-117
Dibenzofuran	BQL	238	192	80.8	238	204	85.7	5.89	30	62.0-108
1,2-Dichlorobenzene	BQL	238	160	67.0	238	161	67.7	1.04	30	31.0-93.0
1,3-Dichlorobenzene	BQL	238	147	61.8	238	151	63.3	2.40	30	25.0-87.0
1,4-Dichlorobenzene	BQL	238	152	63.9	238	157	66.1	3.38	30	29.0-86.0
3,3'-Dichlorobenzidine	BQL	238	144	60.3	238	171	71.8	17.4	30	10.0-383
2,4-Dichlorophenol	BQL	238	185	77.8	238	197	82.6	5.99	30	61.0-97.0
Diethylphthalate	BQL	238	214	89.8	238	228	95.8	6.47	30	65.0-102
2,4-Dimethylphenol	BQL	238	160	67.2	238	180	75.6	11.8	30	29.0-110
Dimethylphthalate	BQL	238	195	82.0	238	208	87.4	6.38	30	61.0-100
4,6-Dinitro-2-methylphenol	BQL	238	209	87.6	238	220	92.4	5.33	30	46.0-104
2,4-Dinitrophenol	BQL	238	204	85.5	238	209	87.8	2.65	30	47.0-109
2,4-Dinitrotoluene	BQL	238	185	77.7	238	193	81.2	4.41	30	63.0-103
2,6-Dinitrotoluene	BQL	238	203	85.2	238	212	89.1	4.48	30	61.0-101
Fluoranthene	BQL	238	223	93.7	238	239	100	6.90	30	49.0-109
Fluorene	BQL	238	228	95.8	238	246	103	7.44	30	58.0-108
Hexachlorobenzene	BQL	238	218	91.5	238	232	97.5	6.35	30	38.0-114

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 72 outside of limits

Spike Recovery: 5 out of 144 outside of limits

COMMENTS:

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Sovereign Consulting

Project Name: NV018

Sample Information	
Sample Identification	USTS2633-MW01
Sample Matrix	Water
Collection Option (for Soil)*	NA
Date Collected	01/31/08
Date Received	01/31/08
Date Extracted	02/01/08 12:25 - 02/01/08 12:25
Date Analyzed	02/01/08 12:25 - 02/01/08 12:25
Dry Weight	NA
Dilution Factor	2 - 2

Analytical Results				
Analyte	Result µg/L	Report Limit µg/L	Flags	
C ₅ -C ₈ Aliphatics**	2710	166		
C ₉ -C ₁₂ Aliphatics**	794	155		
C ₉ -C ₁₀ Aromatics**	239	139		
	Percent Recovery	Flags	Limits Lower Upper	
Surrogate % Recovery - PID	74.9		70	130
Surrogate % Recovery - FID	120		70	130

* = 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 and are unadjusted for individual analytes.

Lab Info: g650-132-1e	Lab Info: g650-132-1e
FID Info: VP020108/010F0101.D	PID Info: VP020108/010R0101.D

Reviewed By: 

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: _____
 Project Name: _____

Sample Information	
Sample Identification	vblk4020108a
Sample Matrix	Water
Collection Option (for Soil)*	2
Date Collected	
Date Received	
Date Extracted	
Date Analyzed	02/01/08 10:33 - 02/01/08 10:33
Dry Weight	100
Dilution Factor	1 - 1

Analytical Results			
Analyte	Result µg/L	Report Limit µg/L	Flags
C ₅ -C ₈ Aliphatics**	BQL	100	
C ₉ -C ₁₂ Aliphatics**	BQL	100	
C ₉ -C ₁₀ Aromatics**	BQL	100	
	Percent Recovery	Flags	Limits Lower Upper
Surrogate % Recovery - PID	86.6		70 130
Surrogate % Recovery - FID	96.8		70 130

* = 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 and are unadjusted for individual analytes.

Lab Info: vblk4020108a	Lab Info: vblk4020108a
FID Info: VP020108/006F0101.D	PID Info: VP020108/006R0101.D

Reviewed By: _____



LABORATORY CONTROL SPIKE RESULTS
by Method VPH

SGS Environmental Services, Inc.

Lab Sample ID: LCS4020108A
Lab Project ID: Batch QC
Report Basis: Wet

Analyzed By:
Matrix: Water
Percent Solids: NA %

Analytical QC Results Summary

Analyte	Expected Amount µg/L	Measured Amount µg/L	Percent Recovery (%)	Lower Limit (%)	Upper Limit (%)	Qualifier
C5-C8 Aliphatics		100				
C9-C12 Aliphatics		72.0				
C9-C10 Aromatics		13.3				
Total VPH	200	186	93.0	70.0	130	

Surrogate Standards	Expected Amount µg/L	Measured Amount µg/L	Percent Recovery (%)	Lower Limit (%)	Upper Limit (%)	Qualifier
Surrogate - PID	1250	892	71.4	70.0	130	
Surrogate - FID	1250	1265	101	70.0	130	

Reviewed By: _____



MATRIX SPIKE / MATRIX SPIKE DUPLICATE RESULTS
by Method VPH

SGS Environmental Services, Inc.

Lab Sample ID:	g122-3109-1e	Analyzed By:	DVG
MS Sample ID:	g122-3109-1e	Matrix:	Soil
MSD Sample ID:	g122-3109-1e	Percent Solids:	73.7 %
Lab Project ID:	Batch QC for VP020108		
Report Basis:	Dry		

Matrix Spike Results Summary

Analyte	Sample Amount mg/Kg	Spiked Amount mg/Kg	Measured Amount mg/Kg	Percent Recovery (%)	Lower Limit (%)	Upper Limit (%)	Qualifier
C5-C8 Aliphatics	0.127	-	9.74	-	-	-	
C9-C12 Aliphatics	1.590	-	6.69	-	-	-	
C9-C10 Aromatics	0.000	-	1.30	-	-	-	
Total VPH	1.710	17.8	17.7	90.0	70	130	

Matrix Spike Duplicate Results Summary

Analyte	Spiked Amount mg/Kg	Measured Amount mg/Kg	Percent Recovery (%)	Lower Limit (%)	Upper Limit (%)	Qualifier
C5-C8 Aliphatics	-	9.35	-	-	-	
C9-C12 Aliphatics	-	6.41	-	-	-	
C9-C10 Aromatics	-	1.23	-	-	-	
Total VPH	17.8	17.0	85.9	70	130	

Analyte	MS Amount mg/Kg	MSD Amount mg/Kg	RPD Value (%)	RPD Limit (%)	Qualifier
C5-C8 Aliphatics	-	-	-	-	
C9-C12 Aliphatics	-	-	-	-	
C9-C10 Aromatics	-	-	-	-	
Total VPH	17.7	17.0	4	20	

Reviewed By: _____

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

 FID Initial Calibration Date: 01/02/08 PID Initial Calibration Date: 01/02/08
Calibration Ranges and Limits

Range	MDL		ML		RL	
	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)
C ₅ -C ₈ Aliphatics	33.1	0.265	105	0.842	100	10
C ₉ -C ₁₂ Aliphatics	30.9	0.247	98.3	0.786	100	10
C ₉ -C ₁₀ Aromatics	27.7	0.222	88.1	0.705	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C ₅ -C ₈ Aliphatics	10	0.8	5.53	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		
C ₉ -C ₁₂ Aliphatics	10	0.8	1.00	Linear Regression
	50	4		
	100	8		
	200	16		
	500	40		
C ₉ -C ₁₀ Aromatics	10	0.8	1.00	Linear Regression
	50	4		
	100	8		
	200	16		
	500	40		

 Calibration Check Date: 02/01/08 Filename: VP020108/002F0101.d
Calibration Check

Range	Levels (mg/Kg)	Levels (µg/L)	%Difference if CF %Drift if LR	Limits
C ₅ -C ₈ Aliphatics	200	1.6	0.2	±25%
C ₉ -C ₁₂ Aliphatics	200	1.6	-0.3	±25%
C ₉ -C ₁₀ Aromatics	200	1.6	-14.9	±25%

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

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

**EPH (Aliphatics/Aromatics) Laboratory Reporting Form**Client Name: Sovereign ConsultingProject Name: NV018

Sample Information	
Sample Identification	USTS2633-MW01
Sample Matrix	WATER
Date Collected	01/31/08
Date Received	01/31/08
Date Extracted	02/01/08
Date Analyzed	02/05/08 15:56 - 02/05/08 16:24
Dry Weight	100
Dilution Factor	1 - 1
Initial Volume (mL)	500
Final Volume (mL)	5.0

Analytical Results			
Analytes**	Result µg/L	Report Limit µg/L	Flags
C9-C18 Aliphatics	BQL	100	
C19-C36 Aliphatics	BQL	100	
C11-C22 Aromatics	BQL	100	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (chloro-octadecane)	78.6		40	140
Aromatic (ortho-terphenyl)	80.3		40	140
Fractionation 1 (2-bromonaphthalene)	94.7		40	140
Fractionation 2 (2-fluorobiphenyl)	97.7		40	140

** = Excludes any surrogates or internal standards and are unadjusted for individual analytes.

Lab Info: G650-132-1K	Lab Info: G650-132-1K
Aliphatic: EP020508/016F0301.D	Aromatic: EP020508/017F0401.D

Reviewed By: 

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 12/26/07

Calibration Ranges and Limits

Range	MDL		ML		RL	
	(10/17/06) (µg/L)	(10/17/06) (mg/Kg)	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)
C9-C18 Aliphatics	28.1	0.847	89	2.69	100	10
C19-C36 Aliphatics	36.5	1.17	116	3.72	100	10
C11-C22 Aromatics	27.6	9.47	87.8	30.1	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C ₉ -C ₁₈ Aliphatics	400	12.5	3.80	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		
C ₁₉ -C ₃₆ Aliphatics	400	12.5	6.26	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		
C ₁₁ -C ₂₂ Aromatics	400	12.5	4.66	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		

Calibration Check Date: 02/05/08
02/05/08

Filenames: ep020508/001f0101.d
ep020508/002f0201.d

Calibration Check

Range	Levels		%Difference if CF %Drift if LR	Limits
	(µg/L)	(mg/Kg)		
C9-C18 Aliphatics	200	6.25	9.7	≤±25%
C19-C36 Aliphatics	200	6.25	9.0	≤±25%
C11-C22 Aromatics	200	6.25	15.0	≤±25%

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

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

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

 Initial Calibration Date: 12/26/07
Calibration Ranges and Limits

Range	MDL		ML		RL	
	(10/17/06) (µg/L)	(10/17/06) (mg/Kg)	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)
C9-C18 Aliphatics	28.1	0.847	89	2.69	100	10
C19-C36 Aliphatics	36.5	1.17	116	3.72	100	10
C11-C22 Aromatics	27.6	9.47	87.8	30.1	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C ₉ -C ₁₈ Aliphatics	400	12.5	3.80	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		
C ₁₉ -C ₃₆ Aliphatics	400	12.5	6.26	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		
C ₁₁ -C ₂₂ Aromatics	400	12.5	4.66	Calibration Factor
	200	6.25		
	100	3.13		
	50	1.56		
	10	0.313		

 Calibration Check Date: 02/05/08
02/06/08

 Filenames: ep020508/038f2501.d
ep020508/039f2601.d
Calibration Check

Range	Levels		%Difference if CF %Drift if LR	Limits
	(µg/L)	(mg/Kg)		
C9-C18 Aliphatics	200	6.25	10.0	±25%
C19-C36 Aliphatics	200	6.25	11.3	±25%
C11-C22 Aromatics	200	6.25	-1.1	±25%

MDL = Method Detection Limit

ML = Minimum Limit

RL = Reportable Limit

RPD = Relative Percent Difference

%RSD = Percent Relative Standard Deviation

CCC = Correlation Coefficient of Curve



CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

- Locations Nationwide
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 - Hawaii
 - Ohio
 - Maryland
 - New Jersey
 - North Carolina
 - West Virginia
- www.us.sgs.com



0930

1 CLIENT: Sovereign Consulting, Inc.
 CONTACT: Amy Weir PHONE NO.: 910 350-0525
 PROJECT: NVO18 SITE/PWSID#: S2633
 REPORTS TO: CRIS MURRAY E-MAIL: cmurray@socon.com
 FAX NO.: ()
 INVOICE TO: C. MURRAY QUOTE #
425 Oak Knolls Crescent, Suite 1
VA Beach, VA 23462 P.O. NUMBER NVO18

SGS Reference: 6650-132

No	SAMPLE TYPE	CONTAINERS	Presentatives Used	Analysis Required	PRESERVATION			REMARKS
					HC1	HC2	HC3	
7	G	1	602 + Xylene	3	1	2	1	
2	TB	2	625 FTCS					
			VPH (MRDP)					
			EPH (MRDP)					

PAGE 1 OF 1

5 Collected/Relinquished By: (1) Amy Weir Date 01/31/08 Time 1440
 Relinquished By: (2) John Alan Date 1/31/08 Time 1440
 Relinquished By: (3) _____ Date _____ Time _____
 Relinquished By: (4) _____ Date _____ Time _____

Shipping Carrier: _____
 Shipping Ticket No: _____
 Samples Received Cold? (Circle) YES NO
 Temperature (C): on ice 5.9°C
 Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
 Special Deliverable Requirements: EOD Format
 Special Instructions: Final results "EOD Format" to: cmurray@socon.com | amey@socon.com
 Requested Turnaround Time: _____
 RUSH STD Date Needed _____

200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557
 1270 Greenbrier Street Charleston, WV 25311 Tel: (304) 346-0725 Fax: (304) 346-0761
 White - Retained by Lab
 Yellow - Returned with Report
 Pink - Retained by Sampler