UNDERGROUND STORAGE TANK
CLOSURE REPORT
TT-2018

TARAWA TERRACE
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

APRIL 23, 2009

CATLIN PROJECT NO. 209-022

PREPARED FOR:

OSAGE OF VIRGINIA, INC.
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UNDERGROUND STORAGE TANK CLOSURE REPORT
SITE TT-2018
TARAWA TERRACE
MCB CAMP LEJEUNE, NORTH CAROLINA

A. GENERAL INFORMATION

1. Facility Information

a. Facility Name:
Site TT-2018
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
Marine Corps Base (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, EMD
MCB Camp Lejeune, North Carolina 28542
(910) 451-5068

b. Name, address, and telephone number of closure contractor:
Osage of Virginia, Inc. (Osage)
2618A Colley Avenue
Norfolk, Virginia 23517-1132
(757) 440-0400

c. Name, address, and telephone number of primary consultant:
CATLIN Engineers and Scientists (CATLIN)
220 Old Dairy Road
Wilmington, NC 28405
(910) 452-5861

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-2018	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 MCB Camp Lejeune. The site area, where existing housing sites have been 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 11 feet below land surface (BLS).

e. If a release has occurred, describe the results of the receptor survey performed within 1,500 feet of the facility:
As illustrated on Figure 1, the nearest surface water body is an unnamed tributary of the New River, which is approximately 600 feet southeast of the site. Groundwater flow direction in the surficial aquifer is estimated to flow toward the south. 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.

The nearest place of public assembly is unknown at this time as the entire area is being redeveloped with new residential housing units. Community playgrounds may be planned in the area where the new housing units are to be constructed.

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:
According to Osage, the UST was pre-located and surveyed prior to removal to prevent damage or UST releases by subcontractors of Actus Lend Lease (Actus). On February 3, 2009 an access hole was cut into the top of the tank in order to remove liquid contents from tank. A vacuum truck, provided by the EMD, Resource Conservation and Recovery Section (RCRS), was used to remove approximately 200 gallons of contaminated water from the tank.

As documented by Osage, on February 26, 2009 the tank was removed and transported to RCRS Building 977 for cleaning and disposal preparation. Osage personnel noted there were signs of deterioration and corrosion on the bottom of the UST. Photographs of the tank are included in Appendix F. The tank was transported to J&E Salvage for disposal on March 3, 2009. The Tank Disposal Manifest is included in Appendix C. Appendix A and B contain North Carolina Department of Environment and Natural Resources (NCDENR) Forms UST-2 and UST-61, respectively.

2. Note the amount of residual material pumped from the tank:
Osage reported that approximately 200 gallons of contaminated water was pumped from the tank.

3. Describe the storage, sampling and disposal of the residual material:
According to Osage, the 200 gallons of contaminated water pumped from the tank was containerized and properly disposed 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:
Osage mobilized to the site to conduct a site survey and remove the UST on February 26, 2009. Once the UST was removed, visible staining was noted beneath the tank. Excavation activities began and a Photo Ionization Detector (PID) was used to identify contamination limits prior to obtaining soil samples. PID readings during the excavation ranged from 0 at the sidewall

soils to greater than 110 parts per million (ppm) at bottom soils. Initial excavation limits were approximately 14 feet (length) x 11 feet (width) x 6-7 feet (depth). Four soil samples were collected at approximately three feet BLS along the sidewalls surrounding the tank (TT2018-S001 through TT2018-S004). One soil sample (TT2018-S005) was collected at 6.5 feet BLS, directly below the tank bottom. The soil samples were collected from the backhoe bucket and submitted for analysis via Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO). The excavated soil was properly stockpiled on site, awaiting disposal at the P&F Land Farming Facility, Permit# SR0500106, in Whitakers, NC. The excavation area was fenced off to ensure security.

On March 5 and 6, 2009 Osage personnel returned to the site to conduct over excavation of the bottom of the tank basin since laboratory analysis indicated noncompliant TPH-DRO concentrations at the bottom of the tank basin. The resultant over excavation increased the depth of the excavation to 11 feet. Apparent surficial groundwater table was encountered between 10 and 11 feet BLS. The excavated soil from the initial excavation and the subsequent over excavation was loaded into trucks. Approximately 47.52 tons of soil was transported to the P&F Land Farming Facility, Permit# SR0500106, Whitakers NC for disposal. Confirmation soil samples were collected on March 6, 2009 and submitted for analysis via EPA Methods 8260, 8270, and MADEP VPH/EPH. Soil samples TT2018-S006 through TT2018-S009 were collected at each of the sidewalls from a depth of 10 feet BLS. Again, the area was fenced off to ensure security pending results of the confirmation soil samples.

On March 12, 2009 the excavation was backfilled with clean fill material. However, on March 24, 2009, Osage personnel returned to the site to conduct a second over excavation of the northern sidewall since laboratory analysis of sample TT2018-S008 indicated the presence of contaminants at concentrations above the Soil-to-Groundwater (STGW) and Residential Maximum Soil Contaminant Concentrations (MSCCs). The second over excavation increased the final excavation dimensions to 15 feet (length) x 14 feet (width) x 11 feet (depth). The soil from the second over excavation was loaded into trucks and 38.73 tons of soil was transported to the P&F Land Farming Facility, Permit# SR0500106, Whitakers NC for disposal. After over excavation, one confirmation soil sample was collected, TT2018-S010, from the northern sidewall at 10 feet BLS on March 24, 2009. The sample was analyzed using EPA Method 8270 and MADEP EPH. Again, the area was fenced off to ensure security pending results of the confirmation soil sample.

Laboratory analysis of soil sample TT2018-S010 indicated compliant concentrations of EPA Method 8270 and MADEP EPH parameters. The excavation was backfilled to initial land surface level.

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 86.25 tons of soil was excavated from the tank basin – 47.52 tons of contaminated soil was removed on March 5 and 6, 2009 and 38.73 tons on March 24, 2009.

d. Describe the soil type(s) encountered:
Based on field observation of the tank excavation:
0.0 – 2.5' BLS – Dry light brown silty sand with dark silty sand
2.5 – 7.0' BLS – Slightly moist light brown silty clay with sand
7.0 – 9.5' BLS – Moist light brown to tan clayey sand
9.5 – 12.0' BLS – Moist tan to white fine sand

e. Describe the type and source of backfill used:

The initial and first over excavation was backfilled on March 12, 2009. The second over excavation was backfilled on March 24, 2009. Both excavations were 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:
Groundwater was encountered at approximately 11 feet BLS. Therefore, EMD concluded a temporary monitoring well would need to be installed in the former tank basin. No free product or bedrock was encountered during the excavation process.

5. Contaminated soil
During UST removal activities and over excavation, a total of 86.25 tons of contaminated soil were excavated. The 86.25 tons of soil removed during the excavations were transported to the P&F Land Facility, Permit# SR0500106, in Whitakers, NC for disposal. Soil Disposal Manifests are included in Appendix D.

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 organic vapor readings in the sidewalls, as well as at the bottom. Readings ranged from 0 to greater than 110 ppm. The 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 TT2018-S001 through S005) were collected from the tank basin on February 26, 2009 immediately following excavation of the basin. Soil samples TT2018-S001 through S004 were collected from the sidewalls at a depth of three feet BLS. Soil sample TT2018-S005 was obtained from the bottom of the tank basin at approximately 6.5 feet 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 TPH-GRO and DRO via EPA Method 8015.

On March 5 and 6, 2009, Osage personnel returned to the site to over excavate the bottom of the tank basin since laboratory analysis indicated the presence of TPH-DRO at concentrations above the 10 mg/kg North Carolina Department of Environment and Natural Resources (NCDENR) Action Level. Additional contaminated soil was excavated from the tank basin. After over excavation, four confirmation soil samples were collected (Soil Samples TT2018-S006 through TT2018-S009). Soil sample TT2018-S006 was collected from the southern sidewall at ten feet BLS. Soil sample TT2018-S007 was collected from the western sidewall at ten feet BLS. Soil samples TT2018-S008 was collected from the northern sidewall from a depth of ten feet BLS. Soil sample TT2018-S009 was collected from the eastern sidewall at ten 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.

On March 24, 2009, Osage personnel returned to the site to conduct a second over excavation of the northern sidewall since laboratory analysis indicated the presence of MADEP EPH compounds at concentrations above the STGW and Residential MSCCs. Additional contaminated soil was excavated from the tank basin. After over excavation, one confirmation soil sample (TT2018-S010) was collected from the northern sidewall at 10 feet BLS. The soil sample was placed into laboratory provided glassware, properly labeled, and transported directly to SGS under proper chain of custody. Sample TT2018-S010 was analyzed using EPA Methods 8270 and MADEP EPH only.

3. Document groundwater sampling information:
CATLIN installed temporary monitoring well TT2018-TW01 in the center of the former tank basin. The monitoring well was advanced to a depth of 13.5 feet BLS. The well was installed to monitor for the presence of free-phase product and to allow for the collection of a groundwater sample. As free-phase product was not encountered, a representative groundwater sample was collected on March 31, 2009 after proper purging of the well. The groundwater sample was analyzed per

EPA Methods 602 and 625 and MADEP VPH/EPH. Groundwater analytical results are presented in Table 3 and illustrated on Figure 3. The temporary monitoring well was permanently abandoned on March 31, 2009. A well construction and abandonment record is included in Appendix G.

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 included with each cooler of samples.

5. Describe investigation results:

Soil Investigation
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, illustrated on Figure 2 and the laboratory analytical reports are included in Appendix E.

Confirmation soil samples (Sample IDs TT2018-S001 through S005) were collected from the tank basin on February 26, 2009. Soil sample TT2018-S005 exhibited noncompliant TPH DRO concentrations of 1,280 mg/kg.

On March 5 and 6, 2009, Osage personnel returned to the site to conduct additional soil excavation. After over excavation, four confirmation soil samples were collected (Soil Samples TT2018-S006 through TT2018-S009). All over excavation confirmation soil samples were sent to SGS for analysis via EPA Methods 8260, 8270, and MADEP VPH/EPH.

A second over excavation was conducted by Osage on March 24, 2009 and after this excavation, one additional confirmation sample was collected (TT2018-S010). Soil sample TT2018-S010 was sent to SGS for analysis via EPA Methods 8270 and MADEP EPH only. Laboratory results are discussed as follows:

<u>EPA Method 8260</u>

Laboratory analysis revealed all site soil samples (TT2018-S006 through - S010) were Below Method Detection Limits (BMDL) for all EPA Method 8260 compounds.

<u>EPA Method 8270</u>

Laboratory analysis revealed site soil samples TT2018-S006, TT2018-S007, TT2018-S009 and TT2018-S010 were Below Method Detection Limits (BMDL) for all EPA Method 8270 compounds. Soil sample TT2018-S008 contained Pyrene at concentrations of 0.332 mg/kg, below applicable Residential and STGW MSCCs of

469 mg/kg and 290 mg/kg respectively.

MADEP VPH/EPH

Laboratory analysis revealed site soil samples TT2018-S006, TT2018-S007 and TT2018-S009 were BMDL for all MADEP VPH/EPH hydrocarbon fractions. Soil sample TT2018-S008 contained the C_9-C_{22} Aromatics hydrocarbon fraction at a concentration of <826 mg/kg above applicable Residential and STGW MSCCs. The above-stated concentrations proceeded by a "<" indicates the result is the sum of the reported practical quantitation limit of one fraction and the detected concentration of the other fraction. All other TT2018-S008 MADEP VPH/EPH hydrocarbon fraction concentrations were either below applicable Residential and STGW MSCCs or BMDL.

Laboratory analysis of site soil samples TT2018-S010 was BMDL for all MADEP EPH hydrocarbon fractions.

Groundwater Investigation

Laboratory results of the groundwater samples collected during this tank removal action are summarized in Table 3, illustrated on Figure 3 and the laboratory analytical reports are included in Appendix E.

A representative groundwater sample was collected on March 31, 2009 after proper purging of temporary monitoring well TT2018-TW01. The groundwater sample was analyzed per EPA Methods 602 and 625 and MADEP VPH/EPH. Laboratory results are discussed as follows:

EPA Method 602

While laboratory analysis of TT2108-TW01 detected concentrations of Ethylbenzene (3.58 ug/L) and Total Xylenes (27.94 ug/L), both are below applicable Gross Contamination Levels (GCLs) and NCAC T14A:02L Groundwater Quality Standards (2L GWQS). All remaining EPA Method 602 compounds were reported as BMDL.

EPA Method 625

While laboratory analysis of TT2108-TW01 detected concentrations of Acenaphthene (3.29 J ug/L), Fluorene (5.12 J ug/L), Naphthalene (18.0 ug/L) and Phenanthrene (4.15 J ug/L), all are below applicable GCLs and 2L GWQS. All remaining EPA Method 625 compounds were reported as BMDL. The above listed concentrations with a J designates that the result is an estimated concentration, below calibration range and above the method detection limit.

MADEP VPH/EPH

Laboratory analysis of TT2018-TW01 was BMDL for MADEP VPH/EPH

hydrocarbon fractions C_5-C_8 Aliphatics and C_{19}-C_{36} Aliphatics. While C_9-C_{18} Aliphatics were detected at 499 ug/L this concentration is below applicable 2L GWQS. The C_9-C_{22} Aromatics were detected at a concentration of 1,153 ug/L which is above the applicable 2L GWQS of 210 ug/L for this compound.

D. CONCLUSIONS AND RECOMMENDATION

A total of 86.25 tons of contaminated soil was removed from the TT-2018 site. The confirmation soil samples collected from the sidewalls of the final excavation limits (TT2018-S006, TT2018-S007, TT2018-S009 and TT2018-S010) revealed that no soil contaminants were detected at concentrations above the lowest applicable MSCCs.

The groundwater sample collected from temporary monitoring well TT2018-TW01 revealed no compound concentrations of concern from EPA Methods 602 and 625 analyses. MADEP VPH/EPH analysis of sample TT2018-TW01 revealed only C_9-C_{22} Aromatic hydrocarbon fraction concentration (1,153 ug/L) above applicable 2L GWQS.

As previously stated the site's Land Use Classification is Residential. Since site soils have been remediated to below Residential MSCCs and there are no raw water supply wells within 1,500 feet of the site (as shown on Figure 1), No Further Action (NFA) should be required in regards to site soils. However, because site surficial groundwater remains impacted with C_9-C_{22} Aromatic hydrocarbon fraction concentrations in excess of applicable 2L GWQS the issuance of NFA by NCDENR will be contingent upon a Land Use Restriction (LUR) for site groundwater. Also, Public Notice will be required, pursuant to 15A NCAC 2L .0409.

E. SIGNATURE AND SEAL

Signature and seal of certifying Professional Engineer or Licensed Geologist:

Michael E. Mason

F. LIMITATIONS

The soil and groundwater samples analyzed as part of this investigation only provide isolated data points and may not represent conditions at every location in the project area. Analyses and conclusions of this report, being based on interpolation between data points at the project area, may not be completely representative of all site conditions. Conclusions and recommendations of this investigation and report are based on the best available data in an effort to comply with current regulatory requirements.

G. REFERENCES

CATLIN Engineers and Scientists. *Workplan/Health and Safety Plan, Sites TT-2018, TT-2084, TT-3103, TT-3114, TT-3127 and TT-3145 – Groundwater Assessment.* Marine Corps Base, Camp Lejeune, NC. March 23, 2009.

North Carolina Department of Environment and Natural Resources, Division of Waste Management, Underground Storage Tank Section, *Underground Storage Tank Section Guidelines for Site Checks, Tank Closure, and Initial Response and Abatement*, Effective March 1, 2007.

TABLES

TABLE 1
SUMMARY OF SOIL LABORATORY RESULTS FROM FEBRUARY 26, 2009

Incident Name and No.: TT-2018 - Pending

Sample ID	Contaminant of Concern →		Gasoline Range Organics	Diesel Range Organics
	Date Collected	Sample Depth (ft. BLS)		
NCDENR Action Level (mg/kg)			10	10
TT2018-S001	2/26/2009	3	<6.40	<7.68
TT2018-S002	2/26/2009	3	<6.02	<7.63
TT2018-S003	2/26/2009	3	<6.11	<8.25
TT2018-S004	2/26/2009	3	<6.27	<7.56
TT2018-S005	2/26/2009	6.5	<5.51	**1,280**

All results in milligrams per kilogram (mg/kg).
ft. BLS = Feet Below Land Surface
NCDENR = North Carolina Department of Environment and Natural Resources
< = Less than method detection limit
Bold results indicate concentration above the NCDENR Action Level.

TABLE 2
SUMMARY OF SOIL LABORATORY RESULTS FROM MARCH 6 AND 24, 2009

Incident Name and No.: TT-2018 - Pending

Sample ID	Contaminant of Concern →		EPA METHOD 8260B/5035	EPA METHOD 8270		MADEP VPH/EPH			
	Date Collected	Sample Depth (ft. BLS)	All EPA Method 8260B/5035 Compounds	Pyrene	All Other EPA Method 8270 Compounds	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
Residential MSCC (mg/kg)			Varies	469	Varies	939	9,386	93,860	469
Industrial/Commercial MSCC (mg/kg)			Varies	12,264	Varies	24,528	245,280	#	12,264
STGW MSCC (mg/kg)			Varies	290	Varies	72	3,300	##	34
TT2018-S006	3/6/2009	10	BMDL	<0.328	BMDL	<10.0	<20.0	<10.0	<20.0
TT2018-S007	3/6/2009	10	BMDL	<0.316	BMDL	<10.0	<20.0	<10.0	<20.0
TT2018-S008	3/6/2009	10	BMDL	0.332	BMDL	<10.0	<1,890 *	594	**<826 ***
TT2018-S009	3/6/2009	10	BMDL	<0.355	BMDL	<10.0	<20.0	<10.0	<20.0
TT2018-S010	3/24/2009	10	NA	<0.390	BMDL	NA	<10.0 **	<10.0 **	<10.0 **

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

BMDL = Below Method Detection Limit

ft. BLS = Feet Below Land Surface

NA = Not Analyzed

< = Less than method detection limit

STGW = Soil-to-Groundwater

MSCC = Maximum Soil Contaminant Concentration

= Health-Based Level (>100%)

= Considered Immobile

Bold results indicate concentration above the lowest MSCC.

* = The value represents the sum of the reported practical quantitation limit of one fraction and the detected concentration of the other fraction.

** = Only one method was required, the value represents MADEP EPH results only.

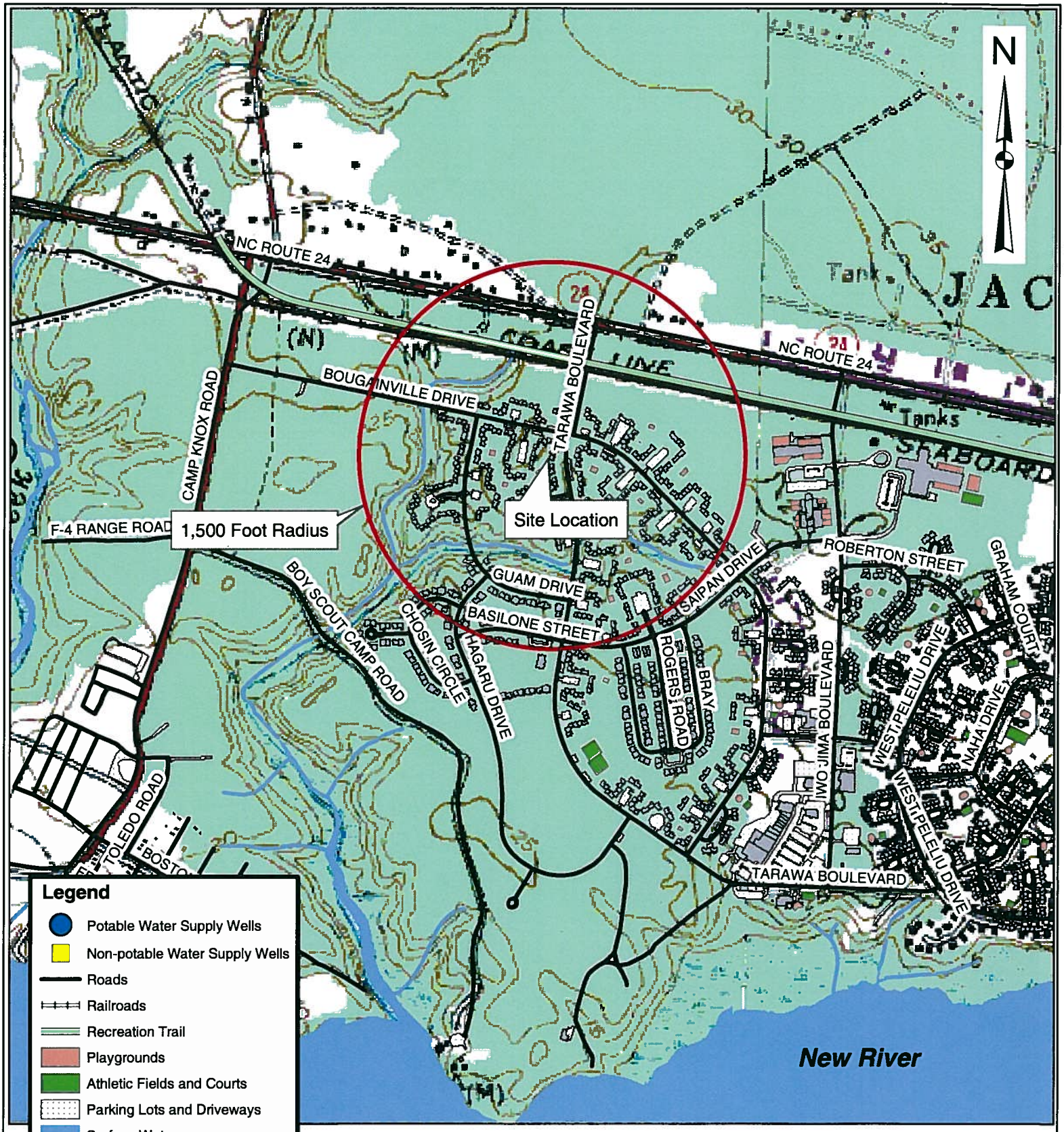
TABLE 3
SUMMARY OF GROUNDWATER LABORATORY RESULTS FROM MARCH 31, 2009

Incident Name and No.: TT-2018 - Pending

Well ID	Contaminant of Concern →		EPA METHOD 602			EPA METHOD 625					MADEP VPH/EPH			
	Sample ID	Date Collected	Ethylbenzene	Total Xylenes	All Other EPA 602 Compounds	Acenaphthene	Fluorene	Naphthalene	Phenanthrene	All Other EPA Method 625 Compounds	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
GCL (µg/L)			84,500	87,500	Varies	2,120	950	15,500	410	Varies	NE	NE	NE	NE
2L GWQS (µg/L)			550	530	Varies	80	280	21	210	Varies	420	4,200	42,000	210
TT2018-TW01	TT2018-TW01	3/31/2009	3.58	27.94	BMDL	3.29 J	5.12 J	18.0	4.15 J	BMDL	<100	499	<100	**1,153**

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

FIGURES



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

CATLIN Engineers and Scientists

PROJECT	TITLE	FIGURE
TANK CLOSURE REPORT SITE TT-2018 MARINE CORPS BASE CAMP LEJEUNE, NC	USGS TOPOGRAPHIC SITE LOCATION MAP	1

JOB NO.	DATE	SCALE	DRAWN BY	CHECKED BY
209-022	APR 2009	AS SHOWN	SAC	MEM

TABLE 1
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Incident Name and No.: TT-2018 - Pending

Sample ID	Contaminant of Concern →		Gasoline Range Organics	Diesel Range Organics
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TT2018-S001	2/26/2009	3	<6.40	<7.68
TT2018-S002	2/26/2009	3	<6.02	<7.63
TT2018-S003	2/26/2009	3	<6.11	<8.25
TT2018-S004	2/26/2009	3	<6.27	<7.56
TT2018-S005	2/26/2009	6.5	<5.51	**1,280**

All results in milligrams per kilogram (mg/kg).
ft. BLS = Feet Below Land Surface
NCDENR = North Carolina Department of Environment and Natural Resources
< = Less than method detection limit
Bold results indicate concentration above the NCDENR Action Level.

TABLE 2
SUMMARY OF SOIL LABORATORY RESULTS FROM MARCH 6 AND 24, 2009

Incident Name and No.: TT-2018 - Pending

Sample ID	Contaminant of Concern →		EPA METHOD 8260B/5035	EPA METHOD 8270		MADEP VPH/EPH			
	Date Collected	Sample Depth (ft. BLS)	All EPA Method 8260B/5035 Compounds	Pyrene	All Other EPA Method 8270 Compounds	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
Residential MSCC (mg/kg)			Varies	469	Varies	939	9,386	93,860	469
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STGW MSCC (mg/kg)			Varies	290	Varies	72	3,300	##	34
TT2018-S006	3/6/2009	10	BMDL	<0.328	BMDL	<10.0	<20.0	<10.0	<20.0
TT2018-S007	3/6/2009	10	BMDL	<0.316	BMDL	<10.0	<20.0	<10.0	<20.0
TT2018-S008	3/6/2009	10	BMDL	0.332	BMDL	<10.0	<1,890 *	594	**<826 ***
TT2018-S009	3/6/2009	10	BMDL	<0.355	BMDL	<10.0	<20.0	<10.0	<20.0
TT2018-S010	3/24/2009	10	NA	<0.390	BMDL	NA	<10.0 **	<10.0 **	<10.0 **

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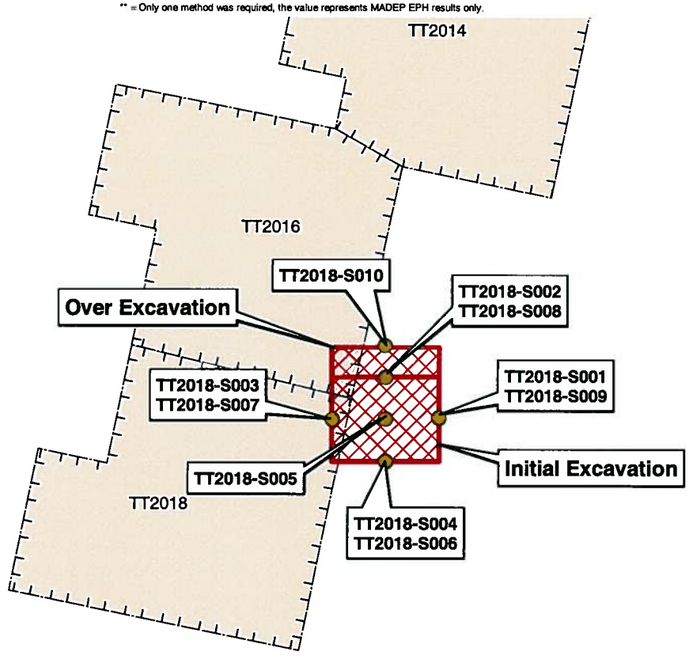
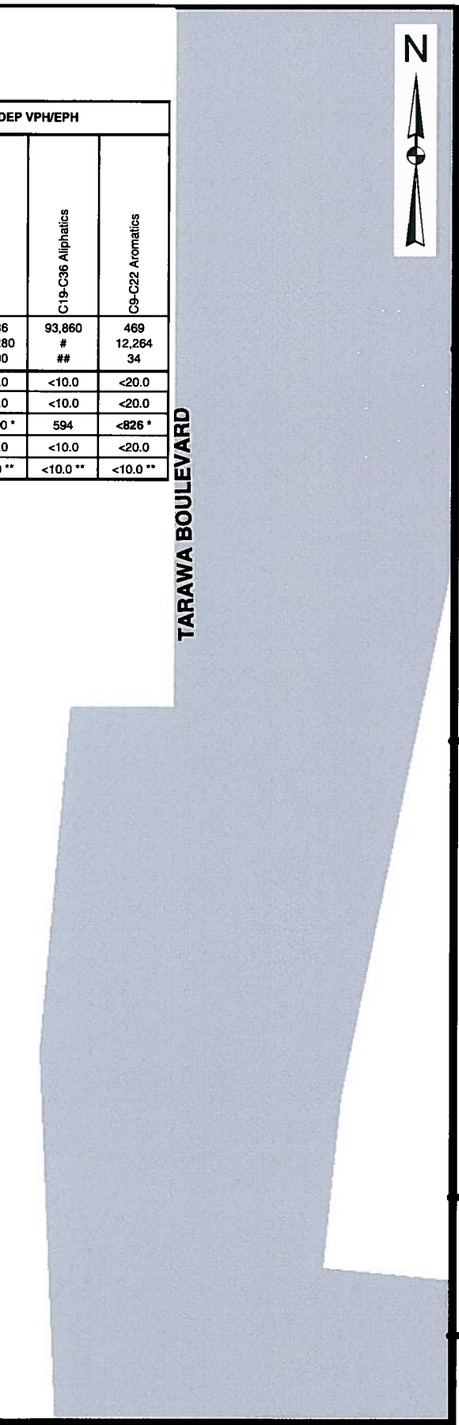
** = Only one method was required, the value represents MADEP EPH results only.





TANK REMOVAL SITE TT-2018 MARINE CORPS BASE CAMP LEJEUNE, NC

NAVFAC Naval Facilities Engineering Command
ATLANTIC DIVISION

LEGEND

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

NOTES

1. Data layers provided by MCB Camp Lejeune GIS office.
2. Soil sample location TT2018-S005 provided by Lanier Surveying.
3. Initial excavation limits were approximately 11' by 14' by 7' deep. Over-excavtion limits increased excavation dimensions to 15' by 14' by 11' deep.

CATLIN Engineers and Scientists

SITE MAP WITH SOIL LABORATORY RESULTS

FIGURE 2

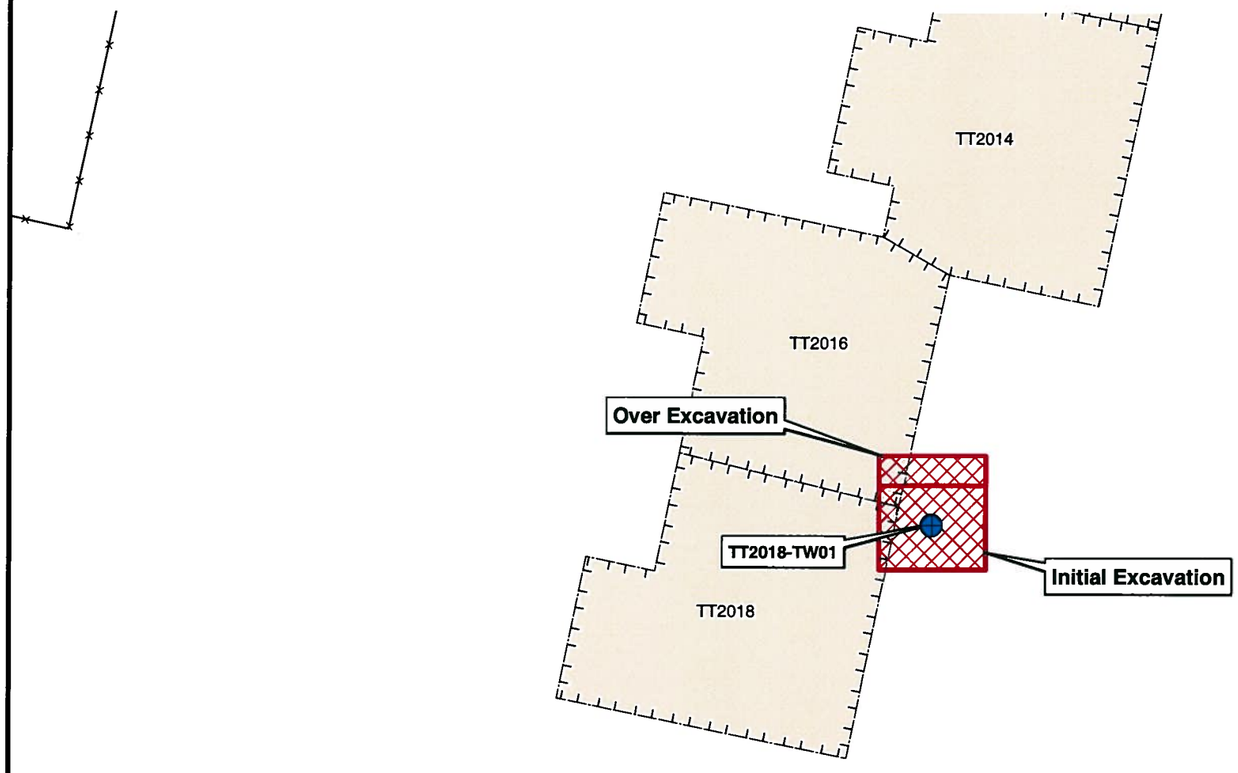
Job No.:	Date:	Scale:	Drawn By:	Checked By:
209-022	APR 2009	AS SHOWN	SAC	MEM

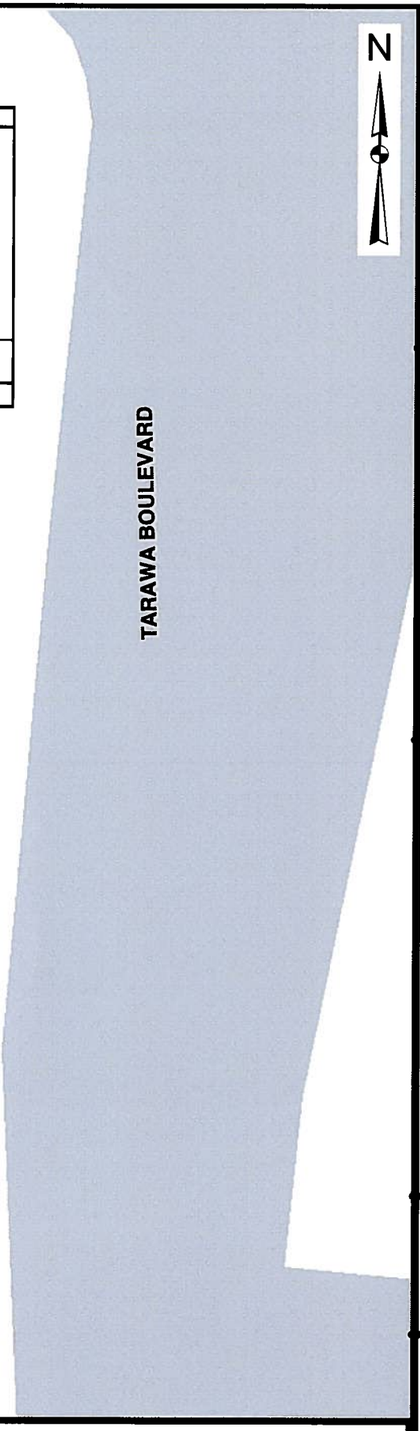
TABLE 3
SUMMARY OF GROUNDWATER LABORATORY RESULTS FROM MARCH 31, 2009

Incident Name and No.: TT-2018 - Pending

Well ID	Contaminant of Concern →		EPA METHOD 602			EPA METHOD 625					MADEP VPH/EPH			
	Sample ID	Date Collected	Ethylbenzene	Total Xylenes	All Other EPA 602 Compounds	Acenaphthene	Fluorene	Naphthalene	Phenanthrene	All Other EPA Method 625 Compounds	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
GCL (µg/L) 2L GWQS (µg/L)			84,500 550	87,500 530	Varies Varies	2,120 80	950 280	15,500 21	410 210	Varies Varies	NE 420	NE 4,200	NE 42,000	NE 210
TT2018-TW01	TT2018-TW01	3/31/2009	3.58	27.94	BMDL	3.29 J	5.12 J	18.0	4.15 J	BMDL	<100	499	<100	**1,153**

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





TANK REMOVAL
SITE TT-2018
MARINE CORPS BASE
CAMP LEJEUNE, NC

NAVFAC Naval Facilities Engineering Command
ATLANTIC DIVISION

LEGEND

- Tank Excavation Area
- Groundwater Sample Location
- Demolished Buildings and Structures
- Slabs
- Driveways
- Parking Lots
- Woods

NOTES

1. Data layers provided by MCB Camp Lejeune GIS office.
2. Groundwater sample collected from Temporary Monitoring Well TT2018-TW01.

CATLIN Engineers and Scientists

SITE MAP WITH GROUNDWATER LABORATORY RESULTS

FIGURE **3**

Job No.:	Date:	Scale:	Drawn By:	Checked By:
209-022	APR 2009	AS SHOWN	SAC	MEM

APPENDICES

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

Owner Name (Corporation, Individual, Public Agency, or Other Entity) Commanding Officer, Marine Corps Base	
Street Address Bldg 1 Holcumb Blvd	
City Camp Lejeune	County Onslow
State NC	Zip Code 28542-0004
Phone Number (910) 451-9660	

II. LOCATION OF TANKS

Facility Name or Company Tarawa Terrance Housing		
Facility ID # (If known) N/A		
Street Address TT2018 Tarawa Blvd		
City Camp Lejeune	County Onslow	Zip Code 28542
Phone Number		

III. CONTACT PERSONNEL

Contact for Facility: Bruce Markwick		Job Title: Environmental Protection Specialist	Phone. No: (910) 451-9660
Closure Contractor Name: OSAGE of Virginia	Closure Contractor Company:	Address: 2818A Colley Avenue Norfolk, Va	Phone. No: 757 440-0400
Primary Consultant Name: Catlin Engineers and scientist	Primary Consultant Company:	Address: 220 Old Dairy Rd, Wilmington, NC	Phone. No: 910 452-5861

IV. UST INFORMATION FOR REGISTERED UST SYSTEMS

Tank ID No.	Size in Gallons	Tank Dimensions	Last Contents	Last Use Date	Permanent Close Date	Change-in-Service Date

V. EXCAVATION CONDITION

Water in excavation		Free product		Notable odor or visible soil contamination	
Yes	No	Yes	No	Yes	No
☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐

VI. UST INFORMATION FOR UNREGISTERED UST SYSTEMS

Tank ID No.	Size in Gallons	Tank Dimensions	Last Contents	Last Use Date	Permanent Close Date	Tank Owner Name *
TT2018	500	4' X 6'	Heating Oil	Unknown		See Above

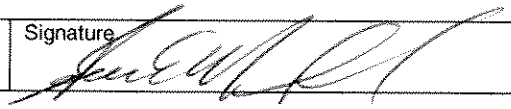
VII. EXCAVATION CONDITION

Water in excavation		Free product		Notable odor or visible soil contamination	
Yes	No	Yes	No	Yes	No
☒	☐	☐	☒	☒	☐
☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐

* 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	Signature	Date Signed
Bruce Markwick		4/22/2009

NCDENR

North Carolina Department of Environment and Natural Resources

Division of Waste Management
UST Section Central Office
1637 Mail Service Center
Raleigh, NC 27699-1637
(919) 733-8486 FAX (919) 733-9413
www.wastenotnc.org

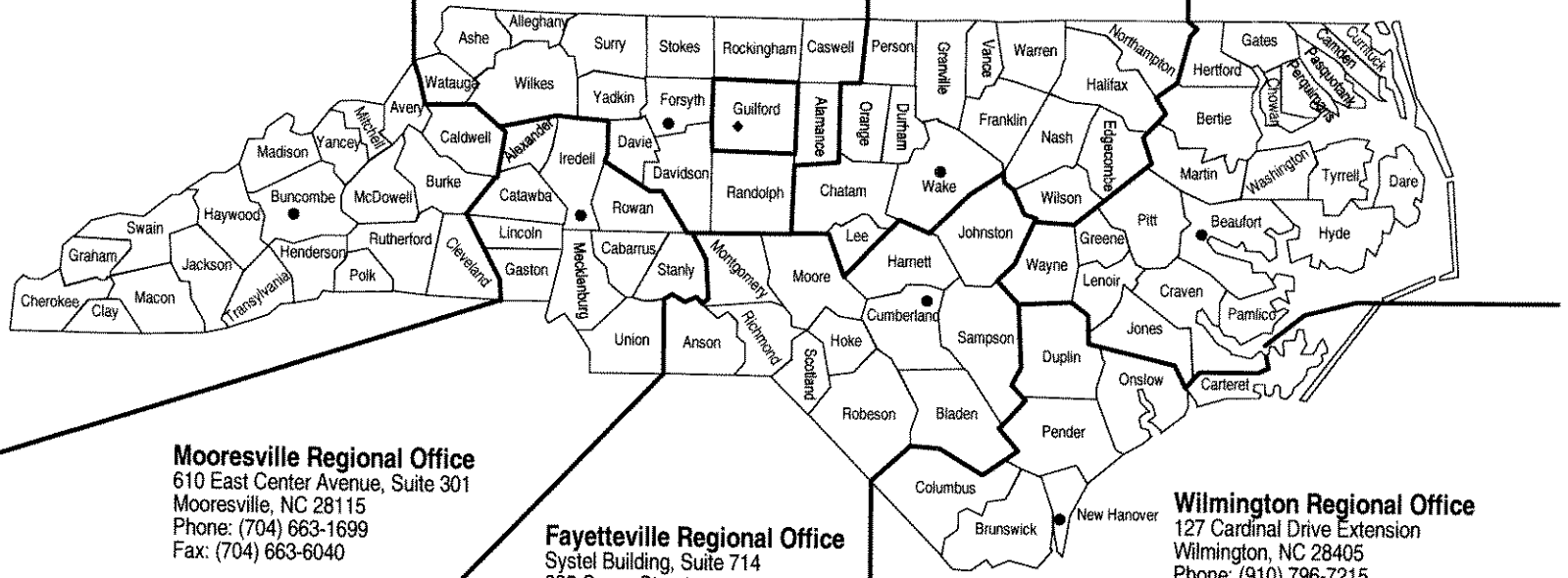
Asheville Regional Office
2090 U.S. Highway 70
Swannanoa, NC 28778
Phone: (828) 296-4500
Fax: (828) 299-7043

Winston-Salem Regional Office
585 Waughtown Street
Winston-Salem, NC 27107
Phone: (336) 771-5000
Fax: (336) 771-4632

Guilford County Dept. of Public Health
1203 Maple Street
Greensboro, NC 27405
Phone: (336) 641-3771
Fax: (336) 641-4812

Raleigh Regional Office
3800 Barrett Drive
Raleigh, NC 27609
Phone: (919) 791-4200
Fax: (919) 571-4718

Washington Regional Office
943 Washington Square Mall
Washington, NC 27889
Phone: (252) 946-6481
Fax: (252) 975-3716



Mooresville Regional Office
610 East Center Avenue, Suite 301
Mooresville, NC 28115
Phone: (704) 663-1699
Fax: (704) 663-6040

Fayetteville Regional Office
Systel Building, Suite 714
225 Green Street
Fayetteville, NC 28301
Phone: (910) 433-3300
Fax: (910) 486-0707

Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, NC 28405
Phone: (910) 796-7215
Fax: (910) 350-2004

● Regional Office

8/06

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) Y
Samples Taken?(Y/N) Y
Free Product? (Y/N) N If Yes, State Greatest Thickness _____

Facility ID Number N/A
Date Leak Discovered 02/26/09
Comm/Non-Commercial _____
Reg/Non-regulated? _____

INCIDENT DESCRIPTION

Incident Name: TT2018 Heating Oil Tank

Address: TT2018 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' 23.854" N Longitude (decimal degrees) : 77 22' 47.719" W

Obtained by:
- ☐ GPS
- ☐ Topographic map
- ☒ GIS Address matching
- ☐ Other
- ☐ Unknown

Describe location:

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)*

On December 2008 at Tarawa Terrace housing area of Camp Lejeune, OSAGE of Virginia using magnetometer equipment discovered an abandoned heating oil tank. February, 25 2009 Environmental personnel removed all liquids from the tank (approximately 400 gallons of fuel and water mixture). OSAGE of Virginia removed the tank on 02/26/09 and there was evidence (visual) of a release from the tank. OSAGE took samples per the state requirements. All contaminated soil was removed and stored at the MCB Camp Lejeune soil storage pad at bldg TP464 awaiting removal on a separate contract. A UST-12 report will follow.

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

Definitions presented on reverse

Cause of Release *(Check one to indicate primary cause)*
- ☐ Spill
- ☐ Overfill
- ☐ Corrosion
- ☐ Physical or Mechanical Damage
- ☐ Install Problem
- ☐ Other
- ☐ Unknown

Definitions presented on reverse

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

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

IMPACT ON DRINKING WATER SUPPLIES

Water Supply Wells Affected? 1. Yes (2. No) 3. Unknown

Number of Water Supply Wells Affected _____

Water Supply Wells Contaminated: (*Include Users Names, Addresses and Phone Numbers. Attach additional sheet if necessary*)

1.
2.
3.

UST SYSTEM OWNER

UST Owner/Company			
Commanding Officer, Marine Corps Base,			
Point of Contact: Bruce Markwick		Address:	
City: Camp Lejeune	State: NC	Zip Code: 28542	Telephone Number: 910 451-9660

UST SYSTEM OPERATOR

UST Operator/Company			
Same as above		Address:	
City:	State:	Zip Code:	Telephone Number:

LANDOWNER AT LOCATION OF UST INCIDENT

Landowner			
Same as above		Address:	
City:	State:	Zip Code:	Telephone Number:

Draw Sketch of Area (showing two major road intersections) or Attach Map

Person Reporting Incident: Bruce Markwick	Company: Miltary/USMC	Telephone Number: 910 451-9660
Title: Environmental Protection Specialist	Address: Bldg 12 Post Lane, Camp Lejeune, NC 28542	Date: 02/26/09

Definitions of Sources

Tank: means the tank that stores the product and is part of the underground storage tank system

Piping: means the piping and connectors running from the tank or submersible turbine pump to the dispenser or other end-use equipment (Vent, vapor recovery, or fill lines are excluded.)

Dispenser: includes the dispenser and the equipment used to connect the dispenser to the piping (e.g., a release from a suction pump or from components located above the shear valve)

Submersible Turbine Pump (STP) Area includes the submersible turbine pump head (typically located in the tank sump), the line leak detector, and the piping that connects the submersible turbine pump to the tank

Delivery Problem: identifies releases that occurred during product delivery to the tank. (Typical causes associated with this source are spills and overfills.)

Other: serves as the option to use when the release source is known but does not fit into one of the preceding categories (e.g., for releases from vent lines, vapor recovery lines, and fill lines)

Unknown: identifies releases for which the source has not been determined

Definitions of Causes

Spill: use this cause when a spill occurs (e.g., when the delivery hose is disconnected from the tank fill pipe or when the nozzle is removed from the dispenser)

Overfill: use when an overfill occurs (e.g., overfills may occur from the fill pipe at the tank or when the nozzle fails to shut off at the dispenser)

Physical or Mechanical Damage: use for all types of physical or mechanical damage, except corrosion (e.g., puncture of tank or piping, loose fittings, broken components, and components that have changed dimension)

Corrosion: use when a metal tank, piping, or other component has a release due to corrosion (e.g., for steel, corrosion takes the form of rust)

Installation Problem: use when the problem is determined to have occurred specifically because the UST system was not installed properly

Other: use this option when the cause is known but does not fit into one of the preceding categories (e.g., putting regulated substances into monitoring wells)

Unknown: use when the cause has not been determined

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-2018	550 gal	Heating Oil	4 Ft X 6 Ft Dim

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

Print Name	Signature	Month/Day/Year
Theresa Ellerman		3/3/09

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: J&E Salvage
2012 Blue Creek Rd
Jacksonville NC 28540
Phone: (910) 347-5865

Print Name	Signature	Month/Day/Year
Crystal Darlington	Crystal Darlington	3/3/09

APPENDIX D

DISPOSAL MANIFESTS

P & F Environmental

4352 N. Old Carriage Road • Rocky Mount, NC 27804
Phone: (252) 443-4083 • Fax: (252) 443-4104

NON-HAZARDOUS WASTE MANIFEST

APPROVAL #_____ LOAD # 07261

GENERATOR

CG.AC/S I&E (EMD) MCB
PO BOX 20004
CLNC 28542-0004

PHONE: 910 451 1482

DESTINATION

Land Application Facility Permit No. SR0500106
Speights Chapel Road
Whitakers, NC 27891

PHONE: (252) 443-4083

WASTE DESCRIPTION: Non-Hazardous Petroleum Contaminated Soil

WASTE ORIGINATION: TT site 2018 /~~2048~~

OSAGE OF VIRGINIA (757) 274 4949

Transporter: P+F Environmental
Truck #: P-105
Truck Tag #/State: NC ZB12254
Driver Name (Print): ~~TIM THORNE~~ FRANKLIN RHODES CDL # ~~NC 21673972~~ NC 2806555

Gross Weight (lbs.): 49020
Tare Weight (lbs.): 21600
Net Weight (lbs.): 27420
Net Weight (tons): 13.71

I hereby certify that the material stated herein was received at the waste origination site listed.

Driver Signature 3-6-09 Date

I hereby certify that the material stated herein was delivered without incident to the destination listed.

Driver Signature 3-6-09 Date

Inspected and Accepted By: 3-6-09

NOTICE TO TRANSPORTER

TRUCKS WILL NOT BE PERMITTED TO ENTER THE FACILITY WITHOUT THIS ENTRANCE TICKET

WHITE - *Invoice* YELLOW - *Generator* PINK - *Trucker* GOLD - *P & F Environmental*

P & F Environmental

4352 N. Old Carriage Road • Rocky Mount, NC 27804
Phone: (252) 443-4083 • Fax: (252) 443-4104

NON-HAZARDOUS WASTE MANIFEST

APPROVAL# _____ LOAD # 07262

GENERATOR

CG, AC/S, I+E (EMD) MCB
PO Box 20004
CLNC 28542-0004

PHONE: 910 451 1482

DESTINATION

Land Application Facility Permit No. SR0500106
Speights Chapel Road
Whitakers, NC 27891

PHONE: (252) 443-4083

WASTE DESCRIPTION: Non-Hazardous Petroleum Contaminated Soil

WASTE ORIGINATION: IT site 2018

OSAGE OF VA 757 274 4949

Transporter: P&F Environmental
Truck #: 101
Truck Tag #/State: NC 2B/2254
Driver Name (Print): Greg Pridgen
CDL # NC 38902292

Gross Weight (lbs.): 56420
Tare Weight (lbs.): 23560
Net Weight (lbs.): 32860
Net Weight (tons): 16.43

I hereby certify that the material stated herein was received at the waste origination site listed.

Greg Pridgen 3-6-09
Driver Signature Date

I hereby certify that the material stated herein was delivered without incident to the destination listed.

Greg Pridgen 3-6-09
Driver Signature Date

Inspected and Accepted By: 3-1-09 Jason Pridgen

NOTICE TO TRANSPORTER

TRUCKS WILL NOT BE PERMITTED TO ENTER THE FACILITY WITHOUT THIS ENTRANCE TICKET

WHITE - *Invoice* YELLOW - *Generator* PINK - *Trucker* GOLD - *P & F Environmental*

P & F Environmental

4352 N. Old Carriage Road • Rocky Mount, NC 27804
Phone: (252) 443-4083 • Fax: (252) 443-4104

NON-HAZARDOUS WASTE MANIFEST

APPROVAL #_____ LOAD # 07263

GENERATOR

CG, AC/S, I&E (EmD) MCB
PO Box 20004
CLNC 28542 0004

PHONE: 910 451 1482

DESTINATION

Land Application Facility Permit No. SR0500106
Speights Chapel Road
Whitakers, NC 27891

PHONE: (252) 443-4083

WASTE DESCRIPTION: Non-Hazardous Petroleum Contaminated Soil

WASTE ORIGINATION: Turawa Blvd @ TT site 2018 CLNC 28542
OSABE of VA 757 274 4949

Transporter: P&F Environmental
Truck #: P-105
Truck Tag #/State: NC ZB12254
Driver Name (Print): Franklin Rhodes
CDL # NC 28 06555

Gross Weight (lbs.): 56360
Tare Weight (lbs.): 21600
Net Weight (lbs.): 34760
Net Weight (tons): 17.38

I hereby certify that the material stated herein was received at the waste origination site listed.

Driver Signature 3-6-09 Date

I hereby certify that the material stated herein was delivered without incident to the destination listed.

Driver Signature 3-6-09 Date

Inspected and Accepted By: 3-6-09

NOTICE TO TRANSPORTER

TRUCKS WILL NOT BE PERMITTED TO ENTER THE FACILITY WITHOUT THIS ENTRANCE TICKET

WHITE - *Invoice* YELLOW - *Generator* PINK - *Trucker* GOLD - *P & F Environmental*

P & F Environmental

4352 N. Old Carriage Road • Rocky Mount, NC 27804
Phone: (252) 443-4083 • Fax: (252) 443-4104

NON-HAZARDOUS WASTE MANIFEST

APPROVAL #_____ LOAD # 07349

GENERATOR

CG, AC/S, I&E (CMD) MCB
PO Box 20004
CLNC 28542-0004

PHONE: 910 451 1482

DESTINATION

Land Application Facility Permit No. SR0500106
Speights Chapel Road
Whitakers, NC 27891

PHONE: (252) 443-4083

WASTE DESCRIPTION: Non-Hazardous Petroleum Contaminated Soil

WASTE ORIGINATION: IT site 2018 off Tarawa Blvd @ TT CLNC
USAGE of VA - 757 274-4949

Transporter: P & F Environmental
Truck #: P 101
Truck Tag #/State: ZB 12254 NC
Driver Name (Print): Tim Thorne
CDL # NC 2167392

Gross Weight (lbs.): 58220
Tare Weight (lbs.): 23560
Net Weight (lbs.): 34660
Net Weight (tons): 17.33

I hereby certify that the material stated herein was received at the waste origination site listed.

Tim Thorne 3-24-09
Driver Signature Date

I hereby certify that the material stated herein was delivered without incident to the destination listed.

Tim Thorne 3-24-09
Driver Signature Date

Inspected and Accepted By: 3.24.09 James Priddy

NOTICE TO TRANSPORTER

TRUCKS WILL NOT BE PERMITTED TO ENTER THE FACILITY WITHOUT THIS ENTRANCE TICKET

WHITE - *Invoice* YELLOW - *Generator* PINK - *Trucker* GOLD - *P & F Environmental*

P & F Environmental

4352 N. Old Carriage Road • Rocky Mount, NC 27804
Phone: (252) 443-4083 • Fax: (252) 443-4104

NON-HAZARDOUS WASTE MANIFEST

APPROVAL # _____ **LOAD #** 07350

GENERATOR
CL, AC/S, I+E (EMD) MCB
PO BOX 20004
CLNC 28542-0004

PHONE: 910 451 1482

DESTINATION
Land Application Facility Permit No. SR0500106
Speights Chapel Road
Whitakers, NC 27891

PHONE: (252) 443-4083

WASTE DESCRIPTION: Non-Hazardous Petroleum Contaminated Soil

WASTE ORIGINATION: II 2018 off Tarawa Blvd @TT ~~CLNC~~ CLNC

Transporter: P+F Environmental
Truck #: P 102
Truck Tag #/State: ZB 25821 NC
Driver Name (Print): Bryant Pridgen
CDL # 1406087

Gross Weight (lbs.): 76220
Tare Weight (lbs.): 33420
Net Weight (lbs.): 42800
Net Weight (tons): 21.40

I hereby certify that the material stated herein was received at the waste origination site listed.

Bryant Pridgen 3-24-09
Driver Signature Date

I hereby certify that the material stated herein was delivered without incident to the destination listed.

Bryant Pridgen 3-24-09
Driver Signature Date

Inspected and Accepted By: 3-24-09 Jon Pridgen

NOTICE TO TRANSPORTER

TRUCKS WILL NOT BE PERMITTED TO ENTER THE FACILITY WITHOUT THIS ENTRANCE TICKET

WHITE - *Invoice* YELLOW - *Generator* PINK - *Trucker* GOLD - *P & F Environmental*

APPENDIX E

LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

Shane Chasteen
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

Report Number: G128-2348

Client Project: TT-2018

Dear Shane Chasteen,

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.

4/6/09

Project Manager
Ashley Nifong

Date

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

% soilds = 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: TT2018-TW01
Client Project ID: TT-2018
Lab Sample ID: G128-2348-1A
Lab Project ID: G128-2348

Analyzed By: RSB
Date Collected: 3/31/2009 11:15
Date Received: 3/31/2009
Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.00	0.177	1	4/1/2009	
Diisopropyl ether (DIPE)	BQL	1.00	0.253	1	4/1/2009	
Ethylbenzene	**3.58**	1.00	0.19	1	4/1/2009	
Methyl-tert butyl ether (MTBE)	BQL	2.00	0.306	1	4/1/2009	
Toluene	BQL	1.00	0.313	1	4/1/2009	
m/p-Xylene	**7.94**	2.00	0.481	1	4/1/2009	
o-Xylene	**20.0**	2.00	0.405	1	4/1/2009	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	41.5	104

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

Reviewed By: _____
GC-VOA_WA

Results for Semivolatiles
by GCMS 625

Client Sample ID: TT2018-TW01
Client Project ID: TT-2018
Lab Sample ID: G128-2348-1J
Lab Project ID: G128-2348

Initial/Final Amt: 927 mL / 5.0 mL

Analyzed By: DCS
Date Collected: 3/31/2009 11:15
Date Received: 3/31/2009
Date Extracted: 4/1/2009
Matrix: Water

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	**3.29**	5.39	0.804	1	4/3/2009	J
Acenaphthylene	BQL	5.39	0.804	1	4/3/2009	
Anthracene	BQL	5.39	0.944	1	4/3/2009	
Benzo[a]anthracene	BQL	5.39	0.734	1	4/3/2009	
Benzo[a]pyrene	BQL	5.39	0.685	1	4/3/2009	
Benzo[b]fluoranthene	BQL	5.39	0.771	1	4/3/2009	
Benzo[g,h,i]perylene	BQL	5.39	0.663	1	4/3/2009	
Benzo[k]fluoranthene	BQL	5.39	0.593	1	4/3/2009	
Bis(2-chloroethoxy)methane	BQL	5.39	1.11	1	4/3/2009	
Bis(2-chloroethyl)ether	BQL	5.39	1.12	1	4/3/2009	
Bis(2-chloroisopropyl)ether	BQL	5.39	1.05	1	4/3/2009	
Bis(2-ethylhexyl)phthalate	BQL	5.39	0.442	1	4/3/2009	
4-bromophenyl phenyl ether	BQL	5.39	0.841	1	4/3/2009	
Butylbenzylphthalate	BQL	5.39	0.480	1	4/3/2009	
2-Chloronaphthalene	BQL	5.39	0.933	1	4/3/2009	
2-Chlorophenol	BQL	5.39	1.26	1	4/3/2009	
4-Chloro-3-methylphenol	BQL	5.39	0.858	1	4/3/2009	
4-Chlorophenyl phenyl ether	BQL	5.39	3.51	1	4/3/2009	
Chrysene	BQL	5.39	0.599	1	4/3/2009	
Dibenzo[a,h]anthracene	BQL	5.39	0.475	1	4/3/2009	
Di-n-Butylphthalate	BQL	5.39	0.890	1	4/3/2009	
3,3'-Dichlorobenzidine	BQL	10.8	1.32	1	4/3/2009	
2,4-Dichlorophenol	BQL	5.39	1.21	1	4/3/2009	
Diethylphthalate	BQL	5.39	0.798	1	4/3/2009	
Dimethylphthalate	BQL	5.39	0.599	1	4/3/2009	
2,4-Dimethylphenol	BQL	5.39	1.75	1	4/3/2009	
Di-n-octylphthalate	BQL	5.39	0.626	1	4/3/2009	
4,6-Dinitro-2-methylphenol	BQL	27.0	0.593	1	4/3/2009	
2,4-Dinitrophenol	BQL	27.0	0.690	1	4/3/2009	
2,4-Dinitrotoluene	BQL	5.39	0.577	1	4/3/2009	
2,6-Dinitrotoluene	BQL	5.39	0.701	1	4/3/2009	
Diphenylamine *	BQL	5.39	0.615	1	4/3/2009	
Fluoranthene	BQL	5.39	0.761	1	4/3/2009	
Fluorene	**5.12**	5.39	0.782	1	4/3/2009	J
Hexachlorobenzene	BQL	5.39	0.545	1	4/3/2009	
Hexachlorobutadiene	BQL	5.39	0.820	1	4/3/2009	
Hexachlorocyclopentadiene	BQL	10.8	10.8	1	4/3/2009	
Hexachloroethane	BQL	5.39	0.804	1	4/3/2009	
Indeno(1,2,3-c,d)pyrene	BQL	5.39	2.46	1	4/3/2009	
Isophorone	BQL	5.39	0.955	1	4/3/2009	
Naphthalene	**18.0**	5.39	0.982	1	4/3/2009	
Nitrobenzene	BQL	5.39	1.13	1	4/3/2009	
2-Nitrophenol	BQL	5.39	1.33	1	4/3/2009	
4-Nitrophenol	BQL	27.0	1.17	1	4/3/2009	
N-Nitrosodi-n-propylamine	BQL	5.39	1.62	1	4/3/2009	
Pentachlorophenol	BQL	27.0	1.53	1	4/3/2009	
Phenanthrene	**4.15**	5.39	0.480	1	4/3/2009	J

Results for Semivolatiles
by GCMS 625

Client Sample ID: TT2018-TW01
Client Project ID: TT-2018
Lab Sample ID: G128-2348-1J
Lab Project ID: G128-2348

Initial/Final Amt: 927 mL / 5.0 mL

Analyzed By: DCS
Date Collected: 3/31/2009 11:15
Date Received: 3/31/2009
Date Extracted: 4/1/2009
Matrix: Water

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Phenol	BQL	5.39	1.14	1	4/3/2009	
Pyrene	BQL	5.39	2.23	1	4/3/2009	
1,2,4-Trichlorobenzene	BQL	5.39	0.777	1	4/3/2009	
2,4,6-Trichlorophenol	BQL	5.39	0.998	1	4/3/2009	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.3	83
2-Fluorophenol	10	7.9	79
Nitrobenzene-d5	10	8.6	86
Phenol-d6	10	8.4	84
2,4,6-Tribromophenol	10	9.7	97
4-Terphenyl-d14	10	9	90

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

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

Reviewed By: 

Results of Library Search for Semivolatile Compounds

by GCMS

Client Sample ID: TT2018-TW01
Client Project ID: TT-2018
Lab Sample ID: G128-2348-1J
Lab Project ID: G128-2348
Sample Wt/Vol: 927 ML
Dilution: 1

Analyzed By: DES
Date Collected: 3/31/2009 11:15
Date Received: 3/31/2009
Date Extracted: 4/1/2009
Date Analyzed: 4/3/2009
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result ug/L
1	Naphthalene, 1,6-dimethyl-	6.48	575-43-9	93	46.1
2	Benzene, 1,2,3-trimethyl-	3.94	526-73-8	95	37.6
3	Naphthalene, 2,3-dimethyl-	6.55	581-40-8	98	32.6
4	Propenylbenzene, Isomer of	4.83			32.3
5	Naphthalene, 2,7-dimethyl-	6.58	582-16-1	97	25.9
6	Benzene, 1-ethyl-2,4-dimethyl-	4.16	874-41-9	93	21.1

Comment:

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

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

Reviewed by: _____

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Richard Catlin & Associates

Project Name: TT-2018

Sample Information	
Sample Identification	TT2018-TW01
Sample Matrix	Water
Collection Option (for Soil)*	NA
Date Collected	03/31/09 11:15
Date Received	03/31/09
Date Extracted	04/01/09 18:35 - 04/01/09 18:35
Date Analyzed	04/01/09 18:35 - 04/01/09 18:35
Dry Weight	NA
Dilution Factor	1 - 1

Analytical Results			
Analyte	Result µg/L	Report Limit µg/L	Flags
C_5-C_8 Aliphatics**	BQL	100	
C_9-C_{12} Aliphatics**	157	100	
C_9-C_{10} Aromatics**	534	100	

	Percent Recovery	Flags	Limits Lower	Limits Upper
Surrogate % Recovery - PID	112		70	130
Surrogate % Recovery - FID	111		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: g128-2348-1b	Lab Info: g128-2348-1b
FID Info: VP040109/024F0101.D	PID Info: VP040109/024R0101.D

Reviewed By: [signature]

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 03/28/09 PID Initial Calibration Date: 03/28/09

Calibration Ranges and Limits

Range	MDL (µg/L)	MDL (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (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	7.11	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{12} Aliphatics	10	0.8	0.99	Linear Regression
	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{10} Aromatics	10	0.8	11.28	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 04/01/09 Filename: VP040109/002F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	-21.0 ✓	±25%
C_9-C_{12} Aliphatics	200	16	-15.2 ✓	±25%
C_9-C_{10} Aromatics	200	16	-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 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 03/28/09 PID Initial Calibration Date: 03/28/09

Calibration Ranges and Limits

Range	MDL (µg/L)	MDL (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (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	7.11	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{12} Aliphatics	10	0.8	0.99	Linear Regression
	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{10} Aromatics	10	0.8	11.28	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 04/01/09 Filename: VP040109/031F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	-21.9 ✓	±25%
C_9-C_{12} Aliphatics	200	16	-6.7 ✓	±25%
C_9-C_{10} Aromatics	200	16	8.0 ✓	±25%

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Richard Catlin & Associates

Project Name: TT-2018

Sample Information	
Sample Identification	TT2018-TW01
Sample Matrix	Water
Date Collected	03/31/09 11:15
Date Received	03/31/09
Date Extracted	04/01/09
Date Analyzed	04/02/09 17:39 - 04/02/09 18:07
Dry Weight	NA
Dilution Factor	1 - 1
Initial Volume (mL)	949
Final Volume (mL)	5.0

Analytical Results			
Analytes**	Result µg/L	Report Limit µg/L	Flags
C9-C18 Aliphatics	342	100	
C19-C36 Aliphatics	BQL	100	
C11-C22 Aromatics	619	100	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (tricosane)	98.8		40	140
Aromatic (ortho-terphenyl)	92.9		40	140
Fractionation 1 (2-bromonaphthalene)	89.2		40	140
Fractionation 2 (2-fluorobiphenyl)	88.8		40	140

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

Lab Info: G128-2348-1L	Lab Info: G128-2348-1L
Aliphatic: EP040209/015F0801.D	Aromatic: EP040209/016F0901.D

Reviewed By: [signature]

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 02/24/09

Calibration Ranges and Limits

Range	MDL (02/15/08) (µg/L)	MDL (02/11/08) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (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	6.70	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	4.67	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	2.55	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 04/02/09 / 04/02/09

Filenames: ep040209/001f0401.d / ep040209/002f0501.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	4.5 ✓	≤±25%
C19-C36 Aliphatics	100	16.7	3.6 ✓	≤±25%
C11-C22 Aromatics	100	16.7	8.3 ✓	≤±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: 02/24/09

Calibration Ranges and Limits

Range	MDL (02/15/08) (µg/L)	MDL (02/11/08) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (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	6.70	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	4.67	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	2.55	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 04/02/09, 04/03/09

Filenames: ep040209/033f2601.d, ep040209/034f2701.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	10.9 ✓	≤±25%
C19-C36 Aliphatics	100	16.7	10.8 ✓	≤±25%
C11-C22 Aromatics	100	16.7	9.6 ✓	≤±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

SGS Environmental Services Inc.
CHAIN OF CUSTODY RECORD

Locations Nationwide
- Alaska
- New Jersey
- North Carolina
- West Virginia
- Maryland
- New York
- Ohio

www.us.sgs.com

(1)
CLIENT: CATLIN
CONTACT: Shane Chasteen PHONE NO:
PROJECT: TT-2018 SITE/PWSID#: 209-022
REPORTS TO: Shane Chasteen EMAIL:
INVOICE TO: Shelia @ Catlin QUOTE #: DOD 101
P.O. #: 290331-6

SGS Reference #: 6128-2348

page 1 of 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE C= COMP G= GRAB MI= Multi Incremental Samples	Preservatives Used	HCL	–	HCL	HCL						REMARKS/ LOC ID
							Analysis Required (3)	EPA 602	EPA 625 BNA+ TICs	MADEP VPH	MADEP EPH						
1	TT2018-TW01	3/31/09	1115	W	9	G		✓	✓	✓	✓						* Report Low Rmr
																	* Summary EDD Format
																	* 1 week turnaround

(5)

	Date	Time	
Collected/Relinquished By:(1)	3/31/09	1555	Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	3/31/09	1555	Received For Laboratory By:

(4)

DOD Project? YES NO

Cooler ID _____

Special Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions:

1-week turnaround

Samples Received Cold? (YES) NO

Cooler TB

Temperature °C: 4.4c. _____

Chain of Custody Seal: (Circle)

INTACT BROKEN (ABSENT)

SGS

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

Report Number: G649-119

Client Project: CTO 005

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.

Ashley Nifong 3/2/09

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

% soilds = 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 Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: TT2018-S001
Client Project ID: CTO 005
Lab Sample ID: G649-119-1D
Lab Project ID: G649-119

Date Collected: 2/26/2009 17:45
Date Received: 2/27/2009
Matrix: Soil
Solids 81.10
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.68	mg/Kg	1	02/28/09 16:02

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	29.6	73.9

Comments:

Batch Information

Analytical Batch: EP022809
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13763
Prep Method: 3541
Prep Date: 02/27/09
Initial Prep Wt/Vol: 32.13 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____
DRO

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: TT2018-S002
Client Project ID: CTO 005
Lab Sample ID: G649-119-2D
Lab Project ID: G649-119

Date Collected: 2/26/2009 17:41
Date Received: 2/27/2009
Matrix: Soil
Solids 75.93
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.63	mg/Kg	1	02/28/09 16:30

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	32	80

Comments:

Batch Information

Analytical Batch: EP022809
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13763
Prep Method: 3541
Prep Date: 02/27/09
Initial Prep Wt/Vol: 34.52 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____ DRO

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: TT2018-S003
Client Project ID: CTO 005
Lab Sample ID: G649-119-3D
Lab Project ID: G649-119

Date Collected: 2/26/2009 17:38
Date Received: 2/27/2009
Matrix: Soil
Solids 78.28
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	8.25	mg/Kg	1	02/28/09 16:59

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	32.4	80.9

Comments:

Batch Information

Analytical Batch: EP022809
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13763
Prep Method: 3541
Prep Date: 02/27/09
Initial Prep Wt/Vol: 30.96 G
Prep Final Vol: 10 mL

Analyst: _____ NC Certification #481 Reviewed By: _____ DRO

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: TT2018-S004
Client Project ID: CTO 005
Lab Sample ID: G649-119-4D
Lab Project ID: G649-119

Date Collected: 2/26/2009 17:35
Date Received: 2/27/2009
Matrix: Soil
Solids 80.25
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.56	mg/Kg	1	02/28/09 17:28

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	32	80

Comments:

Batch Information

Analytical Batch: EP022809
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13763
Prep Method: 3541
Prep Date: 02/27/09
Initial Prep Wt/Vol: 32.96 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____
DRO

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: TT2018-S005
Client Project ID: CTO 005
Lab Sample ID: G649-119-5D
Lab Project ID: G649-119

Date Collected: 2/26/2009 17:30
Date Received: 2/27/2009
Matrix: Soil
Solids 84.68
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**1280**	72.7	mg/Kg	10	03/01/09 14:52

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	NA	NA

Comments:

Batch Information

Analytical Batch: EP030109
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13763
Prep Method: 3541
Prep Date: 02/27/09
Initial Prep Wt/Vol: 32.5 G
Prep Final Vol: 10 mL

Analyst: _____

NC Certification #481

Reviewed By: _____ DRO

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: TT2018-S001
Client Project ID: CTO 005
Lab Sample ID: G649-119-1A
Lab Project ID: G649-119
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 2/26/2009 17:45
Date Received: 2/27/2009
Matrix: Soil
Solids 81.10

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.40	mg/Kg	1	02/27/09 12:52

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	102	102		70-130

Comments:

Batch Information

Analytical Batch: VP022709
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 5.78 g
Final Volume: 5 mL

Analyst: DVG

NC Certification #481

Reviewed By: GRO

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: TT2018-S002
Client Project ID: CTO 005
Lab Sample ID: G649-119-2A
Lab Project ID: G649-119
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 2/26/2009 17:41
Date Received: 2/27/2009
Matrix: Soil
Solids 75.93

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.02	mg/Kg	1	02/27/09 14:13

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	96	95.9		70-130

Comments:

Batch Information

Analytical Batch: VP022709
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 6.56 g
Final Volume: 5 mL

Analyst: DVG

NC Certification #481

Reviewed By: GRO

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: TT2018-S003
Client Project ID: CTO 005
Lab Sample ID: G649-119-3A
Lab Project ID: G649-119
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 2/26/2009 17:38
Date Received: 2/27/2009
Matrix: Soil
Solids 78.28

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.11	mg/Kg	1	02/27/09 15:07

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	93	93.5		70-130

Comments:

Batch Information

Analytical Batch: VP022709
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 6.27 g
Final Volume: 5 mL

Analyst: DVG

NC Certification #481

Reviewed By: GRO

Results for Total Petroleum Hydrocarbons
by **GC/FID 8015**

Client Sample ID:	TT2018-S004	Analyzed By:	DVG
Client Project ID:	CTO 005	Date Collected:	2/26/2009 17:35
Lab Sample ID:	G649-119-4A	Date Received:	2/27/2009
Lab Project ID:	G649-119	Matrix:	Soil
Report Basis:	Dry Weight	Solids	80.25

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.27	mg/Kg	1	02/27/09 15:33

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	102	102		70-130

Comments:

Batch Information

Analytical Batch:	VP022709	Prep Method:	5035
Analytical Method:	8015	Initial Wt/Vol:	5.96 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	DVG		

Analyst: DVG

NC Certification #481

Reviewed By: GRO

Results for Total Petroleum Hydrocarbons
by **GC/FID 8015**

Client Sample ID: TT2018-S005
Client Project ID: CTO 005
Lab Sample ID: G649-119-5A
Lab Project ID: G649-119
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 2/26/2009 17:30
Date Received: 2/27/2009
Matrix: Soil
Solids 84.68

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.51	mg/Kg	1	02/27/09 16:00

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	100	99.9		70-130

Comments:

Batch Information

Analytical Batch: VP022709
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 6.43 g
Final Volume: 5 mL

Analyst: DVG

NC Certification #481

Reviewed By: GRO

Results for Total Petroleum Hydrocarbons
by **GC/FID 8015**

Client Sample ID:	Trip Blank	Analyzed By:	DVG
Client Project ID:	CTO 005	Date Collected:	2/26/2009 9:00
Lab Sample ID:	G649-119-6A	Date Received:	2/27/2009
Lab Project ID:	G649-119	Matrix:	Soil
Report Basis:	Dry Weight	Solids	100.00

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.00	mg/Kg	1	02/27/09 11:33

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	95	94.9		70-130

Comments:

Batch Information

Analytical Batch:	VP022709	Prep Method:	5035
Analytical Method:	8015	Initial Wt/Vol:	5 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	DVG		

Analyst: DVG

NC Certification #481

Reviewed By: GRO

SGS

CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

Locations Nationwide
- Alaska
- Hawaii
- Ohio
- Maryland
- New Jersey
- North Carolina
- West Virginia

www.us.sgs.com

G1649-119

090442

(1)

CLIENT: OSAGE of VIRGINIA

CONTACT: THERESA TELLERMAN PHONE NO:(757) 274-4949

PROJECT: CTO 005 SITE/PWSID#: TT2018

REPORTS TO: Shaun Whitworth E-MAIL:

FAX NO.:(757) 440-0111

INVOICE TO: Mike Cree QUOTE #

P.O. NUMBER CTO 005

SGS Reference:

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used	None	Methanol	Analysis Required (3) TPH DRO	TPH GRO	REMARKS
	TT2018-S001	2/26/09	1745	S	3					x	x	
	TT2018-S002	2/26/09	1741	S	3					x	x	
	TT2018-S003	2/26/09	1738	S	3					x	x	
	TT2018-S004	2/26/09	1735	S	3					x	x	
	TT2018-S005	2/26/09	1730	S	3					x	x	
	TRIP BLANK	2/26/09	0700	—	1						x	

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:	Date	Time
	2/27/09			2/27/09	845
Relinquished By: (2)	Date	Time	Received By:	Date	Time
	2/27/09	9:25		2/27/09	0925
Relinquished By: (3)	Date	Time	Received By:	Date	Time
Relinquished By: (4)	Date	Time	Received By:	Date	Time

(4)

Shipping Carrier: Hand Delivery

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature IC: 2.5°C T: _____

Special Deliverable Requirements: EDD

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions: Email results: swhitworth@osageva.com tellerman@osageva.com

Requested Turnaround Time:

☒ RUSH 24 HR (Date Needed) ☐ STD

SGS

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

Report Number: G649-125

Client Project: CTO 005

Dear Mr. 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 will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

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

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

Sincerely,
SGS Environmental Services, Inc.

3/11/09

Project Manager
Lori Lockamy

Date

Case Narrative
Osage of Virginia
SGS Project: **G649-125**
Project Name: **CTO 005**

SGS Environmental Services Inc.

March 11, 2009

- Four soil samples and a trip blank were accepted into the laboratory on March 6, 2009 at 1600 for analyses as indicated on the chain of custody. The samples were received in good condition, with a temperature of 6.0°C.
- All extractions and analyses were completed within holding time limits, with the following quality control exceptions.

8260 Analysis

- Chloroethane did not pass quality control criteria in the initial instrument calibration and recovered below acceptance criteria in the associated LCS and LCSD. Therefore, Chloroethane has been removed for the reportable target analyte list. However, this compound was not detected in the associated samples.

Data Review _____ Date 11 MAR 09

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

% soilds = 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.

MI34.021808.4

SGS Environmental Services, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: TT2018-S006
Client Project ID: CTO 005
Lab Sample ID G649-125-1A
Lab Project ID: G649-125
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 03-06-2009 08:40
Date Received: 3/6/2009
Matrix: Soil
Sample Amount: 4.28 g
%Solids: 91.8

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	63.6	1	3/9/2009
Benzene	BQL	6.36	1	3/9/2009
Bromobenzene	BQL	6.36	1	3/9/2009
Bromochloromethane	BQL	6.36	1	3/9/2009
Bromodichloromethane	BQL	6.36	1	3/9/2009
Bromoform	BQL	6.36	1	3/9/2009
Bromomethane	BQL	6.36	1	3/9/2009
2-Butanone	BQL	31.8	1	3/9/2009
n-Butylbenzene	BQL	6.36	1	3/9/2009
sec-Butylbenzene	BQL	6.36	1	3/9/2009
tert-Butylbenzene	BQL	6.36	1	3/9/2009
Carbon disulfide	BQL	6.36	1	3/9/2009
Carbon tetrachloride	BQL	6.36	1	3/9/2009
Chlorobenzene	BQL	6.36	1	3/9/2009
Chloroform	BQL	6.36	1	3/9/2009
Chloromethane	BQL	6.36	1	3/9/2009
2-Chlorotoluene	BQL	6.36	1	3/9/2009
4-Chlorotoluene	BQL	6.36	1	3/9/2009
Dibromochloromethane	BQL	6.36	1	3/9/2009
1,2-Dibromo-3-chloropropane	BQL	31.8	1	3/9/2009
Dibromomethane	BQL	6.36	1	3/9/2009
1,2-Dibromoethane (EDB)	BQL	6.36	1	3/9/2009
1,2-Dichlorobenzene	BQL	6.36	1	3/9/2009
1,3-Dichlorobenzene	BQL	6.36	1	3/9/2009
1,4-Dichlorobenzene	BQL	6.36	1	3/9/2009
trans-1,4-Dichloro-2-butene	BQL	31.8	1	3/9/2009
1,1-Dichloroethane	BQL	6.36	1	3/9/2009
1,1-Dichloroethene	BQL	6.36	1	3/9/2009
1,2-Dichloroethane	BQL	6.36	1	3/9/2009
cis-1,2-Dichloroethene	BQL	6.36	1	3/9/2009
trans-1,2-dichloroethene	BQL	6.36	1	3/9/2009
1,2-Dichloropropane	BQL	6.36	1	3/9/2009
1,3-Dichloropropane	BQL	6.36	1	3/9/2009
2,2-Dichloropropane	BQL	6.36	1	3/9/2009
1,1-Dichloropropene	BQL	6.36	1	3/9/2009
cis-1,3-Dichloropropene	BQL	6.36	1	3/9/2009
trans-1,3-Dichloropropene	BQL	6.36	1	3/9/2009
Dichlorodifluoromethane	BQL	6.36	1	3/9/2009
Diisopropyl ether (DIPE)	BQL	6.36	1	3/9/2009
Ethylbenzene	BQL	6.36	1	3/9/2009
Hexachlorobutadiene	BQL	6.36	1	3/9/2009
2-Hexanone	BQL	15.9	1	3/9/2009
Iodomethane	BQL	6.36	1	3/9/2009
Isopropylbenzene	BQL	6.36	1	3/9/2009

SGS Environmental Services, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: TT2018-S006
Client Project ID: CTO 005
Lab Sample ID G649-125-1A
Lab Project ID: G649-125
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 03-06-2009 08:40
Date Received: 3/6/2009
Matrix: Soil
Sample Amount: 4.28 g
%Solids: 91.8

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
4-Isopropyltoluene	BQL	6.36	1	3/9/2009
Methylene chloride	BQL	25.4	1	3/9/2009
4-Methyl-2-pentanone	BQL	15.9	1	3/9/2009
Methyl-tert-butyl ether (MTBE)	BQL	6.36	1	3/9/2009
Naphthalene	BQL	6.36	1	3/9/2009
n-Propyl benzene	BQL	6.36	1	3/9/2009
Styrene	BQL	6.36	1	3/9/2009
1,1,1,2-Tetrachloroethane	BQL	6.36	1	3/9/2009
1,1,2,2-Tetrachloroethane	BQL	6.36	1	3/9/2009
Tetrachloroethene	BQL	6.36	1	3/9/2009
Toluene	BQL	6.36	1	3/9/2009
1,2,3-Trichlorobenzene	BQL	6.36	1	3/9/2009
1,2,4-Trichlorobenzene	BQL	6.36	1	3/9/2009
Trichloroethene	BQL	6.36	1	3/9/2009
1,1,1-Trichloroethane	BQL	6.36	1	3/9/2009
1,1,2-Trichloroethane	BQL	6.36	1	3/9/2009
Trichlorofluoromethane	BQL	6.36	1	3/9/2009
1,2,3-Trichloropropane	BQL	6.36	1	3/9/2009
1,2,4-Trimethylbenzene	BQL	6.36	1	3/9/2009
1,3,5-Trimethylbenzene	BQL	6.36	1	3/9/2009
Vinyl chloride	BQL	6.36	1	3/9/2009
m-,p-Xylene	BQL	12.7	1	3/9/2009
o-Xylene	BQL	6.36	1	3/9/2009

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	59.9	120
Toluene-d8	50	52	104
4-Bromofluorobenzene	50	48.1	96

Comments:

Flags:
BQL = Below Quantitation Limits.

Analyst: _____

Reviewed By: _____

SGS Environmental Services, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: TT2018-S007
Client Project ID: CTO 005
Lab Sample ID G649-125-2B
Lab Project ID: G649-125
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 03-06-2009 08:44
Date Received: 3/6/2009
Matrix: Soil
Sample Amount: 4.86 g
%Solids: 94.6

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	54.4	1	3/9/2009
Benzene	BQL	5.44	1	3/9/2009
Bromobenzene	BQL	5.44	1	3/9/2009
Bromochloromethane	BQL	5.44	1	3/9/2009
Bromodichloromethane	BQL	5.44	1	3/9/2009
Bromoform	BQL	5.44	1	3/9/2009
Bromomethane	BQL	5.44	1	3/9/2009
2-Butanone	BQL	27.2	1	3/9/2009
n-Butylbenzene	BQL	5.44	1	3/9/2009
sec-Butylbenzene	BQL	5.44	1	3/9/2009
tert-Butylbenzene	BQL	5.44	1	3/9/2009
Carbon disulfide	BQL	5.44	1	3/9/2009
Carbon tetrachloride	BQL	5.44	1	3/9/2009
Chlorobenzene	BQL	5.44	1	3/9/2009
Chloroform	BQL	5.44	1	3/9/2009
Chloromethane	BQL	5.44	1	3/9/2009
2-Chlorotoluene	BQL	5.44	1	3/9/2009
4-Chlorotoluene	BQL	5.44	1	3/9/2009
Dibromochloromethane	BQL	5.44	1	3/9/2009
1,2-Dibromo-3-chloropropane	BQL	27.2	1	3/9/2009
Dibromomethane	BQL	5.44	1	3/9/2009
1,2-Dibromoethane (EDB)	BQL	5.44	1	3/9/2009
1,2-Dichlorobenzene	BQL	5.44	1	3/9/2009
1,3-Dichlorobenzene	BQL	5.44	1	3/9/2009
1,4-Dichlorobenzene	BQL	5.44	1	3/9/2009
trans-1,4-Dichloro-2-butene	BQL	27.2	1	3/9/2009
1,1-Dichloroethane	BQL	5.44	1	3/9/2009
1,1-Dichloroethene	BQL	5.44	1	3/9/2009
1,2-Dichloroethane	BQL	5.44	1	3/9/2009
cis-1,2-Dichloroethene	BQL	5.44	1	3/9/2009
trans-1,2-dichloroethene	BQL	5.44	1	3/9/2009
1,2-Dichloropropane	BQL	5.44	1	3/9/2009
1,3-Dichloropropane	BQL	5.44	1	3/9/2009
2,2-Dichloropropane	BQL	5.44	1	3/9/2009
1,1-Dichloropropene	BQL	5.44	1	3/9/2009
cis-1,3-Dichloropropene	BQL	5.44	1	3/9/2009
trans-1,3-Dichloropropene	BQL	5.44	1	3/9/2009
Dichlorodifluoromethane	BQL	5.44	1	3/9/2009
Diisopropyl ether (DIPE)	BQL	5.44	1	3/9/2009
Ethylbenzene	BQL	5.44	1	3/9/2009
Hexachlorobutadiene	BQL	5.44	1	3/9/2009
2-Hexanone	BQL	13.6	1	3/9/2009
Iodomethane	BQL	5.44	1	3/9/2009
Isopropylbenzene	BQL	5.44	1	3/9/2009

SGS Environmental Services, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: TT2018-S007
Client Project ID: CTO 005
Lab Sample ID G649-125-2B
Lab Project ID: G649-125
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 03-06-2009 08:44
Date Received: 3/6/2009
Matrix: Soil
Sample Amount: 4.86 g
%Solids: 94.6

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
4-Isopropyltoluene	BQL	5.44	1	3/9/2009
Methylene chloride	BQL	21.7	1	3/9/2009
4-Methyl-2-pentanone	BQL	13.6	1	3/9/2009
Methyl-tert-butyl ether (MTBE)	BQL	5.44	1	3/9/2009
Naphthalene	BQL	5.44	1	3/9/2009
n-Propyl benzene	BQL	5.44	1	3/9/2009
Styrene	BQL	5.44	1	3/9/2009
1,1,1,2-Tetrachloroethane	BQL	5.44	1	3/9/2009
1,1,2,2-Tetrachloroethane	BQL	5.44	1	3/9/2009
Tetrachloroethene	BQL	5.44	1	3/9/2009
Toluene	BQL	5.44	1	3/9/2009
1,2,3-Trichlorobenzene	BQL	5.44	1	3/9/2009
1,2,4-Trichlorobenzene	BQL	5.44	1	3/9/2009
Trichloroethene	BQL	5.44	1	3/9/2009
1,1,1-Trichloroethane	BQL	5.44	1	3/9/2009
1,1,2-Trichloroethane	BQL	5.44	1	3/9/2009
Trichlorofluoromethane	BQL	5.44	1	3/9/2009
1,2,3-Trichloropropane	BQL	5.44	1	3/9/2009
1,2,4-Trimethylbenzene	BQL	5.44	1	3/9/2009
1,3,5-Trimethylbenzene	BQL	5.44	1	3/9/2009
Vinyl chloride	BQL	5.44	1	3/9/2009
m-,p-Xylene	BQL	10.9	1	3/9/2009
o-Xylene	BQL	5.44	1	3/9/2009

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	59.6	119
Toluene-d8	50	51.7	103
4-Bromofluorobenzene	50	48.9	98

Comments:

Flags:
BQL = Below Quantitation Limits.

Analyst: _____

Reviewed By: _____

SGS Environmental Services, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: TT2018-S008
Client Project ID: CTO 005
Lab Sample ID G649-125-3B
Lab Project ID: G649-125
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 03-06-2009 08:50
Date Received: 3/6/2009
Matrix: Soil
Sample Amount: 5.23 g
%Solids: 97.1

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	49.1	1	3/9/2009
Benzene	BQL	4.91	1	3/9/2009
Bromobenzene	BQL	4.91	1	3/9/2009
Bromochloromethane	BQL	4.91	1	3/9/2009
Bromodichloromethane	BQL	4.91	1	3/9/2009
Bromoform	BQL	4.91	1	3/9/2009
Bromomethane	BQL	4.91	1	3/9/2009
2-Butanone	BQL	24.6	1	3/9/2009
n-Butylbenzene	BQL	4.91	1	3/9/2009
sec-Butylbenzene	BQL	4.91	1	3/9/2009
tert-Butylbenzene	BQL	4.91	1	3/9/2009
Carbon disulfide	BQL	4.91	1	3/9/2009
Carbon tetrachloride	BQL	4.91	1	3/9/2009
Chlorobenzene	BQL	4.91	1	3/9/2009
Chloroform	BQL	4.91	1	3/9/2009
Chloromethane	BQL	4.91	1	3/9/2009
2-Chlorotoluene	BQL	4.91	1	3/9/2009
4-Chlorotoluene	BQL	4.91	1	3/9/2009
Dibromochloromethane	BQL	4.91	1	3/9/2009
1,2-Dibromo-3-chloropropane	BQL	24.6	1	3/9/2009
Dibromomethane	BQL	4.91	1	3/9/2009
1,2-Dibromoethane (EDB)	BQL	4.91	1	3/9/2009
1,2-Dichlorobenzene	BQL	4.91	1	3/9/2009
1,3-Dichlorobenzene	BQL	4.91	1	3/9/2009
1,4-Dichlorobenzene	BQL	4.91	1	3/9/2009
trans-1,4-Dichloro-2-butene	BQL	24.6	1	3/9/2009
1,1-Dichloroethane	BQL	4.91	1	3/9/2009
1,1-Dichloroethene	BQL	4.91	1	3/9/2009
1,2-Dichloroethane	BQL	4.91	1	3/9/2009
cis-1,2-Dichloroethene	BQL	4.91	1	3/9/2009
trans-1,2-dichloroethene	BQL	4.91	1	3/9/2009
1,2-Dichloropropane	BQL	4.91	1	3/9/2009
1,3-Dichloropropane	BQL	4.91	1	3/9/2009
2,2-Dichloropropane	BQL	4.91	1	3/9/2009
1,1-Dichloropropene	BQL	4.91	1	3/9/2009
cis-1,3-Dichloropropene	BQL	4.91	1	3/9/2009
trans-1,3-Dichloropropene	BQL	4.91	1	3/9/2009
Dichlorodifluoromethane	BQL	4.91	1	3/9/2009
Diisopropyl ether (DIPE)	BQL	4.91	1	3/9/2009
Ethylbenzene	BQL	4.91	1	3/9/2009
Hexachlorobutadiene	BQL	4.91	1	3/9/2009
2-Hexanone	BQL	12.3	1	3/9/2009
Iodomethane	BQL	4.91	1	3/9/2009
Isopropylbenzene	BQL	4.91	1	3/9/2009

SGS Environmental Services, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: TT2018-S008
Client Project ID: CTO 005
Lab Sample ID G649-125-3B
Lab Project ID: G649-125
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 03-06-2009 08:50
Date Received: 3/6/2009
Matrix: Soil
Sample Amount: 5.23 g
%Solids: 97.1

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
4-Isopropyltoluene	BQL	4.91	1	3/9/2009
Methylene chloride	BQL	19.6	1	3/9/2009
4-Methyl-2-pentanone	BQL	12.3	1	3/9/2009
Methyl-tert-butyl ether (MTBE)	BQL	4.91	1	3/9/2009
Naphthalene	BQL	4.91	1	3/9/2009
n-Propyl benzene	BQL	4.91	1	3/9/2009
Styrene	BQL	4.91	1	3/9/2009
1,1,1,2-Tetrachloroethane	BQL	4.91	1	3/9/2009
1,1,2,2-Tetrachloroethane	BQL	4.91	1	3/9/2009
Tetrachloroethene	BQL	4.91	1	3/9/2009
Toluene	BQL	4.91	1	3/9/2009
1,2,3-Trichlorobenzene	BQL	4.91	1	3/9/2009
1,2,4-Trichlorobenzene	BQL	4.91	1	3/9/2009
Trichloroethene	BQL	4.91	1	3/9/2009
1,1,1-Trichloroethane	BQL	4.91	1	3/9/2009
1,1,2-Trichloroethane	BQL	4.91	1	3/9/2009
Trichlorofluoromethane	BQL	4.91	1	3/9/2009
1,2,3-Trichloropropane	BQL	4.91	1	3/9/2009
1,2,4-Trimethylbenzene	BQL	4.91	1	3/9/2009
1,3,5-Trimethylbenzene	BQL	4.91	1	3/9/2009
Vinyl chloride	BQL	4.91	1	3/9/2009
m-,p-Xylene	BQL	9.82	1	3/9/2009
o-Xylene	BQL	4.91	1	3/9/2009

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	58.8	118
Toluene-d8	50	49.9	100
4-Bromofluorobenzene	50	48.6	97

Comments:

Flags:
BQL = Below Quantitation Limits.

Analyst: _____

Reviewed By: _____

SGS Environmental Services, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: TT2018-S009
Client Project ID: CTO 005
Lab Sample ID G649-125-4A
Lab Project ID: G649-125
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 03-06-2009 09:09
Date Received: 3/6/2009
Matrix: Soil
Sample Amount: 5.48 g
%Solids: 90.4

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	50.4	1	3/9/2009
Benzene	BQL	5.04	1	3/9/2009
Bromobenzene	BQL	5.04	1	3/9/2009
Bromochloromethane	BQL	5.04	1	3/9/2009
Bromodichloromethane	BQL	5.04	1	3/9/2009
Bromoform	BQL	5.04	1	3/9/2009
Bromomethane	BQL	5.04	1	3/9/2009
2-Butanone	BQL	25.2	1	3/9/2009
n-Butylbenzene	BQL	5.04	1	3/9/2009
sec-Butylbenzene	BQL	5.04	1	3/9/2009
tert-Butylbenzene	BQL	5.04	1	3/9/2009
Carbon disulfide	BQL	5.04	1	3/9/2009
Carbon tetrachloride	BQL	5.04	1	3/9/2009
Chlorobenzene	BQL	5.04	1	3/9/2009
Chloroform	BQL	5.04	1	3/9/2009
Chloromethane	BQL	5.04	1	3/9/2009
2-Chlorotoluene	BQL	5.04	1	3/9/2009
4-Chlorotoluene	BQL	5.04	1	3/9/2009
Dibromochloromethane	BQL	5.04	1	3/9/2009
1,2-Dibromo-3-chloropropane	BQL	25.2	1	3/9/2009
Dibromomethane	BQL	5.04	1	3/9/2009
1,2-Dibromoethane (EDB)	BQL	5.04	1	3/9/2009
1,2-Dichlorobenzene	BQL	5.04	1	3/9/2009
1,3-Dichlorobenzene	BQL	5.04	1	3/9/2009
1,4-Dichlorobenzene	BQL	5.04	1	3/9/2009
trans-1,4-Dichloro-2-butene	BQL	25.2	1	3/9/2009
1,1-Dichloroethane	BQL	5.04	1	3/9/2009
1,1-Dichloroethene	BQL	5.04	1	3/9/2009
1,2-Dichloroethane	BQL	5.04	1	3/9/2009
cis-1,2-Dichloroethene	BQL	5.04	1	3/9/2009
trans-1,2-dichloroethene	BQL	5.04	1	3/9/2009
1,2-Dichloropropane	BQL	5.04	1	3/9/2009
1,3-Dichloropropane	BQL	5.04	1	3/9/2009
2,2-Dichloropropane	BQL	5.04	1	3/9/2009
1,1-Dichloropropene	BQL	5.04	1	3/9/2009
cis-1,3-Dichloropropene	BQL	5.04	1	3/9/2009
trans-1,3-Dichloropropene	BQL	5.04	1	3/9/2009
Dichlorodifluoromethane	BQL	5.04	1	3/9/2009
Diisopropyl ether (DIPE)	BQL	5.04	1	3/9/2009
Ethylbenzene	BQL	5.04	1	3/9/2009
Hexachlorobutadiene	BQL	5.04	1	3/9/2009
2-Hexanone	BQL	12.6	1	3/9/2009
Iodomethane	BQL	5.04	1	3/9/2009
Isopropylbenzene	BQL	5.04	1	3/9/2009

SGS Environmental Services, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: TT2018-S009
Client Project ID: CTO 005
Lab Sample ID G649-125-4A
Lab Project ID: G649-125
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 03-06-2009 09:09
Date Received: 3/6/2009
Matrix: Soil
Sample Amount: 5.48 g
%Solids: 90.4

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
4-Isopropyltoluene	BQL	5.04	1	3/9/2009
Methylene chloride	BQL	20.2	1	3/9/2009
4-Methyl-2-pentanone	BQL	12.6	1	3/9/2009
Methyl-tert-butyl ether (MTBE)	BQL	5.04	1	3/9/2009
Naphthalene	BQL	5.04	1	3/9/2009
n-Propyl benzene	BQL	5.04	1	3/9/2009
Styrene	BQL	5.04	1	3/9/2009
1,1,1,2-Tetrachloroethane	BQL	5.04	1	3/9/2009
1,1,2,2-Tetrachloroethane	BQL	5.04	1	3/9/2009
Tetrachloroethene	BQL	5.04	1	3/9/2009
Toluene	BQL	5.04	1	3/9/2009
1,2,3-Trichlorobenzene	BQL	5.04	1	3/9/2009
1,2,4-Trichlorobenzene	BQL	5.04	1	3/9/2009
Trichloroethene	BQL	5.04	1	3/9/2009
1,1,1-Trichloroethane	BQL	5.04	1	3/9/2009
1,1,2-Trichloroethane	BQL	5.04	1	3/9/2009
Trichlorofluoromethane	BQL	5.04	1	3/9/2009
1,2,3-Trichloropropane	BQL	5.04	1	3/9/2009
1,2,4-Trimethylbenzene	BQL	5.04	1	3/9/2009
1,3,5-Trimethylbenzene	BQL	5.04	1	3/9/2009
Vinyl chloride	BQL	5.04	1	3/9/2009
m-,p-Xylene	BQL	10.1	1	3/9/2009
o-Xylene	BQL	5.04	1	3/9/2009

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	59.4	119
Toluene-d8	50	51.4	103
4-Bromofluorobenzene	50	47.1	94

Comments:

Flags:
BQL = Below Quantitation Limits.

Analyst: _____

Reviewed By: _____

SGS Environmental Services, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: Trip Blanks
Client Project ID: CTO 005
Lab Sample ID G649-125-5A
Lab Project ID: G649-125
Report Basis: 0.0

Analyzed By: MJC
Date Collected: 03-06-2009 09:00
Date Received: 3/6/2009
Matrix: Soil
Sample Amount: 5 g
%Solids: 100.0

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	50.0	1	3/9/2009
Benzene	BQL	5.00	1	3/9/2009
Bromobenzene	BQL	5.00	1	3/9/2009
Bromochloromethane	BQL	5.00	1	3/9/2009
Bromodichloromethane	BQL	5.00	1	3/9/2009
Bromoform	BQL	5.00	1	3/9/2009
Bromomethane	BQL	5.00	1	3/9/2009
2-Butanone	BQL	25.0	1	3/9/2009
n-Butylbenzene	BQL	5.00	1	3/9/2009
sec-Butylbenzene	BQL	5.00	1	3/9/2009
tert-Butylbenzene	BQL	5.00	1	3/9/2009
Carbon disulfide	BQL	5.00	1	3/9/2009
Carbon tetrachloride	BQL	5.00	1	3/9/2009
Chlorobenzene	BQL	5.00	1	3/9/2009
Chloroform	BQL	5.00	1	3/9/2009
Chloromethane	BQL	5.00	1	3/9/2009
2-Chlorotoluene	BQL	5.00	1	3/9/2009
4-Chlorotoluene	BQL	5.00	1	3/9/2009
Dibromochloromethane	BQL	5.00	1	3/9/2009
1,2-Dibromo-3-chloropropane	BQL	25.0	1	3/9/2009
Dibromomethane	BQL	5.00	1	3/9/2009
1,2-Dibromoethane (EDB)	BQL	5.00	1	3/9/2009
1,2-Dichlorobenzene	BQL	5.00	1	3/9/2009
1,3-Dichlorobenzene	BQL	5.00	1	3/9/2009
1,4-Dichlorobenzene	BQL	5.00	1	3/9/2009
trans-1,4-Dichloro-2-butene	BQL	25.0	1	3/9/2009
1,1-Dichloroethane	BQL	5.00	1	3/9/2009
1,1-Dichloroethene	BQL	5.00	1	3/9/2009
1,2-Dichloroethane	BQL	5.00	1	3/9/2009
cis-1,2-Dichloroethene	BQL	5.00	1	3/9/2009
trans-1,2-dichloroethene	BQL	5.00	1	3/9/2009
1,2-Dichloropropane	BQL	5.00	1	3/9/2009
1,3-Dichloropropane	BQL	5.00	1	3/9/2009
2,2-Dichloropropane	BQL	5.00	1	3/9/2009
1,1-Dichloropropene	BQL	5.00	1	3/9/2009
cis-1,3-Dichloropropene	BQL	5.00	1	3/9/2009
trans-1,3-Dichloropropene	BQL	5.00	1	3/9/2009
Dichlorodifluoromethane	BQL	5.00	1	3/9/2009
Diisopropyl ether (DIPE)	BQL	5.00	1	3/9/2009
Ethylbenzene	BQL	5.00	1	3/9/2009
Hexachlorobutadiene	BQL	5.00	1	3/9/2009
2-Hexanone	BQL	12.5	1	3/9/2009
Iodomethane	BQL	5.00	1	3/9/2009
Isopropylbenzene	BQL	5.00	1	3/9/2009

SGS Environmental Services, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: Trip Blanks
Client Project ID: CTO 005
Lab Sample ID G649-125-5A
Lab Project ID: G649-125
Report Basis: 0.0

Analyzed By: MJC
Date Collected: 03-06-2009 09:00
Date Received: 3/6/2009
Matrix: Soil
Sample Amount: 5 g
%Solids: 100.0

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
4-Isopropyltoluene	BQL	5.00	1	3/9/2009
Methylene chloride	BQL	20.0	1	3/9/2009
4-Methyl-2-pentanone	BQL	12.5	1	3/9/2009
Methyl-tert-butyl ether (MTBE)	BQL	5.00	1	3/9/2009
Naphthalene	BQL	5.00	1	3/9/2009
n-Propyl benzene	BQL	5.00	1	3/9/2009
Styrene	BQL	5.00	1	3/9/2009
1,1,1,2-Tetrachloroethane	BQL	5.00	1	3/9/2009
1,1,2,2-Tetrachloroethane	BQL	5.00	1	3/9/2009
Tetrachloroethene	BQL	5.00	1	3/9/2009
Toluene	BQL	5.00	1	3/9/2009
1,2,3-Trichlorobenzene	BQL	5.00	1	3/9/2009
1,2,4-Trichlorobenzene	BQL	5.00	1	3/9/2009
Trichloroethene	BQL	5.00	1	3/9/2009
1,1,1-Trichloroethane	BQL	5.00	1	3/9/2009
1,1,2-Trichloroethane	BQL	5.00	1	3/9/2009
Trichlorofluoromethane	BQL	5.00	1	3/9/2009
1,2,3-Trichloropropane	BQL	5.00	1	3/9/2009
1,2,4-Trimethylbenzene	BQL	5.00	1	3/9/2009
1,3,5-Trimethylbenzene	BQL	5.00	1	3/9/2009
Vinyl chloride	BQL	5.00	1	3/9/2009
m-,p-Xylene	BQL	10.0	1	3/9/2009
o-Xylene	BQL	5.00	1	3/9/2009

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	60.2	120
Toluene-d8	50	51.9	104
4-Bromofluorobenzene	50	45.9	92

Comments:

Flags:
BQL = Below Quantitation Limits.

Analyst: _____ Reviewed By: _____

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2018-S006
Client Project ID: CTO 005
Lab Sample ID: G649-125-1G
Lab Project ID: G649-125
Report Basis: Dry weight
Initial Weight: 33.18 g

Analyzed By: DCS
Date Collected: 3/6/2009 8:40
Date Received: 3/6/2009
Date Extracted: 3/7/2009
Matrix: Soil
% Solids: 91.83

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	328	1	3/8/2009
Acenaphthylene	BQL	328	1	3/8/2009
Anthracene	BQL	328	1	3/8/2009
Benzo[a]anthracene	BQL	328	1	3/8/2009
Benzo[a]pyrene	BQL	328	1	3/8/2009
Benzo[b]fluoranthene	BQL	328	1	3/8/2009
Benzo[g,h,i]perylene	BQL	328	1	3/8/2009
Benzo[k]fluoranthene	BQL	328	1	3/8/2009
Benzoic Acid	BQL	656	1	3/8/2009
Bis(2-chloroethoxy)methane	BQL	328	1	3/8/2009
Bis(2-chloroethyl)ether	BQL	328	1	3/8/2009
Bis(2-chloroisopropyl)ether	BQL	328	1	3/8/2009
Bis(2-ethylhexyl)phthalate	BQL	328	1	3/8/2009
4-bromophenyl phenyl ether	BQL	328	1	3/8/2009
Butylbenzylphthalate	BQL	328	1	3/8/2009
2-Chloronaphthalene	BQL	328	1	3/8/2009
2-Chlorophenol	BQL	328	1	3/8/2009
4-Chloro-3-methylphenol	BQL	328	1	3/8/2009
4-Chloroaniline	BQL	1640	1	3/8/2009
4-Chlorophenyl phenyl ether	BQL	328	1	3/8/2009
Chrysene	BQL	328	1	3/8/2009
Dibenzo[a,h]anthracene	BQL	328	1	3/8/2009
Dibenzofuran	BQL	328	1	3/8/2009
Di-n-Butylphthalate	BQL	328	1	3/8/2009
1,2-Dichlorobenzene	BQL	328	1	3/8/2009
1,3-Dichlorobenzene	BQL	328	1	3/8/2009
1,4-Dichlorobenzene	BQL	328	1	3/8/2009
3,3'-Dichlorobenzidine	BQL	656	1	3/8/2009
2,4-Dichlorophenol	BQL	328	1	3/8/2009
Diethylphthalate	BQL	328	1	3/8/2009
Dimethylphthalate	BQL	328	1	3/8/2009
2,4-Dimethylphenol	BQL	328	1	3/8/2009
Di-n-octylphthalate	BQL	328	1	3/8/2009
4,6-Dinitro-2-methylphenol	BQL	1640	1	3/8/2009
2,4-Dinitrophenol	BQL	1640	1	3/8/2009
2,4-Dinitrotoluene	BQL	328	1	3/8/2009
2,6-Dinitrotoluene	BQL	328	1	3/8/2009
Fluoranthene	BQL	328	1	3/8/2009
Fluorene	BQL	328	1	3/8/2009
Hexachlorobenzene	BQL	328	1	3/8/2009
Hexachlorobutadiene	BQL	328	1	3/8/2009
Hexachlorocyclopentadiene	BQL	656	1	3/8/2009
Hexachloroethane	BQL	328	1	3/8/2009
Indeno(1,2,3-c,d)pyrene	BQL	328	1	3/8/2009
Isophorone	BQL	328	1	3/8/2009
2-Methylnaphthalene	BQL	328	1	3/8/2009
2-Methylphenol	BQL	328	1	3/8/2009

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2018-S006
Client Project ID: CTO 005
Lab Sample ID: G649-125-1G
Lab Project ID: G649-125
Report Basis: Dry weight
Initial Weight: 33.18 g

Analyzed By: DCS
Date Collected: 3/6/2009 8:40
Date Received: 3/6/2009
Date Extracted: 3/7/2009
Matrix: Soil
% Solids: 91.83

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
3- & 4-Methylphenol	BQL	328	1	3/8/2009
Naphthalene	BQL	328	1	3/8/2009
2-Nitroaniline	BQL	328	1	3/8/2009
3-Nitroaniline	BQL	1640	1	3/8/2009
4-Nitroaniline	BQL	1640	1	3/8/2009
Nitrobenzene	BQL	328	1	3/8/2009
2-Nitrophenol	BQL	328	1	3/8/2009
4-Nitrophenol	BQL	1640	1	3/8/2009
Diphenylamine *	BQL	328	1	3/8/2009
Pentachlorophenol	BQL	1640	1	3/8/2009
Phenanthrene	BQL	328	1	3/8/2009
Phenol	BQL	328	1	3/8/2009
Pyrene	BQL	328	1	3/8/2009
1,2,4-Trichlorobenzene	BQL	328	1	3/8/2009
2,4,5-Trichlorophenol	BQL	328	1	3/8/2009
2,4,6-Trichlorophenol	BQL	328	1	3/8/2009

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.1	91
2-Fluorophenol	10	8.3	83
Nitrobenzene-d5	10	8.8	88
Phenol-d6	10	9.3	93
2,4,6-Tribromophenol	10	8.7	87
4-Terphenyl-d14	4	3.8	94

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: TT2018-S007
Client Project ID: CTO 005
Lab Sample ID: G649-125-2G
Lab Project ID: G649-125
Report Basis: Dry weight
Initial Weight: 33.39 g

Analyzed By: DCS
Date Collected: 3/6/2009 8:44
Date Received: 3/6/2009
Date Extracted: 3/7/2009
Matrix: Soil
% Solids: 94.64

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	316	1	3/8/2009
Acenaphthylene	BQL	316	1	3/8/2009
Anthracene	BQL	316	1	3/8/2009
Benzo[a]anthracene	BQL	316	1	3/8/2009
Benzo[a]pyrene	BQL	316	1	3/8/2009
Benzo[b]fluoranthene	BQL	316	1	3/8/2009
Benzo[g,h,i]perylene	BQL	316	1	3/8/2009
Benzo[k]fluoranthene	BQL	316	1	3/8/2009
Benzoic Acid	BQL	633	1	3/8/2009
Bis(2-chloroethoxy)methane	BQL	316	1	3/8/2009
Bis(2-chloroethyl)ether	BQL	316	1	3/8/2009
Bis(2-chloroisopropyl)ether	BQL	316	1	3/8/2009
Bis(2-ethylhexyl)phthalate	BQL	316	1	3/8/2009
4-bromophenyl phenyl ether	BQL	316	1	3/8/2009
Butylbenzylphthalate	BQL	316	1	3/8/2009
2-Chloronaphthalene	BQL	316	1	3/8/2009
2-Chlorophenol	BQL	316	1	3/8/2009
4-Chloro-3-methylphenol	BQL	316	1	3/8/2009
4-Chloroaniline	BQL	1580	1	3/8/2009
4-Chlorophenyl phenyl ether	BQL	316	1	3/8/2009
Chrysene	BQL	316	1	3/8/2009
Dibenzo[a,h]anthracene	BQL	316	1	3/8/2009
Dibenzofuran	BQL	316	1	3/8/2009
Di-n-Butylphthalate	BQL	316	1	3/8/2009
1,2-Dichlorobenzene	BQL	316	1	3/8/2009
1,3-Dichlorobenzene	BQL	316	1	3/8/2009
1,4-Dichlorobenzene	BQL	316	1	3/8/2009
3,3'-Dichlorobenzidine	BQL	633	1	3/8/2009
2,4-Dichlorophenol	BQL	316	1	3/8/2009
Diethylphthalate	BQL	316	1	3/8/2009
Dimethylphthalate	BQL	316	1	3/8/2009
2,4-Dimethylphenol	BQL	316	1	3/8/2009
Di-n-octylphthalate	BQL	316	1	3/8/2009
4,6-Dinitro-2-methylphenol	BQL	1580	1	3/8/2009
2,4-Dinitrophenol	BQL	1580	1	3/8/2009
2,4-Dinitrotoluene	BQL	316	1	3/8/2009
2,6-Dinitrotoluene	BQL	316	1	3/8/2009
Fluoranthene	BQL	316	1	3/8/2009
Fluorene	BQL	316	1	3/8/2009
Hexachlorobenzene	BQL	316	1	3/8/2009
Hexachlorobutadiene	BQL	316	1	3/8/2009
Hexachlorocyclopentadiene	BQL	633	1	3/8/2009
Hexachloroethane	BQL	316	1	3/8/2009
Indeno(1,2,3-c,d)pyrene	BQL	316	1	3/8/2009
Isophorone	BQL	316	1	3/8/2009
2-Methylnaphthalene	BQL	316	1	3/8/2009
2-Methylphenol	BQL	316	1	3/8/2009

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2018-S007
Client Project ID: CTO 005
Lab Sample ID: G649-125-2G
Lab Project ID: G649-125
Report Basis: Dry weight
Initial Weight: 33.39 g

Analyzed By: DCS
Date Collected: 3/6/2009 8:44
Date Received: 3/6/2009
Date Extracted: 3/7/2009
Matrix: Soil
% Solids: 94.64

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
3- & 4-Methylphenol	BQL	316	1	3/8/2009
Naphthalene	BQL	316	1	3/8/2009
2-Nitroaniline	BQL	316	1	3/8/2009
3-Nitroaniline	BQL	1580	1	3/8/2009
4-Nitroaniline	BQL	1580	1	3/8/2009
Nitrobenzene	BQL	316	1	3/8/2009
2-Nitrophenol	BQL	316	1	3/8/2009
4-Nitrophenol	BQL	1580	1	3/8/2009
Diphenylamine *	BQL	316	1	3/8/2009
Pentachlorophenol	BQL	1580	1	3/8/2009
Phenanthrene	BQL	316	1	3/8/2009
Phenol	BQL	316	1	3/8/2009
Pyrene	BQL	316	1	3/8/2009
1,2,4-Trichlorobenzene	BQL	316	1	3/8/2009
2,4,5-Trichlorophenol	BQL	316	1	3/8/2009
2,4,6-Trichlorophenol	BQL	316	1	3/8/2009

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.6	96
2-Fluorophenol	10	9	90
Nitrobenzene-d5	10	9.7	97
Phenol-d6	10	9.7	97
2,4,6-Tribromophenol	10	9.5	95
4-Terphenyl-d14	4	3.7	94

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: TT2018-S008
Client Project ID: CTO 005
Lab Sample ID: G649-125-3G
Lab Project ID: G649-125
Report Basis: Dry weight
Initial Weight: 31.02 g

Analyzed By: DCS
Date Collected: 3/6/2009 8:50
Date Received: 3/6/2009
Date Extracted: 3/7/2009
Matrix: Soil
% Solids: 97.13

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	332	1	3/8/2009
Acenaphthylene	BQL	332	1	3/8/2009
Anthracene	BQL	332	1	3/8/2009
Benzo[a]anthracene	BQL	332	1	3/8/2009
Benzo[a]pyrene	BQL	332	1	3/8/2009
Benzo[b]fluoranthene	BQL	332	1	3/8/2009
Benzo[g,h,i]perylene	BQL	332	1	3/8/2009
Benzo[k]fluoranthene	BQL	332	1	3/8/2009
Benzoic Acid	BQL	664	1	3/8/2009
Bis(2-chloroethoxy)methane	BQL	332	1	3/8/2009
Bis(2-chloroethyl)ether	BQL	332	1	3/8/2009
Bis(2-chloroisopropyl)ether	BQL	332	1	3/8/2009
Bis(2-ethylhexyl)phthalate	BQL	332	1	3/8/2009
4-bromophenyl phenyl ether	BQL	332	1	3/8/2009
Butylbenzylphthalate	BQL	332	1	3/8/2009
2-Chloronaphthalene	BQL	332	1	3/8/2009
2-Chlorophenol	BQL	332	1	3/8/2009
4-Chloro-3-methylphenol	BQL	332	1	3/8/2009
4-Chloroaniline	BQL	1660	1	3/8/2009
4-Chlorophenyl phenyl ether	BQL	332	1	3/8/2009
Chrysene	BQL	332	1	3/8/2009
Dibenzo[a,h]anthracene	BQL	332	1	3/8/2009
Dibenzofuran	BQL	332	1	3/8/2009
Di-n-Butylphthalate	BQL	332	1	3/8/2009
1,2-Dichlorobenzene	BQL	332	1	3/8/2009
1,3-Dichlorobenzene	BQL	332	1	3/8/2009
1,4-Dichlorobenzene	BQL	332	1	3/8/2009
3,3'-Dichlorobenzidine	BQL	664	1	3/8/2009
2,4-Dichlorophenol	BQL	332	1	3/8/2009
Diethylphthalate	BQL	332	1	3/8/2009
Dimethylphthalate	BQL	332	1	3/8/2009
2,4-Dimethylphenol	BQL	332	1	3/8/2009
Di-n-octylphthalate	BQL	332	1	3/8/2009
4,6-Dinitro-2-methylphenol	BQL	1660	1	3/8/2009
2,4-Dinitrophenol	BQL	1660	1	3/8/2009
2,4-Dinitrotoluene	BQL	332	1	3/8/2009
2,6-Dinitrotoluene	BQL	332	1	3/8/2009
Fluoranthene	BQL	332	1	3/8/2009
Fluorene	BQL	332	1	3/8/2009
Hexachlorobenzene	BQL	332	1	3/8/2009
Hexachlorobutadiene	BQL	332	1	3/8/2009
Hexachlorocyclopentadiene	BQL	664	1	3/8/2009
Hexachloroethane	BQL	332	1	3/8/2009
Indeno(1,2,3-c,d)pyrene	BQL	332	1	3/8/2009
Isophorone	BQL	332	1	3/8/2009
2-Methylnaphthalene	BQL	332	1	3/8/2009
2-Methylphenol	BQL	332	1	3/8/2009

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2018-S008
Client Project ID: CTO 005
Lab Sample ID: G649-125-3G
Lab Project ID: G649-125
Report Basis: Dry weight
Initial Weight: 31.02 g

Analyzed By: DCS
Date Collected: 3/6/2009 8:50
Date Received: 3/6/2009
Date Extracted: 3/7/2009
Matrix: Soil
% Solids: 97.13

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
3- & 4-Methylphenol	BQL	332	1	3/8/2009
Naphthalene	BQL	332	1	3/8/2009
2-Nitroaniline	BQL	332	1	3/8/2009
3-Nitroaniline	BQL	1660	1	3/8/2009
4-Nitroaniline	BQL	1660	1	3/8/2009
Nitrobenzene	BQL	332	1	3/8/2009
2-Nitrophenol	BQL	332	1	3/8/2009
4-Nitrophenol	BQL	1660	1	3/8/2009
Diphenylamine *	BQL	332	1	3/8/2009
Pentachlorophenol	BQL	1660	1	3/8/2009
Phenanthrene	BQL	332	1	3/8/2009
Phenol	BQL	332	1	3/8/2009
Pyrene	332	332	1	3/8/2009
1,2,4-Trichlorobenzene	BQL	332	1	3/8/2009
2,4,5-Trichlorophenol	BQL	332	1	3/8/2009
2,4,6-Trichlorophenol	BQL	332	1	3/8/2009

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.9	99
2-Fluorophenol	10	9.1	91
Nitrobenzene-d5	10	11.1	110
Phenol-d6	10	10	100
2,4,6-Tribromophenol	10	11.2	112
4-Terphenyl-d14	4	3.4	86

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

Flags:
BQL = Below Quantitation Limits.

Reviewed By: MC

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2018-S009
Client Project ID: CTO 005
Lab Sample ID: G649-125-4G
Lab Project ID: G649-125
Report Basis: Dry weight
Initial Weight: 31.18 g

Analyzed By: DCS
Date Collected: 3/6/2009 9:09
Date Received: 3/6/2009
Date Extracted: 3/7/2009
Matrix: Soil
% Solids: 90.38

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	355	1	3/8/2009
Acenaphthylene	BQL	355	1	3/8/2009
Anthracene	BQL	355	1	3/8/2009
Benzo[a]anthracene	BQL	355	1	3/8/2009
Benzo[a]pyrene	BQL	355	1	3/8/2009
Benzo[b]fluoranthene	BQL	355	1	3/8/2009
Benzo[g,h,i]perylene	BQL	355	1	3/8/2009
Benzo[k]fluoranthene	BQL	355	1	3/8/2009
Benzoic Acid	BQL	710	1	3/8/2009
Bis(2-chloroethoxy)methane	BQL	355	1	3/8/2009
Bis(2-chloroethyl)ether	BQL	355	1	3/8/2009
Bis(2-chloroisopropyl)ether	BQL	355	1	3/8/2009
Bis(2-ethylhexyl)phthalate	BQL	355	1	3/8/2009
4-bromophenyl phenyl ether	BQL	355	1	3/8/2009
Butylbenzylphthalate	BQL	355	1	3/8/2009
2-Chloronaphthalene	BQL	355	1	3/8/2009
2-Chlorophenol	BQL	355	1	3/8/2009
4-Chloro-3-methylphenol	BQL	355	1	3/8/2009
4-Chloroaniline	BQL	1770	1	3/8/2009
4-Chlorophenyl phenyl ether	BQL	355	1	3/8/2009
Chrysene	BQL	355	1	3/8/2009
Dibenzo[a,h]anthracene	BQL	355	1	3/8/2009
Dibenzofuran	BQL	355	1	3/8/2009
Di-n-Butylphthalate	BQL	355	1	3/8/2009
1,2-Dichlorobenzene	BQL	355	1	3/8/2009
1,3-Dichlorobenzene	BQL	355	1	3/8/2009
1,4-Dichlorobenzene	BQL	355	1	3/8/2009
3,3'-Dichlorobenzidine	BQL	710	1	3/8/2009
2,4-Dichlorophenol	BQL	355	1	3/8/2009
Diethylphthalate	BQL	355	1	3/8/2009
Dimethylphthalate	BQL	355	1	3/8/2009
2,4-Dimethylphenol	BQL	355	1	3/8/2009
Di-n-octylphthalate	BQL	355	1	3/8/2009
4,6-Dinitro-2-methylphenol	BQL	1770	1	3/8/2009
2,4-Dinitrophenol	BQL	1770	1	3/8/2009
2,4-Dinitrotoluene	BQL	355	1	3/8/2009
2,6-Dinitrotoluene	BQL	355	1	3/8/2009
Fluoranthene	BQL	355	1	3/8/2009
Fluorene	BQL	355	1	3/8/2009
Hexachlorobenzene	BQL	355	1	3/8/2009
Hexachlorobutadiene	BQL	355	1	3/8/2009
Hexachlorocyclopentadiene	BQL	710	1	3/8/2009
Hexachloroethane	BQL	355	1	3/8/2009
Indeno(1,2,3-c,d)pyrene	BQL	355	1	3/8/2009
Isophorone	BQL	355	1	3/8/2009
2-Methylnaphthalene	BQL	355	1	3/8/2009
2-Methylphenol	BQL	355	1	3/8/2009

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2018-S009
Client Project ID: CTO 005
Lab Sample ID: G649-125-4G
Lab Project ID: G649-125
Report Basis: Dry weight
Initial Weight: 31.18 g

Analyzed By: DCS
Date Collected: 3/6/2009 9:09
Date Received: 3/6/2009
Date Extracted: 3/7/2009
Matrix: Soil
% Solids: 90.38

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
3- & 4-Methylphenol	BQL	355	1	3/8/2009
Naphthalene	BQL	355	1	3/8/2009
2-Nitroaniline	BQL	355	1	3/8/2009
3-Nitroaniline	BQL	1770	1	3/8/2009
4-Nitroaniline	BQL	1770	1	3/8/2009
Nitrobenzene	BQL	355	1	3/8/2009
2-Nitrophenol	BQL	355	1	3/8/2009
4-Nitrophenol	BQL	1770	1	3/8/2009
Diphenylamine *	BQL	355	1	3/8/2009
Pentachlorophenol	BQL	1770	1	3/8/2009
Phenanthrene	BQL	355	1	3/8/2009
Phenol	BQL	355	1	3/8/2009
Pyrene	BQL	355	1	3/8/2009
1,2,4-Trichlorobenzene	BQL	355	1	3/8/2009
2,4,5-Trichlorophenol	BQL	355	1	3/8/2009
2,4,6-Trichlorophenol	BQL	355	1	3/8/2009

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.1	91
2-Fluorophenol	10	9	90
Nitrobenzene-d5	10	9.8	98
Phenol-d6	10	9.8	98
2,4,6-Tribromophenol	10	9.1	91
4-Terphenyl-d14	4	3.5	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 005

Sample Information	
Sample Identification	TT2018-S006
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	03/06/09 08:40
Date Received	03/06/09
Date Extracted	03/06/09
Date Analyzed	03/11/09 00:12 - 03/11/09 00:12
Dry Weight	91.8
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	Limits Upper
Surrogate % Recovery - PID	95.4		70	130
Surrogate % Recovery - FID	97.3		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: g649-125-1e	Lab Info: g649-125-1e
FID Info: VP031009/035F0101.D	PID Info: VP031009/035R0101.D

Reviewed By: 

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 005

Sample Information	
Sample Identification	TT2018-S007
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	03/06/09 08:44
Date Received	03/06/09
Date Extracted	03/06/09
Date Analyzed	03/11/09 00:39 - 03/11/09 00:39
Dry Weight	94.6
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	Limits Upper
Surrogate % Recovery - PID	90.4		70	130
Surrogate % Recovery - FID	92.4		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: g649-125-2e	Lab Info: g649-125-2e
FID Info: VP031009/036F0101.D	PID Info: VP031009/036R0101.D

Reviewed By: [signature]

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO_005

Sample Information	
Sample Identification	TT2018-S008
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	03/06/09 08:50
Date Received	03/06/09
Date Extracted	03/06/09
Date Analyzed	03/11/09 01:06 - 03/11/09 01:06
Dry Weight	97.1
Dilution Factor	1 - 1

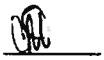
Analytical Results			
Analyte	Result mg/Kg	Report Limit mg/Kg	Flags
C_5-C_8 Aliphatics**	BQL	10.0	
C_9-C_{12} Aliphatics**	BQL	10.0	
C_9-C_{10} Aromatics**	BQL	10.0	

	Percent Recovery	Flags	Limits Lower	Limits Upper
Surrogate % Recovery - PID	91.1		70	130
Surrogate % Recovery - FID	93.3		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: g649-125-3e	Lab Info: g649-125-3e
FID Info: VP031009/037F0101.D	PID Info: VP031009/037R0101.D

Reviewed By: 

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 005

Sample Information	
Sample Identification	TT2018-S009
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	03/06/09 09:09
Date Received	03/06/09
Date Extracted	03/06/09
Date Analyzed	03/11/09 01:33 - 03/11/09 01:33
Dry Weight	90.4
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	Limits Upper
Surrogate % Recovery - PID	93.2		70	130
Surrogate % Recovery - FID	95.3		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: g649-125-4e	Lab Info: g649-125-4e
FID Info: VP031009/038F0101.D	PID Info: VP031009/038R0101.D

Reviewed By: [signature]

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 005

Sample Information	
Sample Identification	Trip Blanks
Sample Matrix	Soil
Collection Option (for Soil)*	NA
Date Collected	03/06/09 09:00
Date Received	03/06/09
Date Extracted	03/06/09
Date Analyzed	03/10/09 21:58 - 03/10/09 21:58
Dry Weight	100
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	Limits Upper
Surrogate % Recovery - PID	95.8		70	130
Surrogate % Recovery - FID	98.0		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: g649-125-5b	Lab Info: g649-125-5b
FID Info: VP031009/030F0101.D	PID Info: VP031009/030R0101.D

Reviewed By: 

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 03/09/09 PID Initial Calibration Date: 03/09/09

Calibration Ranges and Limits

Range	MDL (µg/L)	MDL (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (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	6.98	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	6.63	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 03/10/09 Filename: VP031009/002F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	9.7 ✓	±25%
C_9-C_{12} Aliphatics	200	16	-13.4 ✓	±25%
C_9-C_{10} Aromatics	200	16	-5.1 ✓	±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

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 03/09/09 PID Initial Calibration Date: 03/09/09

Calibration Ranges and Limits

Range	MDL (µg/L)	MDL (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (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	6.98	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	6.63	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 03/10/09 Filename: VP031009/040F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	-11.5 ✓	±25%
C_9-C_{12} Aliphatics	200	16	-10.7 ✓	±25%
C_9-C_{10} Aromatics	200	16	-2.4 ✓	±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 005

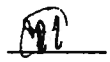
Sample Information	
Sample Identification	TT2018-S006
Sample Matrix	Soil
Date Collected	03/06/09 08:40
Date Received	03/06/09
Date Extracted	03/07/09
Date Analyzed	03/08/09 21:16 - 03/08/09 21:44
Dry Weight	91.8
Dilution Factor	1 - 1
Initial weight (g)	12.82
Final Volume (mL)	10.0

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	Limits Upper
Aliphatic (tricosane)	94.4		40	140
Aromatic (ortho-terphenyl)	88.5		40	140
Fractionation 1 (2-bromonaphthalene)	92.9		40	140
Fractionation 2 (2-fluorobiphenyl)	96.2		40	140

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

Lab Info: G649-125-1H	Lab Info: G649-125-1H
Aliphatic: EP030809/019F1901.D	Aromatic: EP030809/020F2001.D

Reviewed By: 

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 005

Sample Information	
Sample Identification	TT2018-S007
Sample Matrix	Soil
Date Collected	03/06/09 08:44
Date Received	03/06/09
Date Extracted	03/07/09
Date Analyzed	03/08/09 22:13 - 03/08/09 22:42
Dry Weight	94.6
Dilution Factor	1 - 1
Initial weight (g)	12.22
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)	94.5		40	140
Aromatic (ortho-terphenyl)	90.3		40	140
Fractionation 1 (2-bromonaphthalene)	95.7		40	140
Fractionation 2 (2-fluorobiphenyl)	98.6		40	140

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

Lab Info: G649-125-2H	Lab Info: G649-125-2H
Aliphatic: EP030809/021F2101.D	Aromatic: EP030809/022F2201.D

Reviewed By: _____

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 005

Sample Information	
Sample Identification	TT2018-S008
Sample Matrix	Soil
Date Collected	03/06/09 08:50
Date Received	03/06/09
Date Extracted	03/07/09
Date Analyzed	03/09/09 09:37 - 03/09/09 10:06
Dry Weight	97.1
Dilution Factor	10 - 2
Initial weight (g)	12.58
Final Volume (mL)	10.0

Analytical Results			
Analytes**	Result mg/Kg	Report Limit mg/Kg	Flags
C9-C18 Aliphatics	1880	10.0	
C19-C36 Aliphatics	594	10.0	
C11-C22 Aromatics	816	10.0	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (tricosane)	123		40	140
Aromatic (ortho-terphenyl)	98.9		40	140
Fractionation 1 (2-bromonaphthalene)	97.6		40	140
Fractionation 2 (2-fluorobiphenyl)	99.0		40	140

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

Lab Info: G649-125-3H	Lab Info: G649-125-3H
Aliphatic: EP030909/003F0201.D	Aromatic: EP030909/004F0301.D

Reviewed By: 

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 005

Sample Information	
Sample Identification	TT2018-S009
Sample Matrix	Soil
Date Collected	03/06/09 09:09
Date Received	03/06/09
Date Extracted	03/07/09
Date Analyzed	03/09/09 00:08 - 03/09/09 00:36
Dry Weight	90.4
Dilution Factor	1 - 1
Initial weight (g)	12.09
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)	93.8		40	140
Aromatic (ortho-terphenyl)	89.2		40	140
Fractionation 1 (2-bromonaphthalene)	95.6		40	140
Fractionation 2 (2-fluorobiphenyl)	98.3		40	140

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

Lab Info: G649-125-4J	Lab Info: G649-125-4J
Aliphatic: EP030809/025F2501.D	Aromatic: EP030809/026F2601.D

Reviewed By: _____

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 02/24/09

Calibration Ranges and Limits

Range	MDL (02/15/08) (µg/L)	MDL (02/11/08) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (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	6.70	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	4.67	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	2.55	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 03/08/09 / 03/08/09

Filenames: ep030809/001f0101.d / ep030809/002f0201.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	14.8	≤±25%
C19-C36 Aliphatics	100	16.7	14.9	≤±25%
C11-C22 Aromatics	100	16.7	8.6	≤±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

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 02/24/09

Calibration Ranges and Limits

Range	MDL (02/15/08) (µg/L)	MDL (02/11/08) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (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	6.70	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	4.67	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	2.55	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 03/08/09
03/09/09

Filenames: ep030809/027f2701.d
ep030809/028f2801.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	18.1 ✓	≤±25%
C19-C36 Aliphatics	100	16.7	18.7 ✓	≤±25%
C11-C22 Aromatics	100	16.7	19.4 ✓	≤±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: 02/24/09

Calibration Ranges and Limits

Range	MDL (02/15/08) (µg/L)	MDL (02/11/08) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (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	6.70	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	4.67	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	2.55	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 03/09/09 / 03/09/09

Filenames: ep030909/001f0101.d / ep030909/002f0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	9.5 ✓	≤±25%
C19-C36 Aliphatics	100	16.7	10.9 ✓	≤±25%
C11-C22 Aromatics	100	16.7	15.6 ✓	≤±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

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 02/24/09

Calibration Ranges and Limits

Range	MDL (02/15/08) (µg/L)	MDL (02/11/08) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (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	6.70	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	4.67	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	2.55	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 03/09/09 / 03/09/09

Filenames: ep030909/009f0101.d / ep030909/010f0201.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	10.7 ✓	≤±25%
C19-C36 Aliphatics	100	16.7	11.0 ✓	≤±25%
C11-C22 Aromatics	100	16.7	12.5 ✓	≤±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

SGS Environmental Services Inc.
CHAIN OF CUSTODY RECORD

Locations Nationwide
- Alaska
- New Jersey
- North Carolina
- West Virginia
- Maryland
- New York
- Ohio

www.us.sgs.com

(1)
CLIENT: OSAGE of VIRGINIA
CONTACT: THOMAS Tellerman PHONE NO: (757) 274-4949
PROJECT: CTO005 / SITE/PWSID#: TT 2018
REPORTS TO: EMAIL:
Shaun Whitworth @ osageva.com
INVOICE TO: QUOTE #:
Mike Cross P.O. #: CTO005

SGS Reference #: G649-125
page 1 of 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE C= COMP G= GRAB MI= Multi Incremental Samples	Preservatives Used	Methanol	None	HNO3	None	Analysis Required (3) MADEP VPH	MADEP EPH	8260	8270	REMARKS/ LOC ID
✓	TT2018-S006	3/6/09	0840	S	6							X	X	X	X	
✓	TT2018-S007	3/6/09	0844	S	6							X	X	X	X	
✓	TT2018-S008	3/6/09	0850	S	6							X	X	X	X	
	TT2018-S009	3/6/09	0939	S	6							X	X	X	X	
	Trip Blanks	3/6/09	0930	~	2							X		X		

SGS Environmental Services, Inc.

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
	3/6/09	14:45	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	3/6/09	16:00	Received For Laboratory By:

(4)
DOD Project? (YES) NO
Cooler ID 6.0
Special Deliverable Requirements: EDD
Requested Turnaround Time and-or Special Instructions: 24 HRS TURN
Email results to swhitworth@osageva.com
tellerman@osageva.com
Samples Received Cold? YES NO
Cooler TB
Temperature °C: 6.0 .
Chain of Custody Seal: (Circle)
INTACT BROKEN (ABSENT)

N.C. Certification #481

Page 37 of 37

SGS

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

Report Number: G649-135

Client Project: CTO 005

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.

Ashley Nifong 3/26/09

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

% soilds = 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.

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 005

Sample Information	
Sample Identification	TT2018-S010
Sample Matrix	Soil
Date Collected	03/24/09 13:15
Date Received	03/25/09
Date Extracted	03/25/09
Date Analyzed	03/25/09 23:23 - 03/25/09 23:51
Dry Weight	79.6
Dilution Factor	1 - 1
Initial weight (g)	12.97
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)	88.8		40	140
Aromatic (ortho-terphenyl)	88.7		40	140
Fractionation 1 (2-bromonaphthalene)	109		40	140
Fractionation 2 (2-fluorobiphenyl)	112		40	140

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

Lab Info: G649-135-1C	Lab Info: G649-135-1C
Aliphatic: EP032509/017F1501.D	Aromatic: EP032509/018F1601.D

Reviewed By: 

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 02/24/09

Calibration Ranges and Limits

Range	MDL (02/15/08) (µg/L)	MDL (02/11/08) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (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	6.70	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	4.67	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	2.55	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 03/25/09, 03/25/09

Filenames: ep032509/001f0101.d, ep032509/002f0201.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF / %Drift if LR ✓	Limits
C9-C18 Aliphatics	100	16.7	6.6	≤±25%
C19-C36 Aliphatics	100	16.7	5.1	≤±25%
C11-C22 Aromatics	100	16.7	4.0	≤±25%

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 02/24/09

Calibration Ranges and Limits

Range	MDL (02/15/08) (µg/L)	MDL (02/11/08) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (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	6.70	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	4.67	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	2.55	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 03/25/09 / 03/26/09

Filenames: ep032509/021f1901.d / ep032509/022f2001.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF / %Drift if LR ✓	Limits
C9-C18 Aliphatics	100	16.7	15.7	≤±25%
C19-C36 Aliphatics	100	16.7	17.8	≤±25%
C11-C22 Aromatics	100	16.7	10.2	≤±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

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2018-S010
Client Project ID: CTO 005
Lab Sample ID: G649-135-1B
Lab Project ID: G649-135
Report Basis: Dry weight
Initial Weight: 32.21 g

Analyzed By: DCS
Date Collected: 3/24/2009 13:15
Date Received: 3/25/2009
Date Extracted: 3/25/2009
Matrix: Soil
% Solids: 79.56

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	390	1	3/25/2009
Acenaphthylene	BQL	390	1	3/25/2009
Anthracene	BQL	390	1	3/25/2009
Benzo[a]anthracene	BQL	390	1	3/25/2009
Benzo[a]pyrene	BQL	390	1	3/25/2009
Benzo[b]fluoranthene	BQL	390	1	3/25/2009
Benzo[g,h,i]perylene	BQL	390	1	3/25/2009
Benzo[k]fluoranthene	BQL	390	1	3/25/2009
Benzoic Acid	BQL	780	1	3/25/2009
Bis(2-chloroethoxy)methane	BQL	390	1	3/25/2009
Bis(2-chloroethyl)ether	BQL	390	1	3/25/2009
Bis(2-chloroisopropyl)ether	BQL	390	1	3/25/2009
Bis(2-ethylhexyl)phthalate	BQL	390	1	3/25/2009
4-bromophenyl phenyl ether	BQL	390	1	3/25/2009
Butylbenzylphthalate	BQL	390	1	3/25/2009
2-Chloronaphthalene	BQL	390	1	3/25/2009
2-Chlorophenol	BQL	390	1	3/25/2009
4-Chloro-3-methylphenol	BQL	390	1	3/25/2009
4-Chloroaniline	BQL	1950	1	3/25/2009
4-Chlorophenyl phenyl ether	BQL	390	1	3/25/2009
Chrysene	BQL	390	1	3/25/2009
Dibenzo[a,h]anthracene	BQL	390	1	3/25/2009
Dibenzofuran	BQL	390	1	3/25/2009
Di-n-Butylphthalate	BQL	390	1	3/25/2009
1,2-Dichlorobenzene	BQL	390	1	3/25/2009
1,3-Dichlorobenzene	BQL	390	1	3/25/2009
1,4-Dichlorobenzene	BQL	390	1	3/25/2009
3,3'-Dichlorobenzidine	BQL	780	1	3/25/2009
2,4-Dichlorophenol	BQL	390	1	3/25/2009
Diethylphthalate	BQL	390	1	3/25/2009
Dimethylphthalate	BQL	390	1	3/25/2009
2,4-Dimethylphenol	BQL	390	1	3/25/2009
Di-n-octylphthalate	BQL	390	1	3/25/2009
4,6-Dinitro-2-methylphenol	BQL	1950	1	3/25/2009
2,4-Dinitrophenol	BQL	1950	1	3/25/2009
2,4-Dinitrotoluene	BQL	390	1	3/25/2009
2,6-Dinitrotoluene	BQL	390	1	3/25/2009
Fluoranthene	BQL	390	1	3/25/2009
Fluorene	BQL	390	1	3/25/2009
Hexachlorobenzene	BQL	390	1	3/25/2009
Hexachlorobutadiene	BQL	390	1	3/25/2009
Hexachlorocyclopentadiene	BQL	780	1	3/25/2009
Hexachloroethane	BQL	390	1	3/25/2009
Indeno(1,2,3-c,d)pyrene	BQL	390	1	3/25/2009
Isophorone	BQL	390	1	3/25/2009
2-Methylnaphthalene	BQL	390	1	3/25/2009
2-Methylphenol	BQL	390	1	3/25/2009

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2018-S010
Client Project ID: CTO 005
Lab Sample ID: G649-135-1B
Lab Project ID: G649-135
Report Basis: Dry weight
Initial Weight: 32.21 g

Analyzed By: DCS
Date Collected: 3/24/2009 13:15
Date Received: 3/25/2009
Date Extracted: 3/25/2009
Matrix: Soil
% Solids: 79.56

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
3- & 4-Methylphenol	BQL	390	1	3/25/2009
Naphthalene	BQL	390	1	3/25/2009
2-Nitroaniline	BQL	390	1	3/25/2009
3-Nitroaniline	BQL	1950	1	3/25/2009
4-Nitroaniline	BQL	1950	1	3/25/2009
Nitrobenzene	BQL	390	1	3/25/2009
2-Nitrophenol	BQL	390	1	3/25/2009
4-Nitrophenol	BQL	1950	1	3/25/2009
Diphenylamine *	BQL	390	1	3/25/2009
Pentachlorophenol	BQL	1950	1	3/25/2009
Phenanthrene	BQL	390	1	3/25/2009
Phenol	BQL	390	1	3/25/2009
Pyrene	BQL	390	1	3/25/2009
1,2,4-Trichlorobenzene	BQL	390	1	3/25/2009
2,4,5-Trichlorophenol	BQL	390	1	3/25/2009
2,4,6-Trichlorophenol	BQL	390	1	3/25/2009

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.8	88
2-Fluorophenol	10	9	90
Nitrobenzene-d5	10	10.4	104
Phenol-d6	10	9.4	94
2,4,6-Tribromophenol	10	9.8	98
4-Terphenyl-d14	10	8.3	83

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

Flags:
BQL = Below Quantitation Limits.

Reviewed By:

SGS Environmental Services Inc.
CHAIN OF CUSTODY RECORD

Locations Nationwide
- Alaska
- New Jersey
- North Carolina
- West Virginia
- Maryland
- New York
- Ohio

www.us.sgs.com

(1)
CLIENT: Osage of Virginia
CONTACT: Theresa Ellerman PHONE NO: 757-274-4949
PROJECT: CTO 005 SITE/PWSID#: IT 2018
REPORTS TO: EMAIL:
Shaun Whitworth
INVOICE TO: QUOTE #:
Mike Cree P.O. #: CTO 005

SGS Reference #: 6649-135 page 1 of 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE C= COMP G= GRAB MI= Multi Incremental Samples	Preservatives Used	Analysis Required (3) MADEP EPH	8270								REMARKS/ LOC ID
	IT 2018-5010	3/24/09	1315	S	~~X~~ 4		None	X	X								10 ft D.
	Trip Blank																

SGS Environmental Services, Inc.

N.C. Certification #481

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
	3/25/09 ~~3/24/09~~	0825	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received For Laboratory By:

(4)
DOD Project? YES NO
Cooler ID _____
Special Deliverable Requirements: EDD
Requested Turnaround Time and-or Special Instructions: 24 HRS
Email results to swhitworth@osagevs.com
tellerman@osagevs.com
Samples Received Cold? YES NO
Cooler TB
Temperature °C: 4.8°C .
Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

Page 8 of 8

APPENDIX F

PHOTOGRAPHS

UST TT-2018 prior to removal with access hole

UST TT-2018 during removal activities

APPENDIX G

WELL CONSTRUCTION/ABANDONMENT RECORD

NON RESIDENTIAL WELL CONSTRUCTION RECORD

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

WELL CONTRACTOR CERTIFICATION #: 2927

1. WELL CONTRACTOR:

William J. Miller
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): TT2018-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): TEMPORARY WELL
DATE DRILLED: 03/30/2009
TIME COMPLETED: AM ☐ PM ☐

3. WELL LOCATION:

CITY: Jacksonville COUNTY: Onslow
Tarawa Terrace, MCB Camp Lejeune, North Carolina
(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

TOPOGRAPHIC / LAND SETTING
Slope ☐ Valley ☐ Flat ☒ Ridge ☐ Other:

NORTHING: 3,846,789.3
EASTING: 282,131.5
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: N/A
STREET ADDRESS: TT-2018, Tarawa Terrace MCB Camp Lejeune
Jacksonville | 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:** 13.5
b. **DOES WELL REPLACE EXISTING WELL?** YES ☐ NO ☒
c. **WATER LEVEL Below Top of Casing:** 10.5 FT.
(Use "+" if Above Top of Casing)

d. **TOP OF CASING IS** 1.5 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:

	Depth	Diameter	Thickness/ Weight	Material
From	0 To 3.5 ft.	1"	Sch. 40	PVC
From	____ To ____ ft.	"		
From	____ To ____ ft.	"		

7. GROUT:

	Depth	Material	Method
From	____ To ____ Ft.		
From	0 To 1 Ft.	Bent. Pellets	Surface Pour
From	____ To ____ Ft.		

8. SCREEN:

	Depth	Diameter	Slot Size	Material
From	3.5 To 13.3 Ft.	1 in.	Slot .010 in.	PVC
From	____ To ____ Ft.	____ in.	____ in.	
From	____ To ____ Ft.	____ in.	____ in.	

9. SAND/GRAVEL PACK:

	Depth	Size	Material
From	1 To 13.5 Ft.	#2 Medium	Torpedo Sand
From	____ To ____ Ft.		
From	____ To ____ Ft.		

10. DRILLING LOG

From	To	Formation Description
		SEE ATTACHED

11. REMARKS:

Set 1" TEMPORARY monitoring well. Abandoned well subsequent to sampling.

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.

SIGNATURE OF CERTIFIED WELL CONTRACTOR — DATE: 9-10-09

William J. Miller
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

WELL LOG

CATLIN Engineers and Scientists
209-022 Wilmington, NC

PROJECT NO.: 209-022	STATE: NC	COUNTY: Onslow	LOCATION: Jacksonville
PROJECT NAME: Six TT Sites Well Installation	LOGGED BY: Steve Tyler		WELL ID: TT2018-TW01
	DRILLER: William J. Miller		
NORTHING: 3846789.3	EASTING: 282131.5	CREW: N/A	
SYSTEM: UTM NAD83 (m)	BORING LOCATION: See map.		T.O.C. ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: NM	TOTAL DEPTH: 16.0
START DATE: 3/30/09	FINISH DATE: 3/30/09	24 HOUR DTW: 10.5	WELL DEPTH: 13.5

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	WELL DETAIL
0.0									LAND SURFACE	1.5 / 0.0
							SM		Olive, SILTY f. SAND to SANDY SILT. Wet at approximately 7.5' BLS	2" Sch. 40 PVC; 1.0; 3.5; 1" Slot 010 Sch. 40 PVC
11.5							SW		Light gray to white, f. SAND.	13.3 / 13.5; 13.5
16.0									Boring Terminated at Depth 16.0 ft in Set TEMPORARY 1" monitoring well to 13.5' BLS. Abandoned well subsequent to sampling.	

Bentonite Pellets #2 Medium Sand

CATLIN BORING LOG 209-022 SIX TT SITES.GPJ CATLIN.GDT 4/6/09

WELL ABANDONMENT RECORD

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

WELL CONTRACTOR CERTIFICATION #: 2927

CATLIN PROJECT NO.: 209-022

1. WELL CONTRACTOR:

William J. Miller
Well Contractor (Individual) Name

CATLIN Engineers and Scientists
Well Contractor Company Name

STREET ADDRESS 220 Old Dairy Road

Wilmington (City or Town) North Carolina (State) 28405 (Zip Code)

(910) - 452-5861
Area code - Phone number

2. WELL INFORMATION

SITE WELL ID # (if applicable): TT2018-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): TEMPORARY WELL

3. WELL LOCATION:

COUNTY: Onslow QUADRANGLE:
NEAREST TOWN: Jacksonville
TT-2018, Tarawa Terrace, MCB Camp Lejeune
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)

TOPOGRAPHIC / LAND SETTING
Slope ☐ Valley ☐ Flat ☒ Ridge ☐ Other:

NORTHING: 3,846,789.3
EASTING: 282,131.5
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: Tarawa Terrace, MCB Camp Lejeune
Jacksonville (City or Town) North Carolina (State) Zip Code

4b. CONTACT PERSON/WELL OWNER:

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

5. WELL DETAILS:

a. Total Depth: 13.5 ft. Diameter: 1 in.
b. Water Level (Below Measuring Point): 10.5 ft.
Measuring point is 1.5 ft. above land surface

6. CASING:

	Length		Diameter	
a. Casing Depth (if known):	3.5	ft.	1	in.
b. Casing Removed:	5	ft.	1	in.

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

8. SEALING MATERIAL:

Neat Cement
Cement _____ lb.
Water _____ gal.

Sand Cement
Cement _____ lb.
Water _____ gal.

Bentonite
Bentonite 5 lb.
Type: Slurry ☐ Pellets ☒
Water _____ gal.

Other
Type material _____
Amount _____

9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Screen and casing removed. Hole backfilled with Benseal.

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 3/31/2009

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.

4-10-09
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)

William J. Miller
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