

**UNDERGROUND STORAGE TANK
CLOSURE REPORT**

**UST TT-2223
Tarawa Terrace**

**Marine Corps Base
Camp Lejeune, North Carolina**

October 17, 2008



**Contract No. N40085-06-D-7006
CTO No. 0016**

**UST-12
UNDERGROUND STORAGE TANK CLOSURE REPORT
BUILDING TT-2223
TARAWA TERRACE
MCB CAMP LEJEUNE, NORTH CAROLINA**

A. GENERAL INFORMATION

1. Facility Information

a. Facility Name:

Building TT-2223
Tarawa Terrace

b. Facility ID Number:

N/A

c. Facility address, telephone number, and county:

Commanding Officer
Director, Installations and Environment Department, Environmental
Management Division (EMD)
PSC Box 20004
MCB Camp Lejeune, North Carolina, 28542-0004
910-451-5068
Onslow County

2. Contacts

a. Name, address, telephone number, and job title of primary contact person:

Mr. Bruce Markwick
Installations & Environment Department, Environmental Management
Division
MCB Camp Lejeune, North Carolina 28542
(910) 451-5068

b. Name, address, and telephone number of closure contractor:

Osage of Virginia
2618A Colley Avenue
Norfolk, Virginia 23517-1132
(757) 440-0400

c. Name, address, and telephone number of primary consultant:

Osage of Virginia
2618A Colley Avenue
Norfolk, Virginia 23517-1132
(757) 440-0400

d. Name, address, telephone number, and State certification number of laboratory:

SGS Environmental Services (SGS)
5500 Business Drive
Wilmington, North Carolina 28405
(910) 350-1903
NC Laboratory Certification # 481

3. UST Information

Tank Number	Installation Date	Capacity (Gallons)	Tank Dimensions	Last Contents of Tank
TT-2223	Unknown	550	4 ft x 6 ft	#2 Heating Oil

4. Site Characteristics

a. Describe any past releases at the site:

No previous releases have been reported in conjunction with this tank.

b. Indicate if the facility is active or inactive. If inactive, note the last date that the USTs were in operation:

The UST was an inactive home heating oil tank previously used to store #2 Heating Oil for on-site use.

c. Describe the use of surrounding properties:

The site is located within the Tarawa Terrace Housing Area aboard the Marine Corps Base Camp Lejeune. The construction area, where existing housing sites are being demolished, will be used to re-build military housing units. As a result, land use should be categorized as Residential.

d. Describe site geology and hydrogeology:

The site lies within the Tidewater Region of the Coastal Plain Physiographic Province of North Carolina, where large streams and many of their tributaries are affected by ocean tides. The predominant soil type at the site is silty sand to sand of Quarternary surficial deposits. The depth to the underlain Tertiary Castle Hayne limestone/sand is unknown, but is estimated to be more than 30 feet. The depth to water is estimated to be approximately 10 feet below ground surface.

e. If a release has occurred, describe the results of the receptor survey performed within 1,500 feet of the facility:

The nearest surface water body is an unnamed tributary of the New River, which is approximately 2,221 feet southwest of the site. Groundwater flow direction in the surficial aquifer is estimated to flow toward the river. There are no water supply wells within a 1,500 ft radius

of the site, and all buildings in the area are supplied by the MCB water supply system, specifically water from the Holcomb Boulevard Water Treatment Plant.

B. CLOSURE PROCEDURES

1. Describe preparations for closure including steps taken to notify authorities, permits obtained, and steps taken to clean and purge the tanks:

The tank was discovered by Actus Lend Lease on August 8, 2008 while personnel were clearing land as part of a housing demolition. The top of the UST was visible and had been lightly damaged by heavy equipment. On August 11, 2008, personnel from Osage and EMD met onsite to remove the tank. EMD, Resource Conservation and Recovery Section (RCRS) staff used a vacuum truck to remove approximately 350 gallons of contaminated water from the tank. Afterwards, the tank was removed and transported to EMD, RCRS Building 977 for cleaning.

Several pits were noted in the side of the tank, and larger holes were observed in the tank bottom. Photographs of the tank are included in Appendix F. The tank was transported to Jacksonville Scrap Iron and Metal Company for disposal on August 12, 2008, and the disposal manifest is in Appendix D.

2. Note the amount of residual material pumped from the tank:

Approximately 350 gallons of contaminated water was pumped from the tank.

3. Describe the storage, sampling and disposal of the residual material:

350 gallons of contaminated water was pumped from the tank and approximately 150 gallons of rinsate water was collected during the cleaning of the tank. All material was properly disposed of by EMD, RCRS at Building 977.

4. Excavation

a. Describe excavation procedures noting the condition of the soil encountered and the dimensions of the excavation in relation to the tank, piping, and/or pumps:

EMD contacted Osage on Friday August 8, 2008 about the discovery of the tank. A site visit was conducted to inspect the tank area. Osage mobilized to the site on August 11, 2008 to remove the UST. Once the UST was removed, petroleum odor and staining were noted in the tank basin. A Mini Rae photo ionization detector (PID) was used to scan soils in the tank basin, readings ranged from 50 ppm to 122 ppm. The excavation limits measured approximately 12' (Length) x 13' (Width) x 9' (Depth).

An over excavation was performed at the site on August 18, 2008 in an attempt to remove contaminated soil. The final excavation dimensions were 13' (Length) x 16' (Width) x 10' (Depth). The excavation was backfilled on August 19, 2008.

b. Note the depth from the land surface to the top of the tank:

Approximately 2 feet.

c. Note the volume of soil excavated:

A total of 79.49 tons of soil was excavated from the tank basin – 23.24 tons of contaminated soil was excavated on August 11, 2008, and 56.25 tons was removed during over excavation activities on August 18, 2008.

d. Describe the soil type(s) encountered:

Based on field observation of the tank excavation, the native soil appears to be light brown silty sand with intervals of dark silty sand intermingled.

e. Describe the type and source of backfill used:

Backfilling of the excavation area took place on August 19, 2008. The excavation was filled with common fill sand from Morton Trucking in Jacksonville, NC.

f. Note if water, free product, or bedrock was encountered during the excavation process:

No water, free product, or bedrock was encountered during the excavation process; however, soils from the 10' depth were semi-moist to moist.

5. Contaminated soil

During UST removal activities and over excavation, a total of 79.49 tons of contaminated soil were excavated. The contaminated soil was transported to a lay down facility at the Base (Building TP-467) to await disposal via contract N62470-08-D-1007, CTO 056.

C. SITE INVESTIGATION

1. Provide information of field screening and physical observations, including methods used to calibrate field screening instruments:

Soil discoloration and petroleum odor were observed within the UST excavation. PID field screening indicated moderate organic vapor readings in the sidewalls, as well as at the bottom. Readings ranged from 50 ppm to 122 ppm. The MiniRae PID instrument was calibrated using the standard procedure as recommended by the manufacturer.

2. Document soil sampling information including the sample locations, sample type, procedure, and analyses used:

Soil sample locations are illustrated on Figure 2.

Confirmation soil samples (sample IDs TT-UNK-S001 through S005) were collected from the tank basin on August 11, 2008 immediately following excavation of the basin. Soil samples TT-UNK-S001 through S004 were collected from the sidewalls at a depth of 3.5 feet. Soil sample TT-UNK-S005 was obtained from the bottom of the tank basin at approximately 6 feet Below Land Surface (BLS). The samples were placed into laboratory provided glassware, properly labeled, and transported directly to SGS under proper chain of custody. Samples were analyzed for Total Petroleum Hydrocarbons (TPH) Gasoline and Diesel Range Organics (GRO/DRO) via EPA Method 8015.

On August 18, 2008, Osage returned to the site to over excavate soil sample locations S001, S002, S003, and S004 due to the presence of TPH GRO and TPH DRO concentrations above the 10 mg/kg NCDENR Action Level. An additional 56.25 tons of contaminated soil was excavated from the tank basin resulting in a total removal of 79.49 tons. After over excavation, six confirmation soil samples were collected (soil samples TT2223-S0006, TT2223-S0007, TT2223-S0008, TT2223-S0009, TT2223-S0010, and TT2223-S0011). Soil samples S006 and S007 were collected at a depth of 3.5 feet to correspond to the previous samples S002 and S003, respectively. Soil samples S008, S009, and S010 were obtained at 9 feet BLS, and S011 was collected at 9.5 feet BLS. Samples were again placed into laboratory provided glassware, properly labeled, and transported directly to SGS under proper chain of custody. Samples were analyzed using EPA Methods 8260, 8270, and MADEP VPH/EPH.

3. Document groundwater sampling information:

One temporary groundwater monitoring well was installed within the tank basin/excavation. The well was installed to monitor for the presence of free product and to allow for the collection of a groundwater sample. One groundwater sample, TT2223-TW01, on August 21, 2008 was collected and analyzed using EPA Methods 602 w/ xylenes, 625, and MADEP VPH/EPH. Groundwater analytical results are presented in Table 3 and Figure 3.

4. Document quality-control measures:

Laboratory provided glassware and containers and disposable gloves were used during sampling. Upon collection, soil samples were immediately packed into clean containers and refrigerated for shipment to the analytical laboratory. There was a laboratory trip blank for the samples taken on August 18-19, 2008. There were no analytes detected in the results for the blank.

5. Describe investigation results:

Some soil discoloration and petroleum odor were observed during tank removal. Elevated PID readings indicated the presence of organic vapors in the sidewalls, as well as the excavation bottom.

Laboratory results of the soil samples collected during this tank removal action are summarized in Tables 1 and 2.

Once the tank was removed from the subsurface on August 11, 2008, Osage collected five soil samples as shown on Figure 2. Soil samples S001-S004 were taken from the sidewalls, and sample S005 was taken from the bottom of the excavation. Soil samples were analyzed for TPH GRO and DRO via EPA Method 8015. None of the soil samples exhibited detectable TPH GRO concentrations. Laboratory analysis indicated the presence of only TPH DRO above the NCDENR Action Level of 10 ppm. Samples S002, S003, and S005 contained noncompliant TPH DRO concentrations of 49.3 mg/kg, 822 mg/kg, and 9,660 mg/kg, respectively.

Osage returned to the site on August 18, 2008 to over excavate soil in locations S002, S003, and S005 as a result of the exceedences. Once over-excavation was complete, Osage obtained additional confirmation soil samples S006 through S011. These samples were sent to SGS for analysis via EPA Methods 8260, 8270, and MADEP VPH/EPH. Laboratory analysis of the three soil samples did not detect any 8260, 8270, or MADEP compounds. All concentrations were reported as below the method detection limit.

A groundwater sample was also obtained from the site. Results are summarized in Table 3. A temporary monitoring well, well ID TTII-TW01, was installed on August 20, 2008 and later abandoned on August 22, 2008. Associated well records are included in Appendix G. Osage collected a groundwater sample from temporary monitoring well TTII-TW01 on August 21, 2008. No free product was measured during gauging and sampling activities. The sample was sent under proper Chain of Custody to SGS for analysis via EPA Methods 602, 625, and MADEP VPH/EPH.

Ethylbenzene and Total Xylenes were detected in groundwater sample TT2223-TW01 at concentrations less than the applicable 2L GWQSs. No EPA Method 625 compounds, however, were detected in sample. Laboratory analysis detected MADEP fractions C₉-C₁₈ Aliphatics and C₉-C₂₂ Aromatics in the groundwater sample at concentrations of <219 µg/L and 349 µg/L, respectively. Only the C₉-C₂₂ Aromatics concentration is noncompliant as compared to the 2L GWQS of 210 µg/L.

D. Conclusions and Recommendation

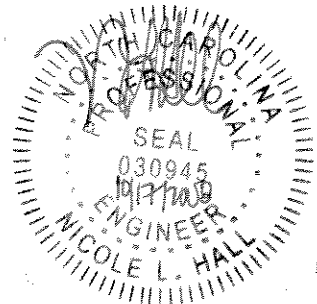
A total of 79.49 tons of contaminated soil was removed from the Building TT-2223 site as a result of two excavation events. Final confirmation soil sample results did not indicate the presence of any soil contaminants above method detection limits.

Groundwater conditions were monitored at the site by the installation of a temporary monitoring well. Groundwater sample TT2223-TW01 exhibited only C₉-C₂₂ Aromatics concentration at a noncompliant concentration of 349 µg/L as compared to the 2L GWQS of 210 µg/L.

While a formal Land Use Classification has not been performed for this incident, it is reasonable to assume the use of the site is Residential. There are no water supply wells within 1,500 feet of the site as shown on Figure 1. No free product was detected in temporary monitoring well TT11-TW01. Since soils have been remediated to the lowest Maximum Soil Contaminant Concentrations as required in 15A NCAC 2L .0404 (3) and the site meets criteria for Low Risk, No Further Action would be appropriate. Public notice would be required per the requirements of 15A NCAC 2L .0409, however, since groundwater contains a C₉-C₂₂ Aromatics concentration just above the 2L GWQS.

Signature and seal of certifying Professional Engineer or Licensed Geologist

Nicole L. Hall



F. Enclosures

1. Figures

- a. USGS Topographic Map
- b. Site Map

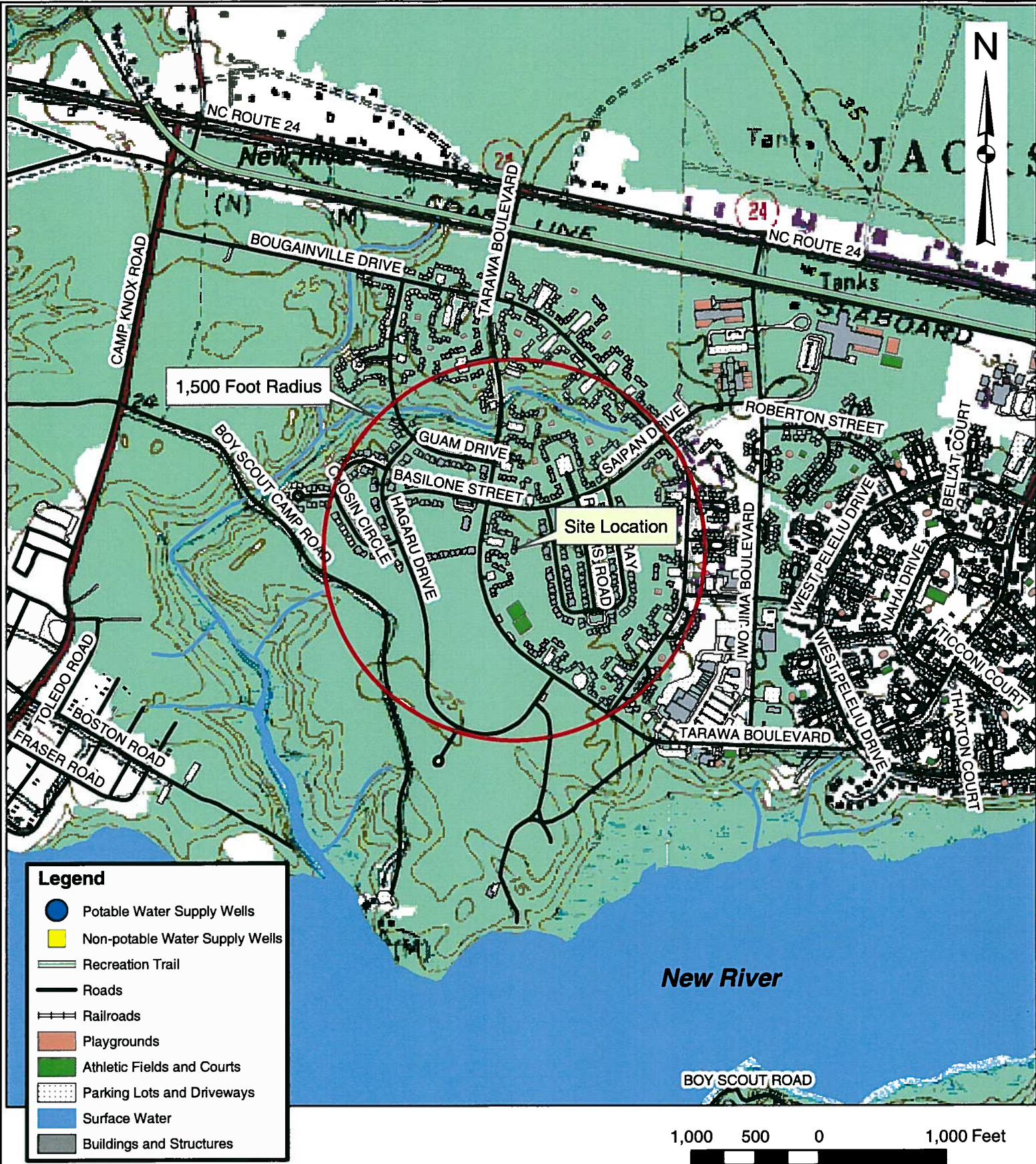
2. Tables

- a. Summary of Soil Laboratory Results – Event on August 5, 2008
- b. Summary of Soil Laboratory Results – Event on August 11, 2008
- c. Summary of Groundwater Laboratory Results – Event on August 21, 2008

3. Appendices

- Appendix A: Site Investigation Report for Permanent Closure or Change-in-Service of UST (UST-2)**
- Appendix B: 24 Hour Release and UST Leak Reporting Form (UST-61)**
- Appendix C: Certificate of UST disposal**

- Appendix D: Disposal Manifests**
- Appendix E: Laboratory Analytical Reports**
- Appendix F: Photographs**
- Appendix G: Temporary Monitoring Well Records**



Data Sources: Data Layers provided by MCB Camp Lejeune GIS Office.

	PROJECT TANK REMOVAL BUILDING TT-2223 MARINE CORPS BASE CAMP LEJEUNE, NC		TITLE SITE LOCATION MAP		FIGURE 1
	JOB NO. 206-094	DATE SEPT 2008	SCALE AS SHOWN	DRAWN BY SAC	

TABLE 1
SUMMARY OF SOIL LABORATORY RESULTS
EPA Method 8015 (GRO and DRO)
Excavation/Sampling Event on 8/11/2008

Sample ID	Contaminant of Concern		Gasoline Range Organics	Diesel Range Organics
	Date Collected	Sample Depth (ft. BLS)		
NCDENR ACTION LEVEL (mg/kg)			10	10
TT-UNK-S001	8/11/2008	3.5	<4.81	<7.29
TT-UNK-S002	8/11/2008	3.5	<4.96	49.3
TT-UNK-S003	8/11/2008	3.5	<4.68	822
TT-UNK-S004	8/11/2008	3.5	<4.49	<7.51
TT-UNK-S005	8/11/2008	6	316	9,660

All results in milligrams per kilogram (mg/kg).
ft. BLS = Feet Below Land Surface.
<# = Less than method detection limit
Bold results indicate concentrations above NCDENR Action Level.

TABLE 2
SUMMARY OF SOIL LABORATORY RESULTS
EPA METHODS 8260, 8270, and MADEP VPH/EPH
Excavation/Sampling Event on 8/18/2008

Sample ID	Contaminant of Concern		EPA 8260	EPA 8270	MADEP VPH/EPH			
	Date Collected	Sample Depth (ft. BLS)	All 8260 Compounds	All 8270 Compounds	C ₆ -C ₈ Aliphatics	C ₉ -C ₁₀ Aliphatics	C ₁₁ -C ₁₆ Aliphatics	C ₁₇ -C ₂₂ Aromatics
Residential MSCC (mg/kg)			Varies	Varies	939	9,386	93,860	469
Industrial/Commercial MSCC (mg/kg)			Varies	Varies	24,528	245,280	#	12,264
Soil to Groundwater MSCC (mg/kg)			Varies	Varies	72	3,300	##	34
TT2223-S006	8/18/2008	3.5	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0
TT2223-S007	8/18/2008	3.5	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0
TT2223-S008	8/18/2008	9.0	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0
TT2223-S009	8/18/2008	9.0	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0
TT2223-S010	8/18/2008	9.0	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0
TT2223-S011	8/18/2008	9.5	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0

All results in milligram per Kilogram (mg/kg)
BMDL = Below Method Detection Limit
ft. BLS = Feet Below Land Surface.
MSCC = Maximum Soil Contaminant Concentrations
= Health based level > 100%
= Considered Immobile
<# = Less than method detection limit



**TANK REMOVAL
BUILDING TT-2223
MARINE CORPS BASE
CAMP LEJEUNE, NC**

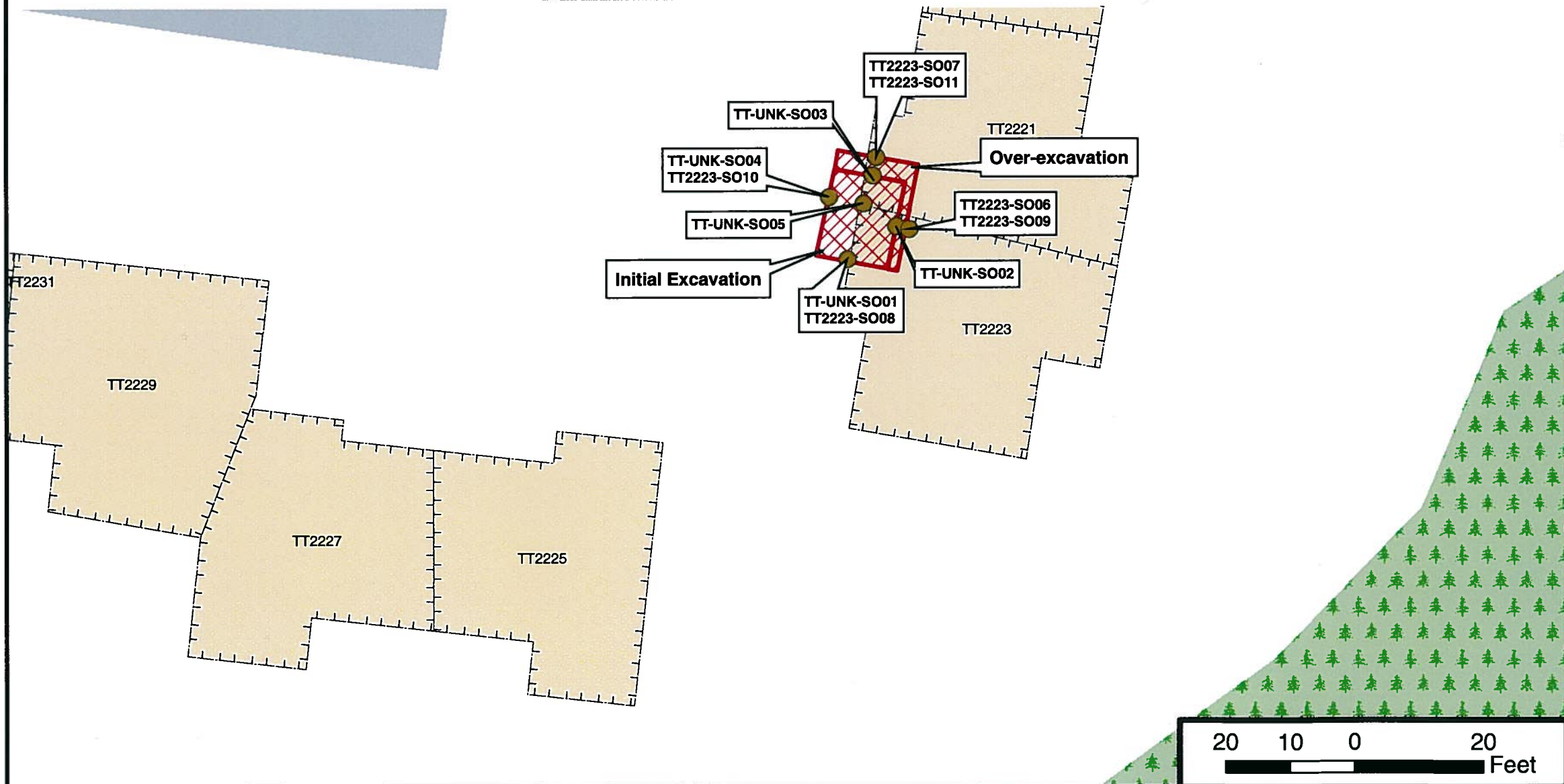


LEGEND

- Excavation Areas
- Demolished Buildings and Structures
- Soil Sample Location
- Slabs
- Driveways
- Parking Lots
- Woods

NOTES

- Data layers provided by MCB Camp Lejeune GIS office.
- Soil sample locations TT-UNK-S001 through TT-UNK-S005 provided by Lanier Surveying. Soil sample locations TT2223-S008 through TT2223-S011 were not surveyed, but were in the same vertical line as samples TT-UNK-S001 through TT-UNK-S004.



**SITE MAP WITH
SOIL SAMPLE RESULTS**

FIGURE

2

Job No.: 206-094	Date: SEPT 2008	Scale: AS SHOWN	Drawn By: SAC	Checked By: NLH
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TABLE 3
SUMMARY OF GROUNDWATER LABORATORY RESULTS
 EPA METHODS 602, 625, and MADEP VPH/EPH

Well ID	Method →		EPA 602		EPA 625	MADEP VPH/EPH			
	Contaminant of Concern →		Ethylbenzene	Total Xylenes	All EPA 625 Compounds	C ₇ -C ₈ Aliphatics	C ₉ -C ₁₀ Aliphatics	C ₁₁ -C ₁₄ Aliphatics	C ₉ -C ₁₁ Aromatics
	Sample ID	Date Collected							
	2L GWQS (µg/l)		550	530	Varies	420	4,200	42,000	210
	GCL (µg/l)		84,500	87,500	Varies	NE	NE	NE	NE
TTII-TW01	TT2223-TW01	8/21/2008	3.19	19.1	BMDL	<100	<219	<100	<349

All results in micrograms per liter (µg/L).
 NE = None Established
 J = Estimated concentration, below calibration range and above Method Detection Limit (MDL)
 <# = Less than MDL
 Bold results indicate concentrations above 2L GWQS or GCL.
 GCL = Gross Contaminant Level
 2L GWQS = NCAC T15A:02L Groundwater Quality Standards

2215



TANK REMOVAL
BUILDING TT-2223
MARINE CORPS BASE
CAMP LEJEUNE, NC

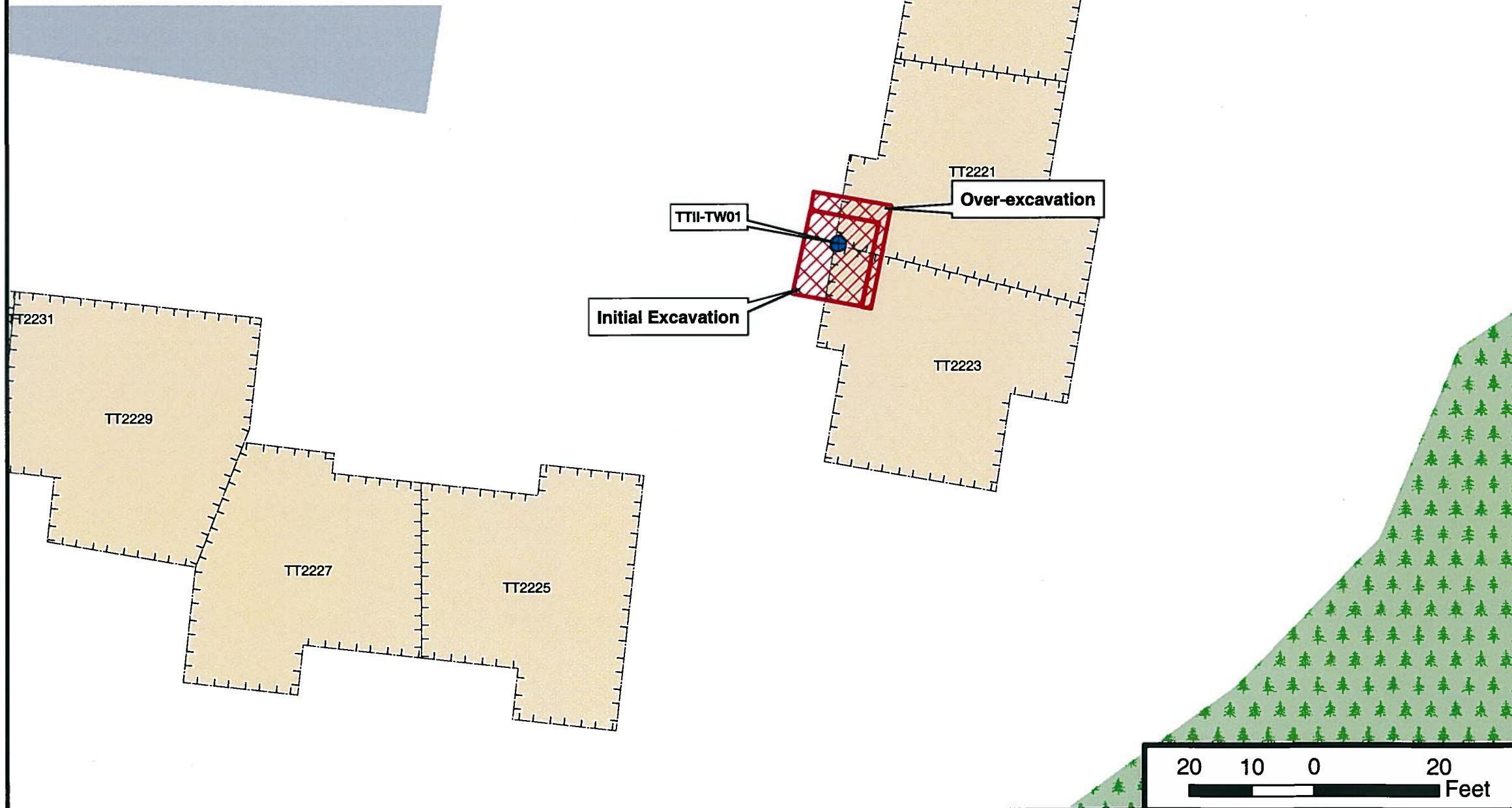


LEGEND

- Excavation Areas
- Temporary Monitoring Well
- Demolished Buildings and Structures
- Slabs
- Driveways
- Parking Lots
- Woods

NOTES

- Data layers provided by MCB Camp Lejeune GIS office.
- Temporary Monitoring Well TTII-TW01 was installed sampled, and abandoned on August 20, 2008 by a certified well driller with CATLIN.



SITE MAP WITH GROUNDWATER
SAMPLE RESULTS

FIGURE

3

Job No.: 206-094 Date: SEPT 2008 Scale: AS SHOWN Drawn By: SAC Checked By: NLH

TABLE 1
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EPA Method 8015 (GRO and DRO)
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	Date Collected	Sample Depth (ft. BLS)		
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TT-UNK-S005	8/11/2008	6	316	9,660

All results in milligrams per kilogram (mg/kg).

ft. BLS = Feet Below Land Surface.

<# = Less than method detection limit

Bold results indicate concentrations above NCDENR Action Level.

TABLE 2
SUMMARY OF SOIL LABORATORY RESULTS
EPA METHODS 8260, 8270, and MADEP VPH/EPH
Excavation/Sampling Event on 8/18/2008

Sample ID	Contaminant of Concern →		EPA 8260	EPA 8270	MADEP VPH/EPH			
	Date Collected	Sample Depth (ft. BLS)	All 8260 Compounds	All 8270 Compounds	C ₅ -C ₈ Aliphatics	C ₉ -C ₁₆ Aliphatics	C ₁₉ -C ₃₆ Aliphatics	C ₉ -C ₂₂ Aromatics
Residential MSCC (mg/kg)			Varies	Varies	939	9,386	93,860	469
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TT2223-S006	8/18/2008	3.5	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0
TT2223-S007	8/18/2008	3.5	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0
TT2223-S008	8/18/2008	9.0	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0
TT2223-S009	8/18/2008	9.0	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0
TT2223-S010	8/18/2008	9.0	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0
TT2223-S011	8/18/2008	9.5	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0

All results in milligram per Kilogram (mg/kg)

BMDL = Below Method Detection Limit

ft. BLS = Feet Below Land Surface.

MSCC = Maximum Soil Contaminant Concentrations

= Health based level > 100%

= Considered Immobile

<# = Less than method detection limit

TABLE 3
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EPA METHODS 602, 625, and MADEP VPH/EPH

Well ID	Method →		EPA 602		EPA 625	MADEP VPH/EPH			
	Contaminant of Concern →		Ethylbenzene	Total Xylenes	All EPA 625 Compounds	C ₅ -C ₈ Aliphatics	C ₉ -C ₁₈ Aliphatics	C ₁₉ -C ₃₆ Aliphatics	C ₅ -C ₂₂ Aromatics
	Sample ID	Date Collected							
2L GWQS (µg/l)			550	530	Varies	420	4,200	42,000	210
GCL (µg/l)			84,500	87,500	Varies	NE	NE	NE	NE
TT2223-TW01	TT2223-TW01	8/21/2008	3.19	19.1	BMDL	<100	<219	<100	<349

All results in micrograms per liter (µg/L).

NE = None Established

J = Estimated concentration, below calibration range and above Method Detection Limit (MDL)

<# = Less than MDL

Bold results indicate concentrations above 2L GWQS or GCL

GCL = Gross Contaminant Level

2L GWQS = NCAC T15A:02L Groundwater Quality Standards

APPENDIX A
Site Investigation Report for Permanent Closure or Change-in-Service of UST
(UST-2)

UST-2 Site Investigation Report for Permanent Closure or Change-in-Service of UST

Return completed form to:

The DWM Regional Office located in the area where the facility is located. Send a copy to the Central Office in Raleigh so that the status of the tank may be changed to "PERMANENTLY CLOSED" and your tank fee account can be closed out. SEE MAP ON THE BACK OF THIS FORM FOR THE CENTRAL AND REGIONAL OFFICE ADDRESSES.

STATE USE ONLY:

I.D. # _____

Date Received _____

INSTRUCTIONS (READ THIS FIRST)

For more than five UST systems you may attach additional forms as needed.

Permanent closure – For permanent closure, complete all sections of this form.

Change-in-service – For change-in-service where UST systems will be converted from containing a regulated substance to storing a non-regulated substance, complete sections I, II, III, IV, and VIII

Effective February 1, 1995, all UST closure/change-in-service reports must be submitted in the format provided in the UST-12 form. UST closure and change-in-services must be completed in accordance with the latest version of the *Guidelines for Tank Closure*. A copy of the UST-12 form and the *Guidelines for Tank Closure* can be obtained at www.wastenotnc.org.

You must make sure that USTs removed from your property are disposed of properly. When choosing a closure contractor, ask where the tank(s) will be taken for disposal. Usually, USTs are cleaned and cut up for scrap metal. This is dangerous work and must be performed by a qualified company. Tanks disposed of illegally in fields or other dumpsites can leak petroleum products and sludge into the environment. If your tanks are disposed of improperly, you could be held responsible for the cleanup of any environmental damage that occurs.

NOTE: If a release from the tank(s) has occurred, the site assessment portion of the tank closure must be conducted under the supervision of a P.E. or L.G., with all closure site assessment reports bearing the signature and seal of the P.E. or L.G.

I. OWNERSHIP OF TANKS

II. LOCATION OF TANKS

Owner Name (Corporation, Individual, Public Agency, or Other Entity)
Commanding Officer, MCB Camp Lejeune

Facility Name or Company
TT Housing, ACTUS LEND Lease

Street Address
PSC Box 20004

Facility ID # (if known)
N/A

City
MCB Camp Lejeune

County
Onslow

Street Address
TT2223 Tarawa Blvd

State
NC

Zip Code
28542

City
MCB Camp Lejeune

County
Onslow

Zip Code
28542

Phone Number
910-451-9660

Phone Number
910-451-9660

III. CONTACT PERSONNEL

Contact for Facility:
Mr. Bruce Markwick

Job Title:
Env Protection Specialist

Phone. No:
910-451-9660

Closure Contractor Name:
N/A

Closure Contractor Company:
N/A

Address:
N/A

Phone. No:
N/A

Primary Consultant Name:
Osage of Virginia

Primary Consultant Company:
Osage of Virginia

Address:
2618A Colley Avenue
Norfolk, VA

Phone. No:
757-440-0400

IV. UST INFORMATION FOR REGISTERED UST SYSTEMS

V. EXCAVATION CONDITION

Tank ID No.	Size in Gallons	Tank Dimensions	Last Contents	Last Use Date	Permanent Close Date	Change-in-Service Date	Water in excavation		Free product		Notable odor or visible soil contamination	
							Yes	No	Yes	No	Yes	No
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

VI. UST INFORMATION FOR UNREGISTERED UST SYSTEMS

VII. EXCAVATION CONDITION

Tank ID No.	Size in Gallons	Tank Dimensions	Last Contents	Last Use Date	Permanent Close Date	Tank Owner Name *	Water in excavation		Free product		Notable odor or visible soil contamination	
							Yes	No	Yes	No	Yes	No
TT 2223			Heating Oil	early 1970s		See above	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

* If the tank owner address is different from the one listed in Section I., then enter the street address, city, state, zip code and telephone no. below:

VIII. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true accurate and complete.

Print name and official title of owner or owner's authorized representative
Bruce Markwick Environmental Protection Specialist

Signature



Date Signed

10/31/08

APPENDIX B
24 Hour Release and UST Leak Reporting Form (UST-61)

UST-61**24-Hour Release and UST Leak Reporting Form.****For Releases
in NC**

This form should be completed and submitted to the UST Section's regional office following a known or suspected release from an underground storage tank (UST) system. This form is required to be submitted within 24 hours of discovery of a known or suspected release

(DWM USE ONLY)
Incident # _____ Risk (H,I,L,U) _____
Received On _____ Received By _____
Reported by (circle one): Phone, Fax or Report
Region _____

Suspected Contamination? (Y/N) Y
Confirmed GW Contamination? (Y/N) N
Confirmed Soil Contamination?(Y/N) N
Samples Taken?(Y/N) Y
Free Product? (Y/N) N If Yes, State Greatest Thickness _____

Facility ID Number N/A
Date Leak Discovered 08/11/08
Comm Non-Commercial
Reg Non-regulated

INCIDENT DESCRIPTION

Incident Name: TT2223 Heating Oil Tank

Address: TT2223 Tarawa Blvd

County: Onslow

City/Town: Camp Lejeune

Zip Code: 28542

Regional Office (circle one): Asheville, Mooresville, Fayetteville, Raleigh, Washington, Wilmington, Winston-Salem

Latitude (decimal degrees): 34° 44' 06.200" N Longitude (decimal degrees): 77° 22' 43.423" W

Obtained by:

Briefly describe suspected or confirmed release: (including but not limited to: nature of release, date of release, amount of release, amount of free product present and recovery efforts, initial responses conducted, impacts to receptors)

- GPS
 Topographic map
 GIS Address matching
 Other
 Unknown

On 6 August 2008, during construction of new housing at the Tarawa Terrace housing area of Camp Lejeune, ACTUS Lend Lease discovered an old abandoned heating oil tank. A dozer on site had hit the tank and ripped the top of the tank. On Monday, 11 August, Environmental personnel removed all liquids from the tank and cleaned and purged the tank of any residual product. OSAGE of Virginia excavated the soil from around the tank and removed the tank from the hole. The bottom of the tank pit was stained and had a odor of fuel. The contractor removed about 1 to 2 feet of soil from the bottom of the pit and disposed of the contaminated soil at the Marine Corps Base soil storage pad at bldg. 977. The tank was removed and disposed of at a local metal recycler. Samples were taken per the NCDENR UST guidelines and results are pending.

Describe location:

HOW RELEASE WAS DISCOVERED (Release Code)

(Check one)

- Release Detection Equipment or Methods
 During UST Closure/Removal
 Property Transfer

- Visual/Odor
 Water in Tank
 Water Supply Well Contamination

- Groundwater Contamination
 Surface Water Contamination
 Other (specify) _____

SOURCE OF CONTAMINATION**Source of Release**

(Check one to indicate primary source)

- Tank
 Piping
 Dispenser
 Submersible Turbine Pump
 Delivery Problem
 Other
 Unknown

Cause of Release

(Check one to indicate primary cause)

- Spill
 Overfill
 Corrosion
 Physical or Mechanical Damage
 Install Problem
 Other
 Unknown

Type of Release

(Check one)

- Petroleum
 Non-Petroleum
 Both

Location

- (Check one)
 Facility
 Residence
 Other

Product Type Released

(Check one to indicate primary product type released)

- Gasoline/ Diesel/ Kerosene
 Heating Oil
 Other Petroleum Products
 Metals
 Other Inorganics
 Other Organics
 Diesel/Veg. Oil Blend
 Vegetable Oil 100%
 E10 - E20
 E21 - E84
 E85 - E99
 Ethanol 100%
 E01 - E09

Definitions presented on reverse

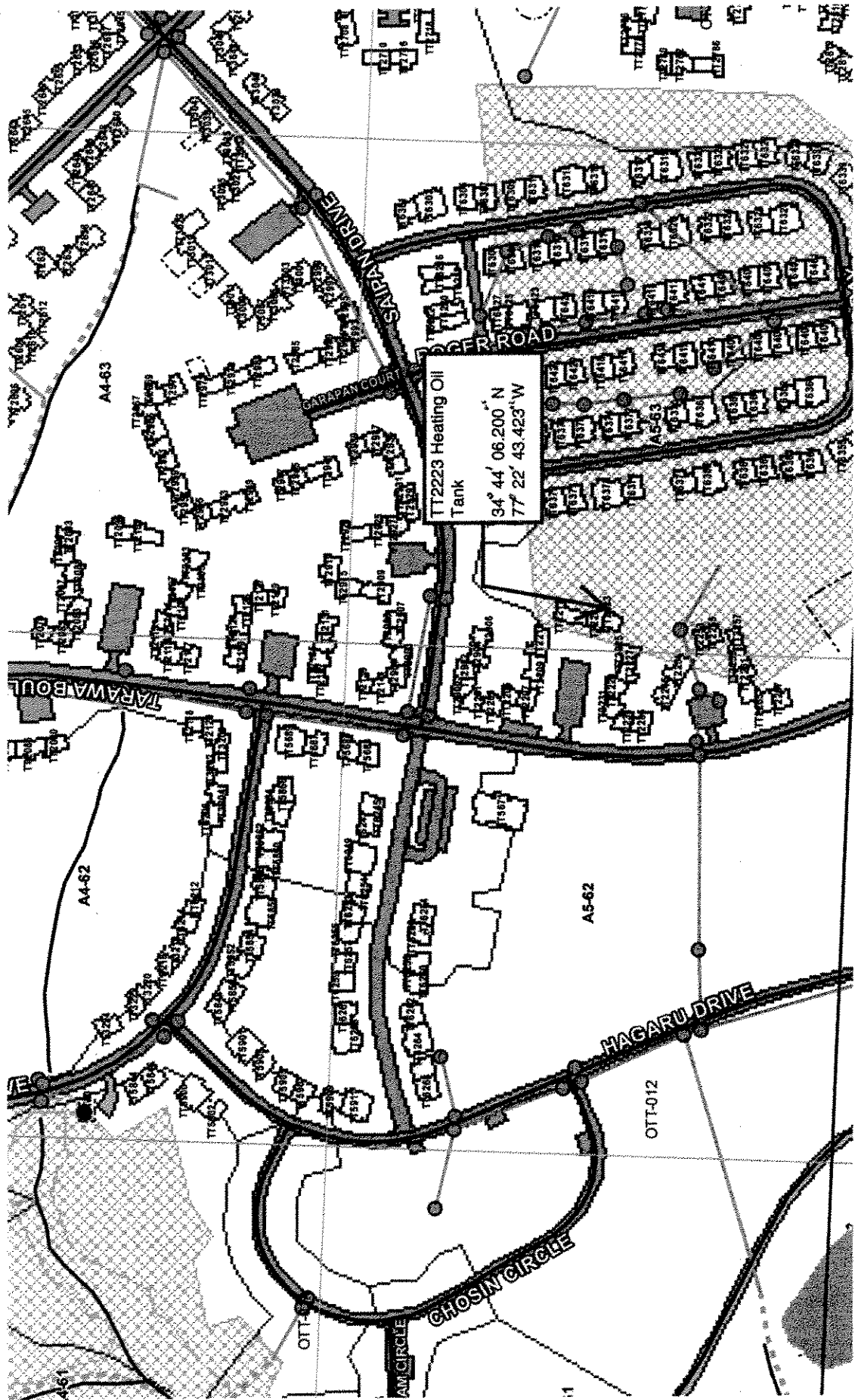
Definitions presented on reverse

Ownership

1. Municipal 2. Military 3. Unknown 4. Private 5. Federal 6. County 7. State

Operation Type

1. Public Service 2. Agricultural 3. Residential 4. Education/Relig. 5. Industrial 6. Commercial 7. Mining



APPENDIX C
Certificate of UST Disposal

Tank Disposal Manifest

Tank Owner: Commanding Officer, Marine Corps Base,
Camp Lejeune NC 28542

Tank/Owner Authorized Representative

Contact: Bruce Markwick
Phone: (910) 451-9660

Description of Tank:

Tank ID	Capacity	Previous Contents	Comments
			Dimensions
TT-2201	550 gal	Heating Oil	4 Ft X 6 Ft Dim
TT 2223			

Transporter: Osage of Virginia
2618 Colley Ave Ste A
Norfolk, VA 23517
Phone: (757) 440-0400

Print Name	Signature	Month/Day/Year
Theresa Ellerman		8/12/08

The undersigned certifies that the above named storage tank(s) has been cut into scrap and accepted by the disposal facility.

Name of Receiving Facility: Jacksonville Scrap Iron and Metal Inc
3560 Richland's Highway Jacksonville NC 28540
Phone: (910) 347-2323

Print Name	Signature	Month/Day/Year
Jacksonville Scrap Iron		8-12-08

APPENDIX D
Disposal Manifests

BLANK - NO MANIFESTS ATTACHED
SOIL AT TP-457 AWAITING DISPOSAL

APPENDIX E
Laboratory Analytical Reports



Shaun Whitworth
Osage of Virginia
2618 A Colley Ave
Norfolk, VA 23517

Report Number: G649-55

Client Project: CTO 016

Dear Shaun Whitworth,

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 services performed during this project, please call Ashley Nifong 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.

Sincerely,
SGS Environmental Services, Inc.

Project Manager
Ashley Nifong

Date

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.



Print Date: 8/14/2008

Client Sample ID: **TT-UNK-S001**
Client Project ID: CTO 016
Lab Sample ID: G649-55-1D
Lab Project ID: G649-55

Collection Date: 11-Aug-08 14:01
Received Date: 12-Aug-08
Matrix: SOIL
Solids: 84.65
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics	BQL	7.29	MG/KG	1	13-Aug-08 18:47

Batch Information

Analytical Batch: EP081308
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 32.41
Prep Extract Vol: 10



Print Date: 8/14/2008

Client Sample ID: **TT-UNK-S002**
Client Project ID: CTO 016
Lab Sample ID: G649-55-2D
Lab Project ID: G649-55

Collection Date: 11-Aug-08 14:30
Received Date: 12-Aug-08
Matrix: SOIL
Solids: 78.22
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics	49.3	7.54	MG/KG	1	13-Aug-08 19:15

Batch Information

Analytical Batch: EP081308
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 33.92
Prep Extract Vol: 10



Print Date: 8/14/2008

Client Sample ID: **TT-UNK-S003**
Client Project ID: CTO 016
Lab Sample ID: G649-55-3D
Lab Project ID: G649-55

Collection Date: 11-Aug-08 14:09
Received Date: 12-Aug-08
Matrix: SOIL
Solids: 81.59
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics	822	36.2	MG/KG	5	14-Aug-08 9:49

Batch Information

Analytical Batch: EP081408
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 33.88
Prep Extract Vol: 10



Print Date: 8/14/2008

Client Sample ID: **TT-UNK-S004**
Client Project ID: CTO 016
Lab Sample ID: G649-55-4D
Lab Project ID: G649-55

Collection Date: 11-Aug-08 14:19
Received Date: 12-Aug-08
Matrix: SOIL
Solids: 82.72
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics	BQL	7.51	MG/KG	1	13-Aug-08 20:13

Batch Information

Analytical Batch: EP081308
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 32.19
Prep Extract Vol: 10



Print Date: 8/14/2008

Client Sample ID: **TT-UNK-S005**
Client Project ID: CTO 016
Lab Sample ID: G649-55-5D
Lab Project ID: G649-55

Collection Date: 11-Aug-08 14:13
Received Date: 12-Aug-08
Matrix: SOIL
Solids: 87.77
Basis: Dry

Results by 8015DRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics	9660	272	MG/KG	40	14-Aug-08 10:18

Batch Information

Analytical Batch: EP081408
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 33.51
Prep Extract Vol: 10



Print Date: 8/14/2008

Client Sample ID: **TT-UNK-S001**
Client Project ID: CTO 016
Lab Sample ID: G649-55-1A
Lab Project ID: G649-55

Collection Date: 11-Aug-08 14:01
Received Date: 12-Aug-08
Matrix: SOIL
Solids: 84.65
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	4.81	MG/KG	1	13-Aug-08 21:01

Batch Information

Analytical Batch: VP081308
Analytical Method: 8015GRO
Instrument: GC4
Analyst: MJC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 7.37
Prep Extract Vol: 5



Print Date: 8/14/2008

Client Sample ID: **TT-UNK-S002**
Client Project ID: CTO 016
Lab Sample ID: G649-55-2A
Lab Project ID: G649-55

Collection Date: 11-Aug-08 14:30
Received Date: 12-Aug-08
Matrix: SOIL
Solids: 78.22
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	4.96	MG/KG	1	13-Aug-08 21:28

Batch Information

Analytical Batch: VP081308
Analytical Method: 8015GRO
Instrument: GC4
Analyst: MJC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 7.73
Prep Extract Vol: 5



Print Date: 8/14/2008

Client Sample ID: **TT-UNK-S003**
Client Project ID: CTO 016
Lab Sample ID: G649-55-3A
Lab Project ID: G649-55

Collection Date: 11-Aug-08 14:09
Received Date: 12-Aug-08
Matrix: SOIL
Solids: 81.59
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	4.68	MG/KG	1	13-Aug-08 21:55

Batch Information

Analytical Batch: VP081308
Analytical Method: 8015GRO
Instrument: GC4
Analyst: MJC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 7.86
Prep Extract Vol: 5



Print Date: 8/14/2008

Client Sample ID: **TT-UNK-S004**
Client Project ID: CTO 016
Lab Sample ID: G649-55-4A
Lab Project ID: G649-55

Collection Date: 11-Aug-08 14:19
Received Date: 12-Aug-08
Matrix: SOIL
Solids: 82.72
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	BQL	4.49	MG/KG	1	13-Aug-08 22:21

Batch Information

Analytical Batch: VP081308
Analytical Method: 8015GRO
Instrument: GC4
Analyst: MJC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 8.07
Prep Extract Vol: 5



Print Date: 8/14/2008

Client Sample ID: **TT-UNK-S005**
Client Project ID: CTO 016
Lab Sample ID: G649-55-5A
Lab Project ID: G649-55

Collection Date: 11-Aug-08 14:13
Received Date: 12-Aug-08
Matrix: SOIL
Solids: 87.77
Basis: Dry

Results by 8015GRO

<u>Parameter</u>	<u>Result</u>	<u>RL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics	316	6.98	MG/KG	10	14-Aug-08 11:49

Batch Information

Analytical Batch: VP081408
Analytical Method: 8015GRO
Instrument: GC4
Analyst: MJC

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 4.9
Prep Extract Vol: 5



Shaun Whitworth
Osage of Virginia
2618 A Colley Ave
Norfolk, VA 23517

Report Number: G649-56

Client Project: CTO 015


Dear Shaun Whitworth,

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 Environmental Services 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.


Project Manager _____ Date _____
Ashley Nifong



List of Reporting Abbreviations
And Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantification 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/CL = Reporting Limit / Control 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 GCMS 8260-5035**

Client Sample ID: TT2223-S006
Client Project ID: CTO 015
Lab Sample ID G649-56-1A
Lab Project ID: G649-56
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 08-18-2008 12:45
Date Received: 8/20/2008
Matrix: Soil
Sample Amount: 5.46 g
%Solids: 74.1

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	61.8	1	8/21/2008
Benzene	BQL	6.18	1	8/21/2008
Bromobenzene	BQL	6.18	1	8/21/2008
Bromochloromethane	BQL	6.18	1	8/21/2008
Bromodichloromethane	BQL	6.18	1	8/21/2008
Bromoform	BQL	6.18	1	8/21/2008
Bromomethane	BQL	6.18	1	8/21/2008
2-Butanone	BQL	30.9	1	8/21/2008
n-Butylbenzene	BQL	6.18	1	8/21/2008
sec-Butylbenzene	BQL	6.18	1	8/21/2008
tert-Butylbenzene	BQL	6.18	1	8/21/2008
Carbon disulfide	BQL	6.18	1	8/21/2008
Carbon tetrachloride	BQL	6.18	1	8/21/2008
Chlorobenzene	BQL	6.18	1	8/21/2008
Chloroethane	BQL	6.18	1	8/21/2008
Chloroform	BQL	6.18	1	8/21/2008
Chloromethane	BQL	6.18	1	8/21/2008
2-Chlorotoluene	BQL	6.18	1	8/21/2008
4-Chlorotoluene	BQL	6.18	1	8/21/2008
Dibromochloromethane	BQL	6.18	1	8/21/2008
1,2-Dibromo-3-chloropropane	BQL	30.9	1	8/21/2008
Dibromomethane	BQL	6.18	1	8/21/2008
1,2-Dibromoethane (EDB)	BQL	6.18	1	8/21/2008
1,2-Dichlorobenzene	BQL	6.18	1	8/21/2008
1,3-Dichlorobenzene	BQL	6.18	1	8/21/2008
1,4-Dichlorobenzene	BQL	6.18	1	8/21/2008
trans-1,4-Dichloro-2-butene	BQL	30.9	1	8/21/2008
1,1-Dichloroethane	BQL	6.18	1	8/21/2008
1,1-Dichloroethene	BQL	6.18	1	8/21/2008
1,2-Dichloroethane	BQL	6.18	1	8/21/2008
cis-1,2-Dichloroethene	BQL	6.18	1	8/21/2008
trans-1,2-dichloroethene	BQL	6.18	1	8/21/2008
1,2-Dichloropropane	BQL	6.18	1	8/21/2008
1,3-Dichloropropane	BQL	6.18	1	8/21/2008
2,2-Dichloropropane	BQL	6.18	1	8/21/2008
1,1-Dichloropropene	BQL	6.18	1	8/21/2008
cis-1,3-Dichloropropene	BQL	6.18	1	8/21/2008
trans-1,3-Dichloropropene	BQL	6.18	1	8/21/2008
Dichlorodifluoromethane	BQL	6.18	1	8/21/2008
Diisopropyl ether (DIPE)	BQL	6.18	1	8/21/2008
Ethylbenzene	BQL	6.18	1	8/21/2008
Hexachlorobutadiene	BQL	6.18	1	8/21/2008
2-Hexanone	BQL	6.18	1	8/21/2008
Iodomethane	BQL	6.18	1	8/21/2008



**Results for Volatiles
by GCMS 8260-5035**

Client Sample ID: TT2223-S006
Client Project ID: CTO 015
Lab Sample ID G649-56-1A
Lab Project ID: G649-56
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 08-18-2008 12:45
Date Received: 8/20/2008
Matrix: Soil
Sample Amount: 5.46 g
%Solids: 74.1

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	6.18	1	8/21/2008
4-Isopropyltoluene	BQL	6.18	1	8/21/2008
Methylene chloride	BQL	24.7	1	8/21/2008
4-Methyl-2-pentanone	BQL	6.18	1	8/21/2008
Methyl-tert-butyl ether (MTBE)	BQL	6.18	1	8/21/2008
Naphthalene	BQL	6.18	1	8/21/2008
n-Propyl benzene	BQL	6.18	1	8/21/2008
Styrene	BQL	6.18	1	8/21/2008
1,1,1,2-Tetrachloroethane	BQL	6.18	1	8/21/2008
1,1,2,2-Tetrachloroethane	BQL	6.18	1	8/21/2008
Tetrachloroethene	BQL	6.18	1	8/21/2008
Toluene	BQL	6.18	1	8/21/2008
1,2,3-Trichlorobenzene	BQL	6.18	1	8/21/2008
1,2,4-Trichlorobenzene	BQL	6.18	1	8/21/2008
Trichloroethene	BQL	6.18	1	8/21/2008
1,1,1-Trichloroethane	BQL	6.18	1	8/21/2008
1,1,2-Trichloroethane	BQL	6.18	1	8/21/2008
Trichlorofluoromethane	BQL	6.18	1	8/21/2008
1,2,3-Trichloropropane	BQL	6.18	1	8/21/2008
1,2,4-Trimethylbenzene	BQL	6.18	1	8/21/2008
1,3,5-Trimethylbenzene	BQL	6.18	1	8/21/2008
Vinyl chloride	BQL	6.18	1	8/21/2008
m-,p-Xylene	BQL	12.4	1	8/21/2008
o-Xylene	BQL	6.18	1	8/21/2008

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	56.2	112
Toluene-d8	50	48.3	97
4-Bromofluorobenzene	50	42	84

Comments:**Flags:**Analyst: *Z* Reviewed By: *MJC*

**Results for Volatiles
by GCMS 8260-5035**

Client Sample ID: TT2223-S007
Client Project ID: CTO 015
Lab Sample ID G649-56-2A
Lab Project ID: G649-56
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 08-18-2008 12:56
Date Received: 8/20/2008
Matrix: Soil
Sample Amount: 5.69 g
%Solids: 78.8

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	55.8	1	8/21/2008
Benzene	BQL	5.58	1	8/21/2008
Bromobenzene	BQL	5.58	1	8/21/2008
Bromochloromethane	BQL	5.58	1	8/21/2008
Bromodichloromethane	BQL	5.58	1	8/21/2008
Bromoform	BQL	5.58	1	8/21/2008
Bromomethane	BQL	5.58	1	8/21/2008
2-Butanone	BQL	27.9	1	8/21/2008
n-Butylbenzene	BQL	5.58	1	8/21/2008
sec-Butylbenzene	BQL	5.58	1	8/21/2008
tert-Butylbenzene	BQL	5.58	1	8/21/2008
Carbon disulfide	BQL	5.58	1	8/21/2008
Carbon tetrachloride	BQL	5.58	1	8/21/2008
Chlorobenzene	BQL	5.58	1	8/21/2008
Chloroethane	BQL	5.58	1	8/21/2008
Chloroform	BQL	5.58	1	8/21/2008
Chloromethane	BQL	5.58	1	8/21/2008
2-Chlorotoluene	BQL	5.58	1	8/21/2008
4-Chlorotoluene	BQL	5.58	1	8/21/2008
Dibromochloromethane	BQL	5.58	1	8/21/2008
1,2-Dibromo-3-chloropropane	BQL	27.9	1	8/21/2008
Dibromomethane	BQL	5.58	1	8/21/2008
1,2-Dibromoethane (EDB)	BQL	5.58	1	8/21/2008
1,2-Dichlorobenzene	BQL	5.58	1	8/21/2008
1,3-Dichlorobenzene	BQL	5.58	1	8/21/2008
1,4-Dichlorobenzene	BQL	5.58	1	8/21/2008
trans-1,4-Dichloro-2-butene	BQL	27.9	1	8/21/2008
1,1-Dichloroethane	BQL	5.58	1	8/21/2008
1,1-Dichloroethene	BQL	5.58	1	8/21/2008
1,2-Dichloroethane	BQL	5.58	1	8/21/2008
cis-1,2-Dichloroethene	BQL	5.58	1	8/21/2008
trans-1,2-dichloroethene	BQL	5.58	1	8/21/2008
1,2-Dichloropropane	BQL	5.58	1	8/21/2008
1,3-Dichloropropane	BQL	5.58	1	8/21/2008
2,2-Dichloropropane	BQL	5.58	1	8/21/2008
1,1-Dichloropropene	BQL	5.58	1	8/21/2008
cis-1,3-Dichloropropene	BQL	5.58	1	8/21/2008
trans-1,3-Dichloropropene	BQL	5.58	1	8/21/2008
Dichlorodifluoromethane	BQL	5.58	1	8/21/2008
Diisopropyl ether (DIPE)	BQL	5.58	1	8/21/2008
Ethylbenzene	BQL	5.58	1	8/21/2008
Hexachlorobutadiene	BQL	5.58	1	8/21/2008
2-Hexanone	BQL	5.58	1	8/21/2008
Iodomethane	BQL	5.58	1	8/21/2008

**Results for Volatiles
by GCMS 8260-5035**

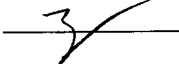
Client Sample ID: TT2223-S007
 Client Project ID: CTO 015
 Lab Sample ID G649-56-2A
 Lab Project ID: G649-56
 Report Basis: Dry Weight

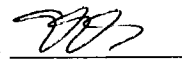
Analyzed By: MJC
 Date Collected: 08-18-2008 12:56
 Date Received: 8/20/2008
 Matrix: Soil
 Sample Amount: 5.69 g
 %Solids: 78.8

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	5.58	1	8/21/2008
4-Isopropyltoluene	BQL	5.58	1	8/21/2008
Methylene chloride	BQL	22.3	1	8/21/2008
4-Methyl-2-pentanone	BQL	5.58	1	8/21/2008
Methyl-tert-butyl ether (MTBE)	BQL	5.58	1	8/21/2008
Naphthalene	BQL	5.58	1	8/21/2008
n-Propyl benzene	BQL	5.58	1	8/21/2008
Styrene	BQL	5.58	1	8/21/2008
1,1,1,2-Tetrachloroethane	BQL	5.58	1	8/21/2008
1,1,2,2-Tetrachloroethane	BQL	5.58	1	8/21/2008
Tetrachloroethene	BQL	5.58	1	8/21/2008
Toluene	BQL	5.58	1	8/21/2008
1,2,3-Trichlorobenzene	BQL	5.58	1	8/21/2008
1,2,4-Trichlorobenzene	BQL	5.58	1	8/21/2008
Trichloroethene	BQL	5.58	1	8/21/2008
1,1,1-Trichloroethane	BQL	5.58	1	8/21/2008
1,1,2-Trichloroethane	BQL	5.58	1	8/21/2008
Trichlorofluoromethane	BQL	5.58	1	8/21/2008
1,2,3-Trichloropropane	BQL	5.58	1	8/21/2008
1,2,4-Trimethylbenzene	BQL	5.58	1	8/21/2008
1,3,5-Trimethylbenzene	BQL	5.58	1	8/21/2008
Vinyl chloride	BQL	5.58	1	8/21/2008
m-,p-Xylene	BQL	11.2	1	8/21/2008
o-Xylene	BQL	5.58	1	8/21/2008

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	57.8	116
Toluene-d8	50	47.5	95
4-Bromofluorobenzene	50	43.3	87

Comments:**Flags:**

Analyst: 

Reviewed By: 

**Results for Volatiles
by GCMS 8260-5035**

Client Sample ID: TT2223-S008
Client Project ID: CTO 015
Lab Sample ID G649-56-3A
Lab Project ID: G649-56
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 08-19-2008 11:15
Date Received: 8/20/2008
Matrix: Soil
Sample Amount: 5.15 g
%Solids: 71.1

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	68.1	1	8/21/2008
Benzene	BQL	6.81	1	8/21/2008
Bromobenzene	BQL	6.81	1	8/21/2008
Bromochloromethane	BQL	6.81	1	8/21/2008
Bromodichloromethane	BQL	6.81	1	8/21/2008
Bromoform	BQL	6.81	1	8/21/2008
Bromomethane	BQL	6.81	1	8/21/2008
2-Butanone	BQL	34.1	1	8/21/2008
n-Butylbenzene	BQL	6.81	1	8/21/2008
sec-Butylbenzene	BQL	6.81	1	8/21/2008
tert-Butylbenzene	BQL	6.81	1	8/21/2008
Carbon disulfide	BQL	6.81	1	8/21/2008
Carbon tetrachloride	BQL	6.81	1	8/21/2008
Chlorobenzene	BQL	6.81	1	8/21/2008
Chloroethane	BQL	6.81	1	8/21/2008
Chloroform	BQL	6.81	1	8/21/2008
Chloromethane	BQL	6.81	1	8/21/2008
2-Chlorotoluene	BQL	6.81	1	8/21/2008
4-Chlorotoluene	BQL	6.81	1	8/21/2008
Dibromochloromethane	BQL	6.81	1	8/21/2008
1,2-Dibromo-3-chloropropane	BQL	34.1	1	8/21/2008
Dibromomethane	BQL	6.81	1	8/21/2008
1,2-Dibromoethane (EDB)	BQL	6.81	1	8/21/2008
1,2-Dichlorobenzene	BQL	6.81	1	8/21/2008
1,3-Dichlorobenzene	BQL	6.81	1	8/21/2008
1,4-Dichlorobenzene	BQL	6.81	1	8/21/2008
trans-1,4-Dichloro-2-butene	BQL	34.1	1	8/21/2008
1,1-Dichloroethane	BQL	6.81	1	8/21/2008
1,1-Dichloroethene	BQL	6.81	1	8/21/2008
1,2-Dichloroethane	BQL	6.81	1	8/21/2008
cis-1,2-Dichloroethene	BQL	6.81	1	8/21/2008
trans-1,2-dichloroethene	BQL	6.81	1	8/21/2008
1,2-Dichloropropane	BQL	6.81	1	8/21/2008
1,3-Dichloropropane	BQL	6.81	1	8/21/2008
2,2-Dichloropropane	BQL	6.81	1	8/21/2008
1,1-Dichloropropene	BQL	6.81	1	8/21/2008
cis-1,3-Dichloropropene	BQL	6.81	1	8/21/2008
trans-1,3-Dichloropropene	BQL	6.81	1	8/21/2008
Dichlorodifluoromethane	BQL	6.81	1	8/21/2008
Diisopropyl ether (DIPE)	BQL	6.81	1	8/21/2008
Ethylbenzene	BQL	6.81	1	8/21/2008
Hexachlorobutadiene	BQL	6.81	1	8/21/2008
2-Hexanone	BQL	6.81	1	8/21/2008
Iodomethane	BQL	6.81	1	8/21/2008



**Results for Volatiles
by GCMS 8260-5035**

Client Sample ID: TT2223-S008
 Client Project ID: CTO 015
 Lab Sample ID G649-56-3A
 Lab Project ID: G649-56
 Report Basis: Dry Weight

Analyzed By: MJC
 Date Collected: 08-19-2008 11:15
 Date Received: 8/20/2008
 Matrix: Soil
 Sample Amount: 5.15 g
 %Solids: 71.1

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	6.81	1	8/21/2008
4-Isopropyltoluene	BQL	6.81	1	8/21/2008
Methylene chloride	BQL	27.2	1	8/21/2008
4-Methyl-2-pentanone	BQL	6.81	1	8/21/2008
Methyl-tert-butyl ether (MTBE)	BQL	6.81	1	8/21/2008
Naphthalene	BQL	6.81	1	8/21/2008
n-Propyl benzene	BQL	6.81	1	8/21/2008
Styrene	BQL	6.81	1	8/21/2008
1,1,1,2-Tetrachloroethane	BQL	6.81	1	8/21/2008
1,1,2,2-Tetrachloroethane	BQL	6.81	1	8/21/2008
Tetrachloroethene	BQL	6.81	1	8/21/2008
Toluene	BQL	6.81	1	8/21/2008
1,2,3-Trichlorobenzene	BQL	6.81	1	8/21/2008
1,2,4-Trichlorobenzene	BQL	6.81	1	8/21/2008
Trichloroethene	BQL	6.81	1	8/21/2008
1,1,1-Trichloroethane	BQL	6.81	1	8/21/2008
1,1,2-Trichloroethane	BQL	6.81	1	8/21/2008
Trichlorofluoromethane	BQL	6.81	1	8/21/2008
1,2,3-Trichloropropane	BQL	6.81	1	8/21/2008
1,2,4-Trimethylbenzene	BQL	6.81	1	8/21/2008
1,3,5-Trimethylbenzene	BQL	6.81	1	8/21/2008
Vinyl chloride	BQL	6.81	1	8/21/2008
m-,p-Xylene	BQL	13.6	1	8/21/2008
o-Xylene	BQL	6.81	1	8/21/2008

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	58.4	117
Toluene-d8	50	47.7	95
4-Bromofluorobenzene	50	41.7	83

Comments:**Flags:**

Analyst: 3

Reviewed By: 

**Results for Volatiles
by GCMS 8260-5035**

Client Sample ID: TT2223-S009
Client Project ID: CTO 015
Lab Sample ID G649-56-4A
Lab Project ID: G649-56
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 08-19-2008 11:04
Date Received: 8/20/2008
Matrix: Soil
Sample Amount: 5.65 g
%Solids: 75.8

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	58.4	1	8/21/2008
Benzene	BQL	5.84	1	8/21/2008
Bromobenzene	BQL	5.84	1	8/21/2008
Bromochloromethane	BQL	5.84	1	8/21/2008
Bromodichloromethane	BQL	5.84	1	8/21/2008
Bromoform	BQL	5.84	1	8/21/2008
Bromomethane	BQL	5.84	1	8/21/2008
2-Butanone	BQL	29.2	1	8/21/2008
n-Butylbenzene	BQL	5.84	1	8/21/2008
sec-Butylbenzene	BQL	5.84	1	8/21/2008
tert-Butylbenzene	BQL	5.84	1	8/21/2008
Carbon disulfide	BQL	5.84	1	8/21/2008
Carbon tetrachloride	BQL	5.84	1	8/21/2008
Chlorobenzene	BQL	5.84	1	8/21/2008
Chloroethane	BQL	5.84	1	8/21/2008
Chloroform	BQL	5.84	1	8/21/2008
Chloromethane	BQL	5.84	1	8/21/2008
2-Chlorotoluene	BQL	5.84	1	8/21/2008
4-Chlorotoluene	BQL	5.84	1	8/21/2008
Dibromochloromethane	BQL	5.84	1	8/21/2008
1,2-Dibromo-3-chloropropane	BQL	29.2	1	8/21/2008
Dibromomethane	BQL	5.84	1	8/21/2008
1,2-Dibromoethane (EDB)	BQL	5.84	1	8/21/2008
1,2-Dichlorobenzene	BQL	5.84	1	8/21/2008
1,3-Dichlorobenzene	BQL	5.84	1	8/21/2008
1,4-Dichlorobenzene	BQL	5.84	1	8/21/2008
trans-1,4-Dichloro-2-butene	BQL	29.2	1	8/21/2008
1,1-Dichloroethane	BQL	5.84	1	8/21/2008
1,1-Dichloroethene	BQL	5.84	1	8/21/2008
1,2-Dichloroethane	BQL	5.84	1	8/21/2008
cis-1,2-Dichloroethene	BQL	5.84	1	8/21/2008
trans-1,2-dichloroethene	BQL	5.84	1	8/21/2008
1,2-Dichloropropane	BQL	5.84	1	8/21/2008
1,3-Dichloropropane	BQL	5.84	1	8/21/2008
2,2-Dichloropropane	BQL	5.84	1	8/21/2008
1,1-Dichloropropene	BQL	5.84	1	8/21/2008
cis-1,3-Dichloropropene	BQL	5.84	1	8/21/2008
trans-1,3-Dichloropropene	BQL	5.84	1	8/21/2008
Dichlorodifluoromethane	BQL	5.84	1	8/21/2008
Diisopropyl ether (DIPE)	BQL	5.84	1	8/21/2008
Ethylbenzene	BQL	5.84	1	8/21/2008
Hexachlorobutadiene	BQL	5.84	1	8/21/2008
2-Hexanone	BQL	5.84	1	8/21/2008
Iodomethane	BQL	5.84	1	8/21/2008



**Results for Volatiles
by GCMS 8260-5035**

Client Sample ID: TT2223-S009
Client Project ID: CTO 015
Lab Sample ID G649-56-4A
Lab Project ID: G649-56
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 08-19-2008 11:04
Date Received: 8/20/2008
Matrix: Soil
Sample Amount: 5.65 g
%Solids: 75.8

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	5.84	1	8/21/2008
4-Isopropyltoluene	BQL	5.84	1	8/21/2008
Methylene chloride	BQL	23.4	1	8/21/2008
4-Methyl-2-pentanone	BQL	5.84	1	8/21/2008
Methyl-tert-butyl ether (MTBE)	BQL	5.84	1	8/21/2008
Naphthalene	BQL	5.84	1	8/21/2008
n-Propyl benzene	BQL	5.84	1	8/21/2008
Styrene	BQL	5.84	1	8/21/2008
1,1,1,2-Tetrachloroethane	BQL	5.84	1	8/21/2008
1,1,2,2-Tetrachloroethane	BQL	5.84	1	8/21/2008
Tetrachloroethene	BQL	5.84	1	8/21/2008
Toluene	BQL	5.84	1	8/21/2008
1,2,3-Trichlorobenzene	BQL	5.84	1	8/21/2008
1,2,4-Trichlorobenzene	BQL	5.84	1	8/21/2008
Trichloroethene	BQL	5.84	1	8/21/2008
1,1,1-Trichloroethane	BQL	5.84	1	8/21/2008
1,1,2-Trichloroethane	BQL	5.84	1	8/21/2008
Trichlorofluoromethane	BQL	5.84	1	8/21/2008
1,2,3-Trichloropropane	BQL	5.84	1	8/21/2008
1,2,4-Trimethylbenzene	BQL	5.84	1	8/21/2008
1,3,5-Trimethylbenzene	BQL	5.84	1	8/21/2008
Vinyl chloride	BQL	5.84	1	8/21/2008
m-,p-Xylene	BQL	11.7	1	8/21/2008
o-Xylene	BQL	5.84	1	8/21/2008

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	57.2	114
Toluene-d8	50	47.6	95
4-Bromofluorobenzene	50	43	86

Comments:**Flags:**Analyst: 3Reviewed By: [Signature]

**Results for Volatiles
by GCMS 8260-5035**

Client Sample ID: TT2223-S010
Client Project ID: CTO 015
Lab Sample ID G649-56-5A
Lab Project ID: G649-56
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 08-19-2008 11:27
Date Received: 8/20/2008
Matrix: Soil
Sample Amount: 5.15 g
%Solids: 74.1

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	65.5	1	8/21/2008
Benzene	BQL	6.55	1	8/21/2008
Bromobenzene	BQL	6.55	1	8/21/2008
Bromochloromethane	BQL	6.55	1	8/21/2008
Bromodichloromethane	BQL	6.55	1	8/21/2008
Bromoform	BQL	6.55	1	8/21/2008
Bromomethane	BQL	6.55	1	8/21/2008
2-Butanone	BQL	32.8	1	8/21/2008
n-Butylbenzene	BQL	6.55	1	8/21/2008
sec-Butylbenzene	BQL	6.55	1	8/21/2008
tert-Butylbenzene	BQL	6.55	1	8/21/2008
Carbon disulfide	BQL	6.55	1	8/21/2008
Carbon tetrachloride	BQL	6.55	1	8/21/2008
Chlorobenzene	BQL	6.55	1	8/21/2008
Chloroethane	BQL	6.55	1	8/21/2008
Chloroform	BQL	6.55	1	8/21/2008
Chloromethane	BQL	6.55	1	8/21/2008
2-Chlorotoluene	BQL	6.55	1	8/21/2008
4-Chlorotoluene	BQL	6.55	1	8/21/2008
Dibromochloromethane	BQL	6.55	1	8/21/2008
1,2-Dibromo-3-chloropropane	BQL	32.8	1	8/21/2008
Dibromomethane	BQL	6.55	1	8/21/2008
1,2-Dibromoethane (EDB)	BQL	6.55	1	8/21/2008
1,2-Dichlorobenzene	BQL	6.55	1	8/21/2008
1,3-Dichlorobenzene	BQL	6.55	1	8/21/2008
1,4-Dichlorobenzene	BQL	6.55	1	8/21/2008
trans-1,4-Dichloro-2-butene	BQL	32.8	1	8/21/2008
1,1-Dichloroethane	BQL	6.55	1	8/21/2008
1,1-Dichloroethene	BQL	6.55	1	8/21/2008
1,2-Dichloroethane	BQL	6.55	1	8/21/2008
cis-1,2-Dichloroethene	BQL	6.55	1	8/21/2008
trans-1,2-dichloroethene	BQL	6.55	1	8/21/2008
1,2-Dichloropropane	BQL	6.55	1	8/21/2008
1,3-Dichloropropane	BQL	6.55	1	8/21/2008
2,2-Dichloropropane	BQL	6.55	1	8/21/2008
1,1-Dichloropropene	BQL	6.55	1	8/21/2008
cis-1,3-Dichloropropene	BQL	6.55	1	8/21/2008
trans-1,3-Dichloropropene	BQL	6.55	1	8/21/2008
Dichlorodifluoromethane	BQL	6.55	1	8/21/2008
Diisopropyl ether (DIPE)	BQL	6.55	1	8/21/2008
Ethylbenzene	BQL	6.55	1	8/21/2008
Hexachlorobutadiene	BQL	6.55	1	8/21/2008
2-Hexanone	BQL	6.55	1	8/21/2008
Iodomethane	BQL	6.55	1	8/21/2008



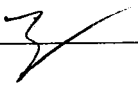
**Results for Volatiles
by GCMS 8260-5035**

Client Sample ID: TT2223-S010
Client Project ID: CTO 015
Lab Sample ID G649-56-5A
Lab Project ID: G649-56
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 08-19-2008 11:27
Date Received: 8/20/2008
Matrix: Soil
Sample Amount: 5.15 g
%Solids: 74.1

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	6.55	1	8/21/2008
4-Isopropyltoluene	BQL	6.55	1	8/21/2008
Methylene chloride	BQL	26.2	1	8/21/2008
4-Methyl-2-pentanone	BQL	6.55	1	8/21/2008
Methyl-tert-butyl ether (MTBE)	BQL	6.55	1	8/21/2008
Naphthalene	BQL	6.55	1	8/21/2008
n-Propyl benzene	BQL	6.55	1	8/21/2008
Styrene	BQL	6.55	1	8/21/2008
1,1,1,2-Tetrachloroethane	BQL	6.55	1	8/21/2008
1,1,2,2-Tetrachloroethane	BQL	6.55	1	8/21/2008
Tetrachloroethene	BQL	6.55	1	8/21/2008
Toluene	BQL	6.55	1	8/21/2008
1,2,3-Trichlorobenzene	BQL	6.55	1	8/21/2008
1,2,4-Trichlorobenzene	BQL	6.55	1	8/21/2008
Trichloroethene	BQL	6.55	1	8/21/2008
1,1,1-Trichloroethane	BQL	6.55	1	8/21/2008
1,1,2-Trichloroethane	BQL	6.55	1	8/21/2008
Trichlorofluoromethane	BQL	6.55	1	8/21/2008
1,2,3-Trichloropropane	BQL	6.55	1	8/21/2008
1,2,4-Trimethylbenzene	BQL	6.55	1	8/21/2008
1,3,5-Trimethylbenzene	BQL	6.55	1	8/21/2008
Vinyl chloride	BQL	6.55	1	8/21/2008
m-,p-Xylene	BQL	13.1	1	8/21/2008
o-Xylene	BQL	6.55	1	8/21/2008

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	58	116
Toluene-d8	50	48.4	97
4-Bromofluorobenzene	50	43.7	87

Comments:**Flags:**Analyst: Reviewed By: 

**Results for Volatiles
by GCMS 8260-5035**

Client Sample ID: TT2223-S011
Client Project ID: CTO 015
Lab Sample ID G649-56-6A
Lab Project ID: G649-56
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 08-19-2008 11:43
Date Received: 8/20/2008
Matrix: Soil
Sample Amount: 3.69 g
%Solids: 77.5

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	87.5	1	8/21/2008
Benzene	BQL	8.75	1	8/21/2008
Bromobenzene	BQL	8.75	1	8/21/2008
Bromochloromethane	BQL	8.75	1	8/21/2008
Bromodichloromethane	BQL	8.75	1	8/21/2008
Bromoform	BQL	8.75	1	8/21/2008
Bromomethane	BQL	8.75	1	8/21/2008
2-Butanone	BQL	43.7	1	8/21/2008
n-Butylbenzene	BQL	8.75	1	8/21/2008
sec-Butylbenzene	BQL	8.75	1	8/21/2008
tert-Butylbenzene	BQL	8.75	1	8/21/2008
Carbon disulfide	BQL	8.75	1	8/21/2008
Carbon tetrachloride	BQL	8.75	1	8/21/2008
Chlorobenzene	BQL	8.75	1	8/21/2008
Chloroethane	BQL	8.75	1	8/21/2008
Chloroform	BQL	8.75	1	8/21/2008
Chloromethane	BQL	8.75	1	8/21/2008
2-Chlorotoluene	BQL	8.75	1	8/21/2008
4-Chlorotoluene	BQL	8.75	1	8/21/2008
Dibromochloromethane	BQL	8.75	1	8/21/2008
1,2-Dibromo-3-chloropropane	BQL	43.7	1	8/21/2008
Dibromomethane	BQL	8.75	1	8/21/2008
1,2-Dibromoethane (EDB)	BQL	8.75	1	8/21/2008
1,2-Dichlorobenzene	BQL	8.75	1	8/21/2008
1,3-Dichlorobenzene	BQL	8.75	1	8/21/2008
1,4-Dichlorobenzene	BQL	8.75	1	8/21/2008
trans-1,4-Dichloro-2-butene	BQL	43.7	1	8/21/2008
1,1-Dichloroethane	BQL	8.75	1	8/21/2008
1,1-Dichloroethene	BQL	8.75	1	8/21/2008
1,2-Dichloroethane	BQL	8.75	1	8/21/2008
cis-1,2-Dichloroethene	BQL	8.75	1	8/21/2008
trans-1,2-dichloroethene	BQL	8.75	1	8/21/2008
1,2-Dichloropropane	BQL	8.75	1	8/21/2008
1,3-Dichloropropane	BQL	8.75	1	8/21/2008
2,2-Dichloropropane	BQL	8.75	1	8/21/2008
1,1-Dichloropropene	BQL	8.75	1	8/21/2008
cis-1,3-Dichloropropene	BQL	8.75	1	8/21/2008
trans-1,3-Dichloropropene	BQL	8.75	1	8/21/2008
Dichlorodifluoromethane	BQL	8.75	1	8/21/2008
Diisopropyl ether (DIPE)	BQL	8.75	1	8/21/2008
Ethylbenzene	BQL	8.75	1	8/21/2008
Hexachlorobutadiene	BQL	8.75	1	8/21/2008
2-Hexanone	BQL	8.75	1	8/21/2008
Iodomethane	BQL	8.75	1	8/21/2008

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2223-S006
Client Project ID: CTO 015
Lab Sample ID: G649-56-1G
Lab Project ID: G649-56
Report Basis: Dry weight
Initial Weight: 32.04 g

Analyzed By: DES
Date Collected: 8/18/2008 12:45
Date Received: 8/20/2008
Date Extracted: 8/21/2008
Matrix: Soil
% Solids: 74.13

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	421	1	8/22/2008
Acenaphthylene	BQL	421	1	8/22/2008
Anthracene	BQL	421	1	8/22/2008
Benzo[a]anthracene	BQL	421	1	8/22/2008
Benzo[a]pyrene	BQL	421	1	8/22/2008
Benzo[b]fluoranthene	BQL	421	1	8/22/2008
Benzo[g,h,i]perylene	BQL	421	1	8/22/2008
Benzo[k]fluoranthene	BQL	421	1	8/22/2008
Benzoic Acid	BQL	842	1	8/22/2008
Bis(2-chloroethoxy)methane	BQL	421	1	8/22/2008
Bis(2-chloroethyl)ether	BQL	421	1	8/22/2008
Bis(2-chloroisopropyl)ether	BQL	421	1	8/22/2008
Bis(2-ethylhexyl)phthalate	BQL	421	1	8/22/2008
4-bromophenyl phenyl ether	BQL	421	1	8/22/2008
Butylbenzylphthalate	BQL	421	1	8/22/2008
2-Chloronaphthalene	BQL	421	1	8/22/2008
2-Chlorophenol	BQL	421	1	8/22/2008
4-Chloro-3-methylphenol	BQL	421	1	8/22/2008
4-Chloroaniline	BQL	2110	1	8/22/2008
4-Chlorophenyl phenyl ether	BQL	421	1	8/22/2008
Chrysene	BQL	421	1	8/22/2008
Dibenzo[a,h]anthracene	BQL	421	1	8/22/2008
Dibenzofuran	BQL	421	1	8/22/2008
Di-n-Butylphthalate	BQL	421	1	8/22/2008
1,2-Dichlorobenzene	BQL	421	1	8/22/2008
1,3-Dichlorobenzene	BQL	421	1	8/22/2008
1,4-Dichlorobenzene	BQL	421	1	8/22/2008
3,3'-Dichlorobenzidine	BQL	842	1	8/22/2008
2,4-Dichlorophenol	BQL	421	1	8/22/2008
Diethylphthalate	BQL	421	1	8/22/2008
Dimethylphthalate	BQL	421	1	8/22/2008
2,4-Dimethylphenol	BQL	421	1	8/22/2008
Di-n-octylphthalate	BQL	421	1	8/22/2008
4,6-Dinitro-2-methylphenol	BQL	2110	1	8/22/2008
2,4-Dinitrophenol	BQL	2110	1	8/22/2008
2,4-Dinitrotoluene	BQL	421	1	8/22/2008
2,6-Dinitrotoluene	BQL	421	1	8/22/2008
Diphenylamine *	BQL	421	1	8/22/2008
Fluoranthene	BQL	421	1	8/22/2008
Fluorene	BQL	421	1	8/22/2008
Hexachlorobenzene	BQL	421	1	8/22/2008
Hexachlorobutadiene	BQL	421	1	8/22/2008
Hexachlorocyclopentadiene	BQL	842	1	8/22/2008
Hexachloroethane	BQL	421	1	8/22/2008
Indeno(1,2,3-c,d)pyrene	BQL	421	1	8/22/2008
Isophorone	BQL	421	1	8/22/2008
2-Methylnaphthalene	BQL	421	1	8/22/2008



**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: TT2223-S006
 Client Project ID: CTO 015
 Lab Sample ID: G649-56-1G
 Lab Project ID: G649-56
 Report Basis: Dry weight
 Initial Weight: 32.04 g

Analyzed By: DES
 Date Collected: 8/18/2008 12:45
 Date Received: 8/20/2008
 Date Extracted: 8/21/2008
 Matrix: Soil
 % Solids: 74.13

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	421	1	8/22/2008
3- & 4-Methylphenol	BQL	421	1	8/22/2008
Naphthalene	BQL	421	1	8/22/2008
2-Nitroaniline	BQL	421	1	8/22/2008
3-Nitroaniline	BQL	2110	1	8/22/2008
4-Nitroaniline	BQL	2110	1	8/22/2008
Nitrobenzene	BQL	421	1	8/22/2008
2-Nitrophenol	BQL	421	1	8/22/2008
4-Nitrophenol	BQL	2110	1	8/22/2008
N-Nitrosodi-n-propylamine	BQL	421	1	8/22/2008
Pentachlorophenol	BQL	2110	1	8/22/2008
Phenanthrene	BQL	421	1	8/22/2008
Phenol	BQL	421	1	8/22/2008
Pyrene	BQL	421	1	8/22/2008
1,2,4-Trichlorobenzene	BQL	421	1	8/22/2008
2,4,5-Trichlorophenol	BQL	421	1	8/22/2008
2,4,6-Trichlorophenol	BQL	421	1	8/22/2008

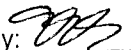
	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.2	73
2-Fluorophenol	10	7.6	76
Nitrobenzene-d5	10	7.6	76
Phenol-d6	10	7.7	77
2,4,6-Tribromophenol	10	6.8	68
4-Terphenyl-d14	10	7.8	78

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2223-S007
Client Project ID: CTO 015
Lab Sample ID: G649-56-2G
Lab Project ID: G649-56
Report Basis: Dry weight
Initial Weight: 32.62 g

Analyzed By: DES
Date Collected: 8/18/2008 12:56
Date Received: 8/20/2008
Date Extracted: 8/21/2008
Matrix: Soil
% Solids: 78.8

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	389	1	8/22/2008
Acenaphthylene	BQL	389	1	8/22/2008
Anthracene	BQL	389	1	8/22/2008
Benzo[a]anthracene	BQL	389	1	8/22/2008
Benzo[a]pyrene	BQL	389	1	8/22/2008
Benzo[b]fluoranthene	BQL	389	1	8/22/2008
Benzo[g,h,i]perylene	BQL	389	1	8/22/2008
Benzo[k]fluoranthene	BQL	389	1	8/22/2008
Benzoic Acid	BQL	778	1	8/22/2008
Bis(2-chloroethoxy)methane	BQL	389	1	8/22/2008
Bis(2-chloroethyl)ether	BQL	389	1	8/22/2008
Bis(2-chloroisopropyl)ether	BQL	389	1	8/22/2008
Bis(2-ethylhexyl)phthalate	BQL	389	1	8/22/2008
4-bromophenyl phenyl ether	BQL	389	1	8/22/2008
Butylbenzylphthalate	BQL	389	1	8/22/2008
2-Chloronaphthalene	BQL	389	1	8/22/2008
2-Chlorophenol	BQL	389	1	8/22/2008
4-Chloro-3-methylphenol	BQL	389	1	8/22/2008
4-Chloroaniline	BQL	1950	1	8/22/2008
4-Chlorophenyl phenyl ether	BQL	389	1	8/22/2008
Chrysene	BQL	389	1	8/22/2008
Dibenzo[a,h]anthracene	BQL	389	1	8/22/2008
Dibenzofuran	BQL	389	1	8/22/2008
Di-n-Butylphthalate	BQL	389	1	8/22/2008
1,2-Dichlorobenzene	BQL	389	1	8/22/2008
1,3-Dichlorobenzene	BQL	389	1	8/22/2008
1,4-Dichlorobenzene	BQL	389	1	8/22/2008
3,3'-Dichlorobenzidine	BQL	778	1	8/22/2008
2,4-Dichlorophenol	BQL	389	1	8/22/2008
Diethylphthalate	BQL	389	1	8/22/2008
Dimethylphthalate	BQL	389	1	8/22/2008
2,4-Dimethylphenol	BQL	389	1	8/22/2008
Di-n-octylphthalate	BQL	389	1	8/22/2008
4,6-Dinitro-2-methylphenol	BQL	1950	1	8/22/2008
2,4-Dinitrophenol	BQL	1950	1	8/22/2008
2,4-Dinitrotoluene	BQL	389	1	8/22/2008
2,6-Dinitrotoluene	BQL	389	1	8/22/2008
Diphenylamine *	BQL	389	1	8/22/2008
Fluoranthene	BQL	389	1	8/22/2008
Fluorene	BQL	389	1	8/22/2008
Hexachlorobenzene	BQL	389	1	8/22/2008
Hexachlorobutadiene	BQL	389	1	8/22/2008
Hexachlorocyclopentadiene	BQL	778	1	8/22/2008
Hexachloroethane	BQL	389	1	8/22/2008
Indeno(1,2,3-c,d)pyrene	BQL	389	1	8/22/2008
Isophorone	BQL	389	1	8/22/2008
2-Methylnaphthalene	BQL	389	1	8/22/2008



**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: TT2223-S007
 Client Project ID: CTO 015
 Lab Sample ID: G649-56-2G
 Lab Project ID: G649-56
 Report Basis: Dry weight
 Initial Weight: 32.62 g

Analyzed By: DES
 Date Collected: 8/18/2008 12:56
 Date Received: 8/20/2008
 Date Extracted: 8/21/2008
 Matrix: Soil
 % Solids: 78.8

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	389	1	8/22/2008
3- & 4-Methylphenol	BQL	389	1	8/22/2008
Naphthalene	BQL	389	1	8/22/2008
2-Nitroaniline	BQL	389	1	8/22/2008
3-Nitroaniline	BQL	1950	1	8/22/2008
4-Nitroaniline	BQL	1950	1	8/22/2008
Nitrobenzene	BQL	389	1	8/22/2008
2-Nitrophenol	BQL	389	1	8/22/2008
4-Nitrophenol	BQL	1950	1	8/22/2008
N-Nitrosodi-n-propylamine	BQL	389	1	8/22/2008
Pentachlorophenol	BQL	1950	1	8/22/2008
Phenanthrene	BQL	389	1	8/22/2008
Phenol	BQL	389	1	8/22/2008
Pyrene	BQL	389	1	8/22/2008
1,2,4-Trichlorobenzene	BQL	389	1	8/22/2008
2,4,5-Trichlorophenol	BQL	389	1	8/22/2008
2,4,6-Trichlorophenol	BQL	389	1	8/22/2008

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.5	75
2-Fluorophenol	10	8.2	82
Nitrobenzene-d5	10	8.1	81
Phenol-d6	10	8.3	83
2,4,6-Tribromophenol	10	7.1	71
4-Terphenyl-d14	10	9	90

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 



**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: TT2223-S008
 Client Project ID: CTO 015
 Lab Sample ID: G649-56-3G
 Lab Project ID: G649-56
 Report Basis: Dry weight
 Initial Weight: 32.61 g

Analyzed By: DES
 Date Collected: 8/19/2008 11:15
 Date Received: 8/20/2008
 Date Extracted: 8/21/2008
 Matrix: Soil
 % Solids: 71.13

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	431	1	8/22/2008
Acenaphthylene	BQL	431	1	8/22/2008
Anthracene	BQL	431	1	8/22/2008
Benzo[a]anthracene	BQL	431	1	8/22/2008
Benzo[a]pyrene	BQL	431	1	8/22/2008
Benzo[b]fluoranthene	BQL	431	1	8/22/2008
Benzo[g,h,i]perylene	BQL	431	1	8/22/2008
Benzo[k]fluoranthene	BQL	431	1	8/22/2008
Benzoic Acid	BQL	862	1	8/22/2008
Bis(2-chloroethoxy)methane	BQL	431	1	8/22/2008
Bis(2-chloroethyl)ether	BQL	431	1	8/22/2008
Bis(2-chloroisopropyl)ether	BQL	431	1	8/22/2008
Bis(2-ethylhexyl)phthalate	BQL	431	1	8/22/2008
4-bromophenyl phenyl ether	BQL	431	1	8/22/2008
Butylbenzylphthalate	BQL	431	1	8/22/2008
2-Chloronaphthalene	BQL	431	1	8/22/2008
2-Chlorophenol	BQL	431	1	8/22/2008
4-Chloro-3-methylphenol	BQL	431	1	8/22/2008
4-Chloroaniline	BQL	2160	1	8/22/2008
4-Chlorophenyl phenyl ether	BQL	431	1	8/22/2008
Chrysene	BQL	431	1	8/22/2008
Dibenzo[a,h]anthracene	BQL	431	1	8/22/2008
Dibenzofuran	BQL	431	1	8/22/2008
Di-n-Butylphthalate	BQL	431	1	8/22/2008
1,2-Dichlorobenzene	BQL	431	1	8/22/2008
1,3-Dichlorobenzene	BQL	431	1	8/22/2008
1,4-Dichlorobenzene	BQL	431	1	8/22/2008
3,3'-Dichlorobenzidine	BQL	862	1	8/22/2008
2,4-Dichlorophenol	BQL	431	1	8/22/2008
Diethylphthalate	BQL	431	1	8/22/2008
Dimethylphthalate	BQL	431	1	8/22/2008
2,4-Dimethylphenol	BQL	431	1	8/22/2008
Di-n-octylphthalate	BQL	431	1	8/22/2008
4,6-Dinitro-2-methylphenol	BQL	2160	1	8/22/2008
2,4-Dinitrophenol	BQL	2160	1	8/22/2008
2,4-Dinitrotoluene	BQL	431	1	8/22/2008
2,6-Dinitrotoluene	BQL	431	1	8/22/2008
Diphenylamine *	BQL	431	1	8/22/2008
Fluoranthene	BQL	431	1	8/22/2008
Fluorene	BQL	431	1	8/22/2008
Hexachlorobenzene	BQL	431	1	8/22/2008
Hexachlorobutadiene	BQL	431	1	8/22/2008
Hexachlorocyclopentadiene	BQL	862	1	8/22/2008
Hexachloroethane	BQL	431	1	8/22/2008
Indeno(1,2,3-c,d)pyrene	BQL	431	1	8/22/2008
Isophorone	BQL	431	1	8/22/2008
2-Methylnaphthalene	BQL	431	1	8/22/2008



**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: TT2223-S008
 Client Project ID: CTO 015
 Lab Sample ID: G649-56-3G
 Lab Project ID: G649-56
 Report Basis: Dry weight
 Initial Weight: 32.61 g

Analyzed By: DES
 Date Collected: 8/19/2008 11:15
 Date Received: 8/20/2008
 Date Extracted: 8/21/2008
 Matrix: Soil
 % Solids: 71.13

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	431	1	8/22/2008
3- & 4-Methylphenol	BQL	431	1	8/22/2008
Naphthalene	BQL	431	1	8/22/2008
2-Nitroaniline	BQL	431	1	8/22/2008
3-Nitroaniline	BQL	2160	1	8/22/2008
4-Nitroaniline	BQL	2160	1	8/22/2008
Nitrobenzene	BQL	431	1	8/22/2008
2-Nitrophenol	BQL	431	1	8/22/2008
4-Nitrophenol	BQL	2160	1	8/22/2008
N-Nitrosodi-n-propylamine	BQL	431	1	8/22/2008
Pentachlorophenol	BQL	2160	1	8/22/2008
Phenanthrene	BQL	431	1	8/22/2008
Phenol	BQL	431	1	8/22/2008
Pyrene	BQL	431	1	8/22/2008
1,2,4-Trichlorobenzene	BQL	431	1	8/22/2008
2,4,5-Trichlorophenol	BQL	431	1	8/22/2008
2,4,6-Trichlorophenol	BQL	431	1	8/22/2008

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.6	76
2-Fluorophenol	10	8.4	84
Nitrobenzene-d5	10	8.2	82
Phenol-d6	10	8.3	83
2,4,6-Tribromophenol	10	7	70
4-Terphenyl-d14	10	8.7	87

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2223-S009
Client Project ID: CTO 015
Lab Sample ID: G649-56-4G
Lab Project ID: G649-56
Report Basis: Dry weight
Initial Weight: 33.28 g

Analyzed By: DES
Date Collected: 8/19/2008 11:04
Date Received: 8/20/2008
Date Extracted: 8/21/2008
Matrix: Soil
% Solids: 75.75

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	397	1	8/22/2008
Acenaphthylene	BQL	397	1	8/22/2008
Anthracene	BQL	397	1	8/22/2008
Benzo[a]anthracene	BQL	397	1	8/22/2008
Benzo[a]pyrene	BQL	397	1	8/22/2008
Benzo[b]fluoranthene	BQL	397	1	8/22/2008
Benzo[g,h,i]perylene	BQL	397	1	8/22/2008
Benzo[k]fluoranthene	BQL	397	1	8/22/2008
Benzoic Acid	BQL	793	1	8/22/2008
Bis(2-chloroethoxy)methane	BQL	397	1	8/22/2008
Bis(2-chloroethyl)ether	BQL	397	1	8/22/2008
Bis(2-chloroisopropyl)ether	BQL	397	1	8/22/2008
Bis(2-ethylhexyl)phthalate	BQL	397	1	8/22/2008
4-bromophenyl phenyl ether	BQL	397	1	8/22/2008
Butylbenzylphthalate	BQL	397	1	8/22/2008
2-Chloronaphthalene	BQL	397	1	8/22/2008
2-Chlorophenol	BQL	397	1	8/22/2008
4-Chloro-3-methylphenol	BQL	397	1	8/22/2008
4-Chloroaniline	BQL	1980	1	8/22/2008
4-Chlorophenyl phenyl ether	BQL	397	1	8/22/2008
Chrysene	BQL	397	1	8/22/2008
Dibenzo[a,h]anthracene	BQL	397	1	8/22/2008
Dibenzofuran	BQL	397	1	8/22/2008
Di-n-Butylphthalate	BQL	397	1	8/22/2008
1,2-Dichlorobenzene	BQL	397	1	8/22/2008
1,3-Dichlorobenzene	BQL	397	1	8/22/2008
1,4-Dichlorobenzene	BQL	397	1	8/22/2008
3,3'-Dichlorobenzidine	BQL	793	1	8/22/2008
2,4-Dichlorophenol	BQL	397	1	8/22/2008
Diethylphthalate	BQL	397	1	8/22/2008
Dimethylphthalate	BQL	397	1	8/22/2008
2,4-Dimethylphenol	BQL	397	1	8/22/2008
Di-n-octylphthalate	BQL	397	1	8/22/2008
4,6-Dinitro-2-methylphenol	BQL	1980	1	8/22/2008
2,4-Dinitrophenol	BQL	1980	1	8/22/2008
2,4-Dinitrotoluene	BQL	397	1	8/22/2008
2,6-Dinitrotoluene	BQL	397	1	8/22/2008
Diphenylamine *	BQL	397	1	8/22/2008
Fluoranthene	BQL	397	1	8/22/2008
Fluorene	BQL	397	1	8/22/2008
Hexachlorobenzene	BQL	397	1	8/22/2008
Hexachlorobutadiene	BQL	397	1	8/22/2008
Hexachlorocyclopentadiene	BQL	793	1	8/22/2008
Hexachloroethane	BQL	397	1	8/22/2008
Indeno(1,2,3-c,d)pyrene	BQL	397	1	8/22/2008
Isophorone	BQL	397	1	8/22/2008
2-Methylnaphthalene	BQL	397	1	8/22/2008



**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: TT2223-S009
 Client Project ID: CTO 015
 Lab Sample ID: G649-56-4G
 Lab Project ID: G649-56
 Report Basis: Dry weight
 Initial Weight: 33.28 g

Analyzed By: DES
 Date Collected: 8/19/2008 11:04
 Date Received: 8/20/2008
 Date Extracted: 8/21/2008
 Matrix: Soil
 % Solids: 75.75

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	397	1	8/22/2008
3- & 4-Methylphenol	BQL	397	1	8/22/2008
Naphthalene	BQL	397	1	8/22/2008
2-Nitroaniline	BQL	397	1	8/22/2008
3-Nitroaniline	BQL	1980	1	8/22/2008
4-Nitroaniline	BQL	1980	1	8/22/2008
Nitrobenzene	BQL	397	1	8/22/2008
2-Nitrophenol	BQL	397	1	8/22/2008
4-Nitrophenol	BQL	1980	1	8/22/2008
N-Nitrosodi-n-propylamine	BQL	397	1	8/22/2008
Pentachlorophenol	BQL	1980	1	8/22/2008
Phenanthrene	BQL	397	1	8/22/2008
Phenol	BQL	397	1	8/22/2008
Pyrene	BQL	397	1	8/22/2008
1,2,4-Trichlorobenzene	BQL	397	1	8/22/2008
2,4,5-Trichlorophenol	BQL	397	1	8/22/2008
2,4,6-Trichlorophenol	BQL	397	1	8/22/2008

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8	80
2-Fluorophenol	10	8.4	84
Nitrobenzene-d5	10	8.2	82
Phenol-d6	10	8.3	83
2,4,6-Tribromophenol	10	7.3	73
4-Terphenyl-d14	10	8.7	87

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2223-S010
Client Project ID: CTO 015
Lab Sample ID: G649-56-5G
Lab Project ID: G649-56
Report Basis: Dry weight
Initial Weight: 33.45 g

Analyzed By: DES
Date Collected: 8/19/2008 11:27
Date Received: 8/20/2008
Date Extracted: 8/21/2008
Matrix: Soil
% Solids: 74.07

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	404	1	8/22/2008
Acenaphthylene	BQL	404	1	8/22/2008
Anthracene	BQL	404	1	8/22/2008
Benzo[a]anthracene	BQL	404	1	8/22/2008
Benzo[a]pyrene	BQL	404	1	8/22/2008
Benzo[b]fluoranthene	BQL	404	1	8/22/2008
Benzo[g,h,i]perylene	BQL	404	1	8/22/2008
Benzo[k]fluoranthene	BQL	404	1	8/22/2008
Benzoic Acid	BQL	807	1	8/22/2008
Bis(2-chloroethoxy)methane	BQL	404	1	8/22/2008
Bis(2-chloroethyl)ether	BQL	404	1	8/22/2008
Bis(2-chloroisopropyl)ether	BQL	404	1	8/22/2008
Bis(2-ethylhexyl)phthalate	BQL	404	1	8/22/2008
4-bromophenyl phenyl ether	BQL	404	1	8/22/2008
Butylbenzylphthalate	BQL	404	1	8/22/2008
2-Chloronaphthalene	BQL	404	1	8/22/2008
2-Chlorophenol	BQL	404	1	8/22/2008
4-Chloro-3-methylphenol	BQL	404	1	8/22/2008
4-Chloroaniline	BQL	2020	1	8/22/2008
4-Chlorophenyl phenyl ether	BQL	404	1	8/22/2008
Chrysene	BQL	404	1	8/22/2008
Dibenzo[a,h]anthracene	BQL	404	1	8/22/2008
Dibenzofuran	BQL	404	1	8/22/2008
Di-n-Butylphthalate	BQL	404	1	8/22/2008
1,2-Dichlorobenzene	BQL	404	1	8/22/2008
1,3-Dichlorobenzene	BQL	404	1	8/22/2008
1,4-Dichlorobenzene	BQL	404	1	8/22/2008
3,3'-Dichlorobenzidine	BQL	807	1	8/22/2008
2,4-Dichlorophenol	BQL	404	1	8/22/2008
Diethylphthalate	BQL	404	1	8/22/2008
Dimethylphthalate	BQL	404	1	8/22/2008
2,4-Dimethylphenol	BQL	404	1	8/22/2008
Di-n-octylphthalate	BQL	404	1	8/22/2008
4,6-Dinitro-2-methylphenol	BQL	2020	1	8/22/2008
2,4-Dinitrophenol	BQL	2020	1	8/22/2008
2,4-Dinitrotoluene	BQL	404	1	8/22/2008
2,6-Dinitrotoluene	BQL	404	1	8/22/2008
Diphenylamine *	BQL	404	1	8/22/2008
Fluoranthene	BQL	404	1	8/22/2008
Fluorene	BQL	404	1	8/22/2008
Hexachlorobenzene	BQL	404	1	8/22/2008
Hexachlorobutadiene	BQL	404	1	8/22/2008
Hexachlorocyclopentadiene	BQL	807	1	8/22/2008
Hexachloroethane	BQL	404	1	8/22/2008
Indeno(1,2,3-c,d)pyrene	BQL	404	1	8/22/2008
Isophorone	BQL	404	1	8/22/2008
2-Methylnaphthalene	BQL	404	1	8/22/2008



**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: TT2223-S010
 Client Project ID: CTO 015
 Lab Sample ID: G649-56-5G
 Lab Project ID: G649-56
 Report Basis: Dry weight
 Initial Weight: 33.45 g

Analyzed By: DES
 Date Collected: 8/19/2008 11:27
 Date Received: 8/20/2008
 Date Extracted: 8/21/2008
 Matrix: Soil
 % Solids: 74.07

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	404	1	8/22/2008
3- & 4-Methylphenol	BQL	404	1	8/22/2008
Naphthalene	BQL	404	1	8/22/2008
2-Nitroaniline	BQL	404	1	8/22/2008
3-Nitroaniline	BQL	2020	1	8/22/2008
4-Nitroaniline	BQL	2020	1	8/22/2008
Nitrobenzene	BQL	404	1	8/22/2008
2-Nitrophenol	BQL	404	1	8/22/2008
4-Nitrophenol	BQL	2020	1	8/22/2008
N-Nitrosodi-n-propylamine	BQL	404	1	8/22/2008
Pentachlorophenol	BQL	2020	1	8/22/2008
Phenanthrene	BQL	404	1	8/22/2008
Phenol	BQL	404	1	8/22/2008
Pyrene	BQL	404	1	8/22/2008
1,2,4-Trichlorobenzene	BQL	404	1	8/22/2008
2,4,5-Trichlorophenol	BQL	404	1	8/22/2008
2,4,6-Trichlorophenol	BQL	404	1	8/22/2008

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.8	78
2-Fluorophenol	10	8.1	81
Nitrobenzene-d5	10	8.1	81
Phenol-d6	10	8.2	82
2,4,6-Tribromophenol	10	6.7	67
4-Terphenyl-d14	10	8.6	86

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2223-S011
Client Project ID: CTO 015
Lab Sample ID: G649-56-6G
Lab Project ID: G649-56
Report Basis: Dry weight
Initial Weight: 32.41 g

Analyzed By: DES
Date Collected: 8/19/2008 11:43
Date Received: 8/20/2008
Date Extracted: 8/21/2008
Matrix: Soil
% Solids: 77.46

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	398	1	8/22/2008
Acenaphthylene	BQL	398	1	8/22/2008
Anthracene	BQL	398	1	8/22/2008
Benzo[a]anthracene	BQL	398	1	8/22/2008
Benzo[a]pyrene	BQL	398	1	8/22/2008
Benzo[b]fluoranthene	BQL	398	1	8/22/2008
Benzo[g,h,i]perylene	BQL	398	1	8/22/2008
Benzo[k]fluoranthene	BQL	398	1	8/22/2008
Benzoic Acid	BQL	797	1	8/22/2008
Bis(2-chloroethoxy)methane	BQL	398	1	8/22/2008
Bis(2-chloroethyl)ether	BQL	398	1	8/22/2008
Bis(2-chloroisopropyl)ether	BQL	398	1	8/22/2008
Bis(2-ethylhexyl)phthalate	BQL	398	1	8/22/2008
4-bromophenyl phenyl ether	BQL	398	1	8/22/2008
Butylbenzylphthalate	BQL	398	1	8/22/2008
2-Chloronaphthalene	BQL	398	1	8/22/2008
2-Chlorophenol	BQL	398	1	8/22/2008
4-Chloro-3-methylphenol	BQL	398	1	8/22/2008
4-Chloroaniline	BQL	1990	1	8/22/2008
4-Chlorophenyl phenyl ether	BQL	398	1	8/22/2008
Chrysene	BQL	398	1	8/22/2008
Dibenzo[a,h]anthracene	BQL	398	1	8/22/2008
Dibenzofuran	BQL	398	1	8/22/2008
Di-n-Butylphthalate	BQL	398	1	8/22/2008
1,2-Dichlorobenzene	BQL	398	1	8/22/2008
1,3-Dichlorobenzene	BQL	398	1	8/22/2008
1,4-Dichlorobenzene	BQL	398	1	8/22/2008
3,3'-Dichlorobenzidine	BQL	797	1	8/22/2008
2,4-Dichlorophenol	BQL	398	1	8/22/2008
Diethylphthalate	BQL	398	1	8/22/2008
Dimethylphthalate	BQL	398	1	8/22/2008
2,4-Dimethylphenol	BQL	398	1	8/22/2008
Di-n-octylphthalate	BQL	398	1	8/22/2008
4,6-Dinitro-2-methylphenol	BQL	1990	1	8/22/2008
2,4-Dinitrophenol	BQL	1990	1	8/22/2008
2,4-Dinitrotoluene	BQL	398	1	8/22/2008
2,6-Dinitrotoluene	BQL	398	1	8/22/2008
Diphenylamine *	BQL	398	1	8/22/2008
Fluoranthene	BQL	398	1	8/22/2008
Fluorene	BQL	398	1	8/22/2008
Hexachlorobenzene	BQL	398	1	8/22/2008
Hexachlorobutadiene	BQL	398	1	8/22/2008
Hexachlorocyclopentadiene	BQL	797	1	8/22/2008
Hexachloroethane	BQL	398	1	8/22/2008
Indeno(1,2,3-c,d)pyrene	BQL	398	1	8/22/2008
Isophorone	BQL	398	1	8/22/2008
2-Methylnaphthalene	BQL	398	1	8/22/2008



**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: TT2223-S011
 Client Project ID: CTO 015
 Lab Sample ID: G649-56-6G
 Lab Project ID: G649-56
 Report Basis: Dry weight
 Initial Weight: 32.41 g

Analyzed By: DES
 Date Collected: 8/19/2008 11:43
 Date Received: 8/20/2008
 Date Extracted: 8/21/2008
 Matrix: Soil
 % Solids: 77.46

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	398	1	8/22/2008
3- & 4-Methylphenol	BQL	398	1	8/22/2008
Naphthalene	BQL	398	1	8/22/2008
2-Nitroaniline	BQL	398	1	8/22/2008
3-Nitroaniline	BQL	1990	1	8/22/2008
4-Nitroaniline	BQL	1990	1	8/22/2008
Nitrobenzene	BQL	398	1	8/22/2008
2-Nitrophenol	BQL	398	1	8/22/2008
4-Nitrophenol	BQL	1990	1	8/22/2008
N-Nitrosodi-n-propylamine	BQL	398	1	8/22/2008
Pentachlorophenol	BQL	1990	1	8/22/2008
Phenanthrene	BQL	398	1	8/22/2008
Phenol	BQL	398	1	8/22/2008
Pyrene	BQL	398	1	8/22/2008
1,2,4-Trichlorobenzene	BQL	398	1	8/22/2008
2,4,5-Trichlorophenol	BQL	398	1	8/22/2008
2,4,6-Trichlorophenol	BQL	398	1	8/22/2008

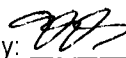
	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.1	81
2-Fluorophenol	10	8.4	84
Nitrobenzene-d5	10	8.3	83
Phenol-d6	10	8.3	83
2,4,6-Tribromophenol	10	7.3	73
4-Terphenyl-d14	10	9.2	92

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

**EPH (Aliphatics/Aromatics) Laboratory Reporting Form**Client Name: Osage of VirginiaProject Name: CTO 015

Sample Information	
Sample Identification	TT2223-S006
Sample Matrix	SOIL
Date Collected	08/18/08
Date Received	08/20/08
Date Extracted	08/22/08
Date Analyzed	08/23/08 17:43 - 08/23/08 17:43
Dry Weight	74.1
Dilution Factor	1 - 1
Initial weight (g)	12.24
Final Volume (mL)	10.0

Analytical Results			
Analytes**	Result mg/Kg	Report Limit mg/Kg	Flags
C9-C18 Aliphatics	BQL	10.0	
C19-C36 Aliphatics	BQL	10.0	
C11-C22 Aromatics	BQL	10.0	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (tricosane)	101		40	140
Aromatic (ortho-terphenyl)	97.8		40	140

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

Lab Info: G649-56-1H	Lab Info: G649-56-1H
Aliphatic: EP082208/041F1101.D	Aromatic: EP082208/041F1101.D

Reviewed By: 



EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 015

Sample Information	
Sample Identification	TT2223-S007
Sample Matrix	SOIL
Date Collected	08/18/08
Date Received	08/20/08
Date Extracted	08/22/08
Date Analyzed	08/23/08 18:11 - 08/23/08 18:11
Dry Weight	78.8
Dilution Factor	1 - 1
Initial weight (g)	12.24
Final Volume (mL)	10.0

Analytical Results			
Analytes**	Result mg/Kg	Report Limit mg/Kg	Flags
C9-C18 Aliphatics	BQL	10.0	
C19-C36 Aliphatics	BQL	10.0	
C11-C22 Aromatics	BQL	10.0	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (tricosane)	99.1		40	140
Aromatic (ortho-terphenyl)	93.4		40	140

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

Lab Info: G649-56-2J	Lab Info: G649-56-2J
Aliphatic: EP082208/042F1201.D	Aromatic: EP082208/042F1201.D

Reviewed By: 

**EPH (Aliphatics/Aromatics) Laboratory Reporting Form**Client Name: Osage of VirginiaProject Name: CTO 015

Sample Information	
Sample Identification	TT2223-S008
Sample Matrix	SOIL
Date Collected	08/19/08
Date Received	08/20/08
Date Extracted	08/22/08
Date Analyzed	08/23/08 18:40 - 08/23/08 18:40
Dry Weight	71.1
Dilution Factor	1 - 1
Initial weight (g)	12.35
Final Volume (mL)	10.0

Analytical Results			
Analytes**	Result mg/Kg	Report Limit mg/Kg	Flags
C9-C18 Aliphatics	BQL	10.0	
C19-C36 Aliphatics	BQL	10.0	
C11-C22 Aromatics	BQL	10.0	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (tricosane)	111		40	140
Aromatic (ortho-terphenyl)	106		40	140

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

Lab Info: G649-56-3H	Lab Info: G649-56-3H
Aliphatic: EP082208/043F1301.D	Aromatic: EP082208/043F1301.D

Reviewed By: 

**EPH (Aliphatics/Aromatics) Laboratory Reporting Form**Client Name: Osage of VirginiaProject Name: CTO 015

Sample Information	
Sample Identification	TT2223-S009
Sample Matrix	SOIL
Date Collected	08/19/08
Date Received	08/20/08
Date Extracted	08/22/08
Date Analyzed	08/23/08 22:27 - 08/23/08 22:55
Dry Weight	75.8
Dilution Factor	1 - 1
Initial weight (g)	12.50
Final Volume (mL)	10.0

Analytical Results			
Analytes**	Result mg/Kg	Report Limit mg/Kg	Flags
C9-C18 Aliphatics	BQL	10.0	
C19-C36 Aliphatics	BQL	10.0	
C11-C22 Aromatics	BQL	10.0	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (tricosane)	97.2		40	140
Aromatic (ortho-terphenyl)	91.9		40	140
Fractionation 1 (2-bromonaphthalene)	105		40	140
Fractionation 2 (2-fluorobiphenyl)	96.8		40	140

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

Lab Info: G649-56-4H	Lab Info: G649-56-4H
Aliphatic: EP082208/051F2101.D	Aromatic: EP082208/052F2201.D

Reviewed By: 

**EPH (Aliphatics/Aromatics) Laboratory Reporting Form**Client Name: Osage of VirginiaProject Name: CTO 015

Sample Information	
Sample Identification	TT2223-S010
Sample Matrix	SOIL
Date Collected	08/19/08
Date Received	08/20/08
Date Extracted	08/22/08
Date Analyzed	08/23/08 19:08 - 08/23/08 19:08
Dry Weight	74.1
Dilution Factor	1 - 1
Initial weight (g)	12.35
Final Volume (mL)	10.0

Analytical Results			
Analytes**	Result mg/Kg	Report Limit mg/Kg	Flags
C9-C18 Aliphatics	BQL	10.0	
C19-C36 Aliphatics	BQL	10.0	
C11-C22 Aromatics	BQL	10.0	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (tricosane)	124		40	140
Aromatic (ortho-terphenyl)	119		40	140

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

Lab Info: G649-56-5H	Lab Info: G649-56-5H
Aliphatic: EP082208/044F1401.D	Aromatic: EP082208/044F1401.D

Reviewed By:

**EPH (Aliphatics/Aromatics) Laboratory Reporting Form**Client Name: Osage of VirginiaProject Name: CTO 015

Sample Information	
Sample Identification	TT2223-S011
Sample Matrix	SOIL
Date Collected	08/19/08
Date Received	08/20/08
Date Extracted	08/22/08
Date Analyzed	08/23/08 19:36 - 08/23/08 19:36
Dry Weight	77.5
Dilution Factor	1 - 1
Initial weight (g)	12.34
Final Volume (mL)	10.0

Analytical Results			
Analytes**	Result mg/Kg	Report Limit mg/Kg	Flags
C9-C18 Aliphatics	BQL	10.0	
C19-C36 Aliphatics	BQL	10.0	
C11-C22 Aromatics	BQL	10.0	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (tricosane)	103		40	140
Aromatic (ortho-terphenyl)	98.7		40	140

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

Lab Info: G649-56-6H	Lab Info: G649-56-6H
Aliphatic: EP082208/045F1501.D	Aromatic: EP082208/045F1501.D

Reviewed By:

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

 Initial Calibration Date: 08/19/08
Calibration Ranges and Limits

Range	MDL		ML		RL	
	(02/15/08) (µg/L)	(02/11/08) (mg/Kg)	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)
C9-C18 Aliphatics	1.66	0.274	5.28	0.871	100	10
C19-C36 Aliphatics	2.79	0.201	8.87	0.639	100	10
C11-C22 Aromatics	2.64	0.110	8.40	0.350	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	200	33.3	5.17	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C ₁₉ -C ₃₆ Aliphatics	200	33.3	5.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C ₁₁ -C ₂₂ Aromatics	200	33.3	3.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

 Calibration Check Date: 08/22/08
08/23/08

 Filenames: ep082208/031F0101.d
ep082208/032f0201.d
Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	-5.0	≤±25%
C19-C36 Aliphatics	100	16.7	-4.0	≤±25%
C11-C22 Aromatics	100	16.7	-7.3	≤±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: 08/19/08

Calibration Ranges and Limits

Range	MDL		ML		RL	
	(02/15/08) (µg/L)	(02/11/08) (mg/Kg)	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)
C9-C18 Aliphatics	1.66	0.274	5.28	0.871	100	10
C19-C36 Aliphatics	2.79	0.201	8.87	0.639	100	10
C11-C22 Aromatics	2.64	0.110	8.40	0.350	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	200	33.3	5.17	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C ₁₉ -C ₃₆ Aliphatics	200	33.3	5.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C ₁₁ -C ₂₂ Aromatics	200	33.3	3.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 08/22/08
08/24/08

Filenames: ep082208/061F3101.d
ep082208/062f3201.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	2.9	≤±25%
C19-C36 Aliphatics	100	16.7	4.5	≤±25%
C11-C22 Aromatics	100	16.7	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

**VPH (Aliphatics/Aromatics) Laboratory Reporting Form**Client Name: Osage of VirginiaProject Name: CTO 015

Sample Information	
Sample Identification	TT2223-S006
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	08/18/08
Date Received	08/20/08
Date Extracted	08/21/08
Date Analyzed	08/21/08 12:56 - 08/21/08 12:56
Dry Weight	74.1
Dilution Factor	1 - 1

Analytical Results			
Analyte	Result mg/Kg	Report Limit mg/Kg	Flags
C ₅ -C ₈ Aliphatics**	BQL	10.0	
C ₉ -C ₁₂ Aliphatics**	BQL	10.0	
C ₉ -C ₁₀ Aromatics**	BQL	10.0	
	Percent Recovery	Flags	Limits Lower Upper
Surrogate % Recovery - PID	98.5		70 130
Surrogate % Recovery - FID	100		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: G649-56-1e	Lab Info: G649-56-1e
FID Info: VP082108/008F0101.D	PID Info: VP082108/008R0101.D

Reviewed By: 

**VPH (Aliphatics/Aromatics) Laboratory Reporting Form**Client Name: Osage of VirginiaProject Name: CTO 015

Sample Information	
Sample Identification	TT2223-S007
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	08/18/08
Date Received	08/20/08
Date Extracted	08/21/08
Date Analyzed	08/21/08 13:23 - 08/21/08 13:23
Dry Weight	78.8
Dilution Factor	1 - 1

Analytical Results			
Analyte	Result mg/Kg	Report Limit mg/Kg	Flags
C ₅ -C ₈ Aliphatics**	BQL	10.0	
C ₉ -C ₁₂ Aliphatics**	BQL	10.0	
C ₉ -C ₁₀ Aromatics**	BQL	10.0	
	Percent Recovery	Flags	Limits Lower Upper
Surrogate % Recovery - PID	96.5		70 130
Surrogate % Recovery - FID	98.4		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: G649-56-2e	Lab Info: G649-56-2e
FID Info: VP082108/009F0101.D	PID Info: VP082108/009R0101.D

Reviewed By: 



VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 015

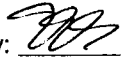
Sample Information	
Sample Identification	TT2223-S008
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	08/19/08
Date Received	08/20/08
Date Extracted	08/21/08
Date Analyzed	08/21/08 13:50 - 08/21/08 13:50
Dry Weight	71.1
Dilution Factor	1 - 1

Analytical Results			
Analyte	Result mg/Kg	Report Limit mg/Kg	Flags
C ₅ -C ₈ Aliphatics**	BQL	10.0	
C ₉ -C ₁₂ Aliphatics**	BQL	10.0	
C ₉ -C ₁₀ Aromatics**	BQL	10.0	
	Percent Recovery	Flags	Limits Lower Upper
Surrogate % Recovery - PID	94.4		70 130
Surrogate % Recovery - FID	96.6		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: G649-56-3e	Lab Info: G649-56-3e
FID Info: VP082108/010F0101.D	PID Info: VP082108/010R0101.D

Reviewed By: 



VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 015

Sample Information	
Sample Identification	TT2223-S009
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	08/19/08
Date Received	08/20/08
Date Extracted	08/21/08
Date Analyzed	08/21/08 14:17 - 08/21/08 14:17
Dry Weight	75.8
Dilution Factor	1 - 1

Analytical Results			
Analyte	Result mg/Kg	Report Limit mg/Kg	Flags
C ₅ -C ₈ Aliphatics**	BQL	10.0	
C ₉ -C ₁₂ Aliphatics**	BQL	10.0	
C ₉ -C ₁₀ Aromatics**	BQL	10.0	
	Percent Recovery	Flags	Limits Lower Upper
Surrogate % Recovery - PID	93.2		70 130
Surrogate % Recovery - FID	95.5		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: G649-56-4e	Lab Info: G649-56-4e
FID Info: VP082108/011F0101.D	PID Info: VP082108/011R0101.D

Reviewed By: 

**VPH (Aliphatics/Aromatics) Laboratory Reporting Form**Client Name: Osage of VirginiaProject Name: CTO 015

Sample Information	
Sample Identification	TT2223-S010
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	08/19/08
Date Received	08/20/08
Date Extracted	08/21/08
Date Analyzed	08/21/08 14:44 - 08/21/08 14:44
Dry Weight	74.1
Dilution Factor	1 - 1

Analytical Results			
Analyte	Result mg/Kg	Report Limit mg/Kg	Flags
C ₅ -C ₈ Aliphatics**	BQL	10.0	
C ₉ -C ₁₂ Aliphatics**	BQL	10.0	
C ₉ -C ₁₀ Aromatics**	BQL	10.0	
	Percent Recovery	Flags	Limits Lower Upper
Surrogate % Recovery - PID	92.7		70 130
Surrogate % Recovery - FID	95.5		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: G649-56-5e	Lab Info: G649-56-5e
FID Info: VP082108/012F0101.D	PID Info: VP082108/012R0101.D

Reviewed By: 



VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 015

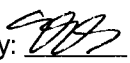
Sample Information	
Sample Identification	TT2223-S011
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	08/19/08
Date Received	08/20/08
Date Extracted	08/21/08
Date Analyzed	08/21/08 15:10 - 08/21/08 15:10
Dry Weight	77.5
Dilution Factor	1 - 1

Analytical Results			
Analyte	Result mg/Kg	Report Limit mg/Kg	Flags
C ₅ -C ₈ Aliphatics**	BQL	10.0	
C ₉ -C ₁₂ Aliphatics**	BQL	10.0	
C ₉ -C ₁₀ Aromatics**	BQL	10.0	
	Percent Recovery	Flags	Limits Lower Upper
Surrogate % Recovery - PID	96.0		70 130
Surrogate % Recovery - FID	98.2		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: G649-56-6e	Lab Info: G649-56-6e
FID Info: VP082108/013F0101.D	PID Info: VP082108/013R0101.D

Reviewed By: 

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 07/25/08 PID Initial Calibration Date: 07/25/08

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	2.02	0.175	6.42	0.557	100	10
C ₉ -C ₁₂ Aliphatics	1.51	0.118	4.80	0.375	100	10
C ₉ -C ₁₀ Aromatics	0.902	0.132	2.87	0.420	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	6.76	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	15.66	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 08/21/08 Filename: VP082108/002F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C ₅ -C ₈ Aliphatics	200	16	7.3	±25%
C ₉ -C ₁₂ Aliphatics	200	16	-8.0	±25%
C ₉ -C ₁₀ Aromatics	200	16	-0.8	±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



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6649-52

0892

1 CLIENT: **OSASIE OF VIRGINIA** PHONE NO: (757) 274-4949
 CONTACT: **THOMAS BIRDMAN** SITE/PWSID#: **TT2223**
 PROJECT: **OTO 015** E-MAIL: **Sw Whitworth@OSASIEVA.com**
 REPORTS TO: **Shaun Whitworth** FAX NO: (757) 440-0411
 INVOICE TO: **MIKE GREE** QUOTE #
2418 COLLEGE AVE SITE A
Norfolk VA 23517 P.O. NUMBER **OTO 015**

SGS Reference: _____ PAGE 1 OF 1

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	CONTAINERS	SAMPLE TYPE C= COMP G= GRAB	Preservatives Used	Analysis Required	METHOD				REMARKS
									8270	EPH	VPH	8270 (ENDS)	
	TT2223-5006	8/18/08	1245	S	6		X	X	X	X			
	TT2223-5007	8/18/08	1256	S	6		X	X	X	X			
	TT2223-5008	8/19/08	1115	S	6		X	X	X	X			SAMPLE DATE: 8/19/08
	TT2223-5009	8/19/08	1104	S	6		X	X	X	X			" 8/19/08
	TT2223-5010	8/19/08	1127	S	6		X	X	X	X			" 8/19/08
	TT2223-5011	8/19/08	1143	S	6		X	X	X	X			" 8/19/08
	TRIP BLANK	8/19/08	1620	-	1		X						

4

Collected/Relinquished By: (1)	Date	Time	Received By:	Date	Time
<i>[Signature]</i>	8/19/08	1650	L. Volkmann	8/19/08	1030
Relinquished By: (2)	Date	Time	Received By:	Date	Time
Relinquished By: (3)	Date	Time	Received By:	Date	Time
Relinquished By: (4)	Date	Time	Received By:	Date	Time

Shipping Carrier: **FED EX** Samples Received Cold? (Circle) YES NO
 Shipping Ticket No: **8668 0179 3A19** Temperature (C): **3.2°**
 Special Deliverable Requirements: **EDD FORM** Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
 Special Instructions: **EMAIL RESULTS TO: nhall@atlinusa.com, swhitworth@OSASIEVA.COM, tellerman@OSASIEVA.COM**
 Requested Turnaround Time: **48 HOUR** RUSH STD



Shaun Whitworth
Osage of Virginia
2618 A Colley Ave
Norfolk, VA 23517

Report Number: G649-57

Client Project: CTO 015

Dear Shaun Whitworth,

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 Environmental Services 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.


Project Manager Date
Ashley Nifong

Case Narrative

MSE

SGS Project: **G649-57**Project Name: **CTO 015****SGS Environmental Services Inc.****August 26, 2008**

- One soil sample was accepted into the laboratory on August 21, 2008 for various analyses as indicated on the chain of custody. The samples were received in good condition, within temperature and holding time limits.
- All extractions and analyses were completed within holding time limits, with the following quality control exceptions.

EPH Analysis

- The laboratory control spike duplicate for the associated batch 12197 resulted in a high relative percent difference for the C11-C22 Aromatics range. The samples associated with this project did not have detections of any target compounds.

 _____ Date 8.26.08

Data Review



List of Reporting Abbreviations
And Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantification 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/CL = Reporting Limit / Control 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: TT2223-TW01
Client Project ID: CTO 015
Lab Sample ID: G649-57-1A
Lab Project ID: G649-57

Analyzed By: RSB
Date Collected: 8/21/2008 14:47
Date Received: 8/21/2008
Matrix: Water

Analyte	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.00	1	8/23/2008
Diisopropyl ether (DIPE)	BQL	1.00	1	8/23/2008
Ethylbenzene	3.19	1.00	1	8/23/2008
Methyl-tert butyl ether (MTBE)	BQL	2.00	1	8/23/2008
Toluene	BQL	1.00	1	8/23/2008
m/p-Xylene	13.0	2.00	1	8/23/2008
o-Xylene	6.10	2.00	1	8/23/2008

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	42.0	105

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

Results for Semivolatiles
by GCMS 625Client Sample ID: TT2223-TW01
Client Project ID: CTO 015
Lab Sample ID: G649-57-1J
Lab Project ID: G649-57Analyzed By: DES
Date Collected: 8/21/2008 14:47
Date Received: 8/21/2008
Date Extracted: 8/22/2008
Matrix: Water

Compound	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Acenaphthene	BQL	5.98	1	8/26/2008
Acenaphthylene	BQL	5.98	1	8/26/2008
Anthracene	BQL	5.98	1	8/26/2008
Benzo[a]anthracene	BQL	5.98	1	8/26/2008
Benzo[a]pyrene	BQL	5.98	1	8/26/2008
Benzo[b]fluoranthene	BQL	5.98	1	8/26/2008
Benzo[g,h,i]perylene	BQL	5.98	1	8/26/2008
Benzo[k]fluoranthene	BQL	5.98	1	8/26/2008
Bis(2-chloroethoxy)methane	BQL	5.98	1	8/26/2008
Bis(2-chloroethyl)ether	BQL	5.98	1	8/26/2008
Bis(2-chloroisopropyl)ether	BQL	5.98	1	8/26/2008
Bis(2-ethylhexyl)phthalate	BQL	5.98	1	8/26/2008
4-bromophenyl phenyl ether	BQL	5.98	1	8/26/2008
Butylbenzylphthalate	BQL	5.98	1	8/26/2008
2-Chloronaphthalene	BQL	5.98	1	8/26/2008
2-Chlorophenol	BQL	5.98	1	8/26/2008
4-Chloro-3-methylphenol	BQL	5.98	1	8/26/2008
4-Chlorophenyl phenyl ether	BQL	5.98	1	8/26/2008
Chrysene	BQL	5.98	1	8/26/2008
Dibenzo[a,h]anthracene	BQL	5.98	1	8/26/2008
Di-n-Butylphthalate	BQL	5.98	1	8/26/2008
3,3'-Dichlorobenzidine	BQL	12.0	1	8/26/2008
2,4-Dichlorophenol	BQL	5.98	1	8/26/2008
Diethylphthalate	BQL	5.98	1	8/26/2008
Dimethylphthalate	BQL	5.98	1	8/26/2008
2,4-Dimethylphenol	BQL	5.98	1	8/26/2008
Di-n-octylphthalate	BQL	5.98	1	8/26/2008
4,6-Dinitro-2-methylphenol	BQL	29.9	1	8/26/2008
2,4-Dinitrophenol	BQL	29.9	1	8/26/2008
2,4-Dinitrotoluene	BQL	5.98	1	8/26/2008
2,6-Dinitrotoluene	BQL	5.98	1	8/26/2008
Diphenylamine *	BQL	5.98	1	8/26/2008
Fluoranthene	BQL	5.98	1	8/26/2008
Fluorene	BQL	5.98	1	8/26/2008
Hexachlorobenzene	BQL	5.98	1	8/26/2008
Hexachlorobutadiene	BQL	5.98	1	8/26/2008
Hexachlorocyclopentadiene	BQL	12.0	1	8/26/2008
Hexachloroethane	BQL	5.98	1	8/26/2008
Indeno(1,2,3-c,d)pyrene	BQL	5.98	1	8/26/2008
Isophorone	BQL	5.98	1	8/26/2008
Naphthalene	BQL	5.98	1	8/26/2008
Nitrobenzene	BQL	5.98	1	8/26/2008
2-Nitrophenol	BQL	5.98	1	8/26/2008
4-Nitrophenol	BQL	29.9	1	8/26/2008
N-Nitrosodi-n-propylamine	BQL	5.98	1	8/26/2008
Pentachlorophenol	BQL	29.9	1	8/26/2008
Phenanthrene	BQL	5.98	1	8/26/2008



Results for Semivolatiles
by GCMS 625

Client Sample ID: TT2223-TW01
Client Project ID: CTO 015
Lab Sample ID: G649-57-1J
Lab Project ID: G649-57

Analyzed By: DES
Date Collected: 8/21/2008 14:47
Date Received: 8/21/2008
Date Extracted: 8/22/2008
Matrix: Water

Compound	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Phenol	BQL	5.98	1	8/26/2008
Pyrene	BQL	5.98	1	8/26/2008
1,2,4-Trichlorobenzene	BQL	5.98	1	8/26/2008
2,4,6-Trichlorophenol	BQL	5.98	1	8/26/2008


	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.1	91
2-Fluorophenol	10	7.9	79
Nitrobenzene-d5	10	9.9	99
Phenol-d6	10	8.9	89
2,4,6-Tribromophenol	10	9.1	91
4-Terphenyl-d14	10	8.7	87

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 



VPH (Aliphatics/Aromatics) Laboratory Reporting Form

 Client Name: Osage of Virginia

 Project Name: CTO 015


Sample Information	
Sample Identification	TT2223-TW01
Sample Matrix	Water
Collection Option (for Soil)*	NA
Date Collected	08/21/08
Date Received	08/21/08
Date Extracted	08/23/08 08:14 - 08/23/08 08:14
Date Analyzed	08/23/08 08:14 - 08/23/08 08:14
Dry Weight	NA
Dilution Factor	1 - 1

Analytical Results				
Analyte	Result µg/L	Report Limit µg/L	Flags	
			C ₅ -C ₈ Aliphatics**	BQL
C ₉ -C ₁₂ Aliphatics**	119	100		
C ₉ -C ₁₀ Aromatics**	249	100		
	Percent Recovery	Flags	Limits Lower Upper	
Surrogate % Recovery - PID	94.2		70	130
Surrogate % Recovery - FID	98.2		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: G649-57-1b	Lab Info: G649-57-1b
FID Info: VP082208/041F0101.D	PID Info: VP082208/041R0101.D

 Reviewed By: 

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

 FID Initial Calibration Date: 07/25/08 PID Initial Calibration Date: 07/25/08
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	2.02	0.175	6.42	0.557	100	10
C ₉ -C ₁₂ Aliphatics	1.51	0.118	4.80	0.375	100	10
C ₉ -C ₁₀ Aromatics	0.902	0.132	2.87	0.420	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	6.76	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	15.66	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

 Calibration Check Date: 08/22/08 Filename: VP082208/002F0101.d
Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C ₅ -C ₈ Aliphatics	200	16	8.4	±25%
C ₉ -C ₁₂ Aliphatics	200	16	-10.3	±25%
C ₉ -C ₁₀ Aromatics	200	16	1.3	±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: Osage of Virginia

Project Name: CTO 015


Sample Information	
Sample Identification	TT2223-TW01
Sample Matrix	WATER
Date Collected	08/21/08
Date Received	08/21/08
Date Extracted	08/23/08
Date Analyzed	08/25/08 18:58 - 08/25/08 19:26
Dry Weight	NA
Dilution Factor	1 - 1
Initial Volume (mL)	857
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 (tricosane)	44.0		40	140
Aromatic (ortho-terphenyl)	92.1		40	140
Fractionation 1 (2-bromonaphthalene)	106		40	140
Fractionation 2 (2-fluorobiphenyl)	97.7		40	140

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

Lab Info: G649-57-1L	Lab Info: G649-57-1L
Aliphatic: EP082508/013F1101.D	Aromatic: EP082508/014F1201.D

Reviewed By: 

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information
--

 Initial Calibration Date: 08/19/08
Calibration Ranges and Limits

Range	MDL		ML		RL	
	(02/15/08) (µg/L)	(02/11/08) (mg/Kg)	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)
C9-C18 Aliphatics	1.66	0.274	5.28	0.871	100	10
C19-C36 Aliphatics	2.79	0.201	8.87	0.639	100	10
C11-C22 Aromatics	2.64	0.110	8.40	0.350	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	200	33.3	5.17	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C ₁₉ -C ₃₆ Aliphatics	200	33.3	5.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C ₁₁ -C ₂₂ Aromatics	200	33.3	3.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

 Calibration Check Date: 08/25/08
08/25/08

 Filenames: ep082508/001F0101.d
ep082508/002f0201.d
Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	3.0	≤±25%
C19-C36 Aliphatics	100	16.7	4.5	≤±25%
C11-C22 Aromatics	100	16.7	0.7	≤±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: 08/19/08

Calibration Ranges and Limits

Range	MDL		ML		RL	
	(02/15/08) (µg/L)	(02/11/08) (mg/Kg)	(µg/L)	(mg/Kg)	(µg/L)	(mg/Kg)
C9-C18 Aliphatics	1.66	0.274	5.28	0.871	100	10
C19-C36 Aliphatics	2.79	0.201	8.87	0.639	100	10
C11-C22 Aromatics	2.64	0.110	8.40	0.350	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	200	33.3	5.17	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C ₁₉ -C ₃₆ Aliphatics	200	33.3	5.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C ₁₁ -C ₂₂ Aromatics	200	33.3	3.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 08/26/08
08/26/08

Filenames: ep082608/001F0101.d
ep082608/002f0201.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	-12.0	≤±25%
C19-C36 Aliphatics	100	16.7	-5.8	≤±25%
C11-C22 Aromatics	100	16.7	-1.6	≤±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
- Alaska
 - Hawaii
 - Ohio
 - Maryland
 - New Jersey
 - North Carolina
 - West Virginia
- www.us.sgs.com



0939

1 CLIENT: OSAGE of VA
 CONTACT: THORSSA EITZMAN PHONE NO: (757) 274-4949
 PROJECT: CTO 015 SITE/PSID#: TT2223
 REPORTS TO: SAUN WHITWORTH E-MAIL: swhitworth@osageva.com
 INVOICE TO: MIKE KNEE FAX NO: (757) 440-0411
 QUOTE # P.O. NUMBER CTO 015

SGS Reference: 6699-57 PAGE 1 OF 1

No	SAMPLE TYPE	C= COMP G= GRAB	Preservatives Used	Analysis Required	CONTAINERS		REMARKS
					HAZ	NONHAZ	
9			X	X	X	X	

2

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX
	TT2223-TW01	8/21/08	1447	W

5

Collected/Relinquished By: (1)	Date	Time	Received By:	Date	Time
[Signature]	8/21/08	1550	[Signature]	8/21	1550
Relinquished By: (2)	Date	Time	Received By:	Date	Time
[Signature]			[Signature]	8/21/08	1620
Relinquished By: (3)	Date	Time	Received By:	Date	Time
			[Signature]		
Relinquished By: (4)	Date	Time	Received By:	Date	Time

4

Shipping Carrier: **COWI**
 Shipping Ticket No: _____
 Samples Received Cold? (Circle) YES NO
 Temperature: C: 4.2°C
 Chain of Custody Seal: (Circle) INTACT BROKEN
 Special Deliverable Requirements: **EDD Format**
 Special Instructions: **ABSENT**
 Email results to: **halleept@in.usa.com, swhitworth@osageva.com & tellerman@osageva.com**
 Requested Turnaround Time: **RUSH** **AS** **STD**
 Date Needed: _____

APPENDIX F
Photographs of Excavation Activities



TT2223 Residual Pumping prior to Excavation.



TT2223 Excavation



UST TT-2223 Pitting



TT2223 Backfilled Excavation with Temporary Monitoring Well Location.

APPENDIX G
Monitoring Well Records

WELL LOG


CATLIN
ENGINEERS and SCIENTISTS
208-052
Wilmington, NC

SHEET 1 OF 1

PROJECT NO.: 208-052	STATE: NC	COUNTY: Onslow	LOCATION: MCB, Camp Lejeune
PROJECT NAME: OSAGE Tarawa Terrace II		LOGGED BY: Osage	WELL ID: TTII-TW01
NORTHING: 3846239.6	EASTING: 282208.3	DRILLER: John E. Wood, III	CREW:
SYSTEM: UTM NAD83 (m)	BORING LOCATION: Building TT-2223		T.O.C. ELEV.:
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW:	TOTAL DEPTH: 16.0
START DATE: 8/20/08	FINISH DATE: 8/20/08	24 HOUR DTW:	WELL DEPTH: 16.0

DEPTH	BLOW COUNT				OVA (ppm)	LAB.	LOG	SOIL AND ROCK DESCRIPTION	WELL DETAIL
	6in	6in	6in	6in					
0.0							0.0 LAND SURFACE	3.0	
4.0	DP	DP	DP	DP		SM	Yellow brown, Silty, f. SAND. ARTIFICIAL FILL	6.0	
8.0	DP	DP	DP	DP					
12.0	DP	DP	DP	DP		CL	Brown, med. plasticity CLAY.	15.5	
16.0							Boring Terminated at Depth 16.0 ft Temporary well set. Well pulled/abandoned after sampling. DP=Direct Push	16.0	

CATLIN BORING LOG 208-052 OSAGE TII/CP1 CATLIN.GDT 9/15/08

 Native Backfill



NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources - Division of Water Quality

WELL CONTRACTOR CERTIFICATION #: 2799

1. WELL CONTRACTOR:
John E. Wood, III
 Well Contractor (Individual) Name
CATLIN Engineers and Scientists
 Well Contractor Company Name
 STREET ADDRESS 220 Old Dairy Road
Wilmington North Carolina 28405
 City or Town State Zip Code
(910) - 452-5861
 Area code - Phone number

2. WELL INFORMATION
 SITE WELL ID #(if applicable): TTII-TW01
 STATE WELL PERMIT #(if applicable): N/A
 DWQ or OTHER PERMIT # (if applicable): N/A
 WELL USE (Check Applicable Box): Monitoring Municipal/Public
 Industrial/Commercial Agricultural Recovery Injection
 Irrigation Other (list use): _____
 DATE DRILLED: 08/20/2008
 TIME COMPLETED: 09:45 AM PM

3. WELL LOCATION:
 CITY: MCB, Camp Lejeune COUNTY: Onslow
Building TT-2223 - Tarawa Terrace II
 (Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)
 TOPOGRAPHIC / LAND SETTING
 Slope Valley Flat Ridge Other: _____
 NORTHING: 3,846,239.6
 EASTING: 282,208.3
 UTM NAD83 (m) May be in degrees, minutes, seconds, or in a decimal format
 Latitude/longitude source: GPS Topo. map
 (Location of well must be shown on a USGS topo map and attached to this form if not using a GPS.)

4. FACILITY - is the name of the business where the well is located.
 FACILITY ID #(if applicable) N/A
 NAME OF FACILITY: MCB, Camp Lejeune
 STREET ADDRESS: Building TT-2223 - Tarawa Terrace I
MCB, Camp Lejeune NC
 City or Town State Zip Code
 CONTACT PERSON: Dr. Johanna Arnold
 STREET ADDRESS: Attn: I&E/ EMD/ EQB/ PSC Box 20004
Camp Lejeune NC 28542-0004
 City or Town State Zip Code
(910)- 451-9017
 Area code - Phone number

5. WELL DETAILS:
 a. TOTAL DEPTH: 16
 b. DOES WELL REPLACE EXISTING WELL? YES NO
 c. WATER LEVEL Below Top of Casing: _____ FT.
 (Use "+" if Above Top of Casing)

d. TOP OF CASING IS 3 FT. Above Land Surface*
 * Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118

e. YIELD (gpm): N/A METHOD OF TEST: N/A
 f. DISINFECTION: Type N/A Amount: N/A
 g. WATER ZONES (depth):
 From _____ To _____ From _____ To _____
 From _____ To _____ From _____ To _____
 From _____ To _____ From _____ To _____

6. CASING:

From	To	Depth	Diameter	Thickness/Weight	Material
From <u>0</u>	To <u>6</u>	ft.	<u>1"</u>	<u>Sch. 40</u>	<u>PVC</u>
From _____	To _____	ft.	"		
From _____	To _____	ft.	"		

7. GROUT:

From	To	Depth	Material	Method
From _____	To _____	Ft.		
From _____	To _____	Ft.		
From _____	To _____	Ft.		

8. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
From <u>6</u>	To <u>15.5</u>	Ft.	<u>1 in.</u>	<u>Slot .010in.</u>	<u>PVC</u>
From _____	To _____	Ft.	in.	in.	
From _____	To _____	Ft.	in.	in.	

9. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
From <u>0</u>	To <u>16</u>	Ft.		<u>Natural Backfill</u>
From _____	To _____	Ft.		

10. DRILLING LOG

From	To	Formation Description
From _____	To _____	SEE ATTACHED
From _____	To _____	
From _____	To _____	
From _____	To _____	
From _____	To _____	
From _____	To _____	

11. REMARKS:
TEMPORARY WELL

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C. WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

John E. Wood III 9-16-08
 SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
John E. Wood, III
 PRINTED NAME OF PERSON CONSTRUCTING THE WELL

Submit the original to the Division of Water Quality within 30 days, Attn: Information Management, 1617 Mail Service Center - Raleigh, NC 27699167, Phone No. (919) 733-7015 ext 568.

Modified from Form GW-1b Rev. 7/05



WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources - Division of Water Quality

WELL CONTRACTOR CERTIFICATION #: 2799

CATLIN PROJECT NO.: 208-052

1. WELL CONTRACTOR:
John E. Wood, III
 Well Contractor (Individual) Name
CATLIN Engineers and Scientists
 Well Contractor Company Name
 STREET ADDRESS 220 Old Dairy Road
Wilmington North Carolina 28405
 City or Town State Zip Code
(910) - 452-5861
 Area code - Phone number

2. WELL INFORMATION
 SITE WELL ID # (if applicable): TTII-TW01
 STATE WELL PERMIT # (if applicable): N.A.
 COUNTY WELL PERMIT # (if applicable): N.A.
 DWQ or OTHER PERMIT # (if applicable):
 WELL USE (Check Applicable Box): Monitoring Residential
 Municipal/Public Industrial/Commercial Agricultural
 Recovery Injection Irrigation
 Other (list use):

3. WELL LOCATION:
 COUNTY: Onslow QUADRANGLE:
 NEAREST TOWN: MCB, Camp Lejeune
Tarawa Terrace II - Building TT-2223
 (Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)
 TOPOGRAPHIC / LAND SETTING
 Slope Valley Flat Ridge Other:
 NORTHING: 3,846,239.6
 EASTING: 282,208.3
 UTM NAD83 (m) May be in degrees, minutes, seconds, or in a decimal
 Latitude/longitude source: GPS Topo. map
 (Location of well must be shown on a USGS topo map and attached to this form if not using a GPS.)

4a. FACILITY - The name of the business where the well is located. Complete 4a and 4b (If a residential well, skip 4a; complete 4b, well owner information only)
 FACILITY ID #(if applicable)
 NAME OF FACILITY:
 STREET ADDRESS: Building TT-2223 - Tarawa Terrace II
MCB, Camp Lejeune North Carolina
 City or Town State Zip Code

4b. CONTACT PERSON/WELL OWNER:
 NAME: Dr. Johanna Arnold
 STREET ADDRESS: Attn: I&E/ EMD/ EQB/ PSC Box 20004
Camp Lejeune NC 28542-0004
 City or Town State Zip Code
(910) 451-9017
 Area code - Phone number

5. WELL DETAILS:
 a. Total Depth: 16 ft. Diameter: 1 in.
 b. Water Level (Below Measuring Point): _____ ft.
 Measuring point is 3.0 ft. above land surface

6. CASING: Length Diameter
 a. Casing Depth (if known): 6 ft. 1 in.
 b. Casing Removed: 6 ft. 1 in.

7. DISINFECTION: N/A
 (Amount of 70% calcium hypochlorite used)

8. SEALING MATERIAL:

<u>Neat Cement</u>	<u>Sand Cement</u>
Cement _____ lb.	Cement _____ lb.
Water _____ gal.	Water _____ gal.
<u>Bentonite</u>	
Bentonite <u>5</u> lb.	
Type: Slurry _____ Pellets <u>X</u>	
Water <u>5</u> gal.	
<u>Other</u>	
Type material _____	
Amount _____	

9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
All materials pulled and hole backfilled with bentonite then hydrated.

10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.

11. DATE WELL ABANDONED 8/20/2008

I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

John Wood III 9-16-09
 SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

 SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
 (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113)

John E. Wood, III
 PRINTED NAME OF PERSON ABANDONING THE WELL

Submit a copy to the owner and the original to the Division of Water Quality within 30 days. Attn: Information Management, 1617 Mail Service Center - Raleigh, NC 27699167, Phone No. (919) 733-7015 ext 568.

Modified from Form GW-30 Rev. 5/06