UNDERGROUND STORAGE TANK
CLOSURE REPORT

UST TT-2778
Tarawa Terrace

Marine Corps Base
Camp Lejeune, North Carolina

December 22, 2008

OSAGE OF VIRGINIA
environmental consultants

Contract No. N40085-08-D-1401
CTO No. 0002

UST-12
UNDERGROUND STORAGE TANK CLOSURE REPORT
BUILDING TT-2778
TARAWA TERRACE
MCB CAMP LEJEUNE, NORTH CAROLINA

A. GENERAL INFORMATION

1. Facility Information

a. Facility Name:

Building TT-2778
Tarawa Terrace

b. Facility ID Number:

N/A

c. Facility address, telephone number, and county:

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

2. Contacts

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

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

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

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

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

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

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

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

3. UST Information

Tank Number	Installation Date	Capacity (Gallons)	Tank Dimensions	Last Contents of Tank
TT-2778	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 aboard Marine Corps Base Camp Lejeune within the Tarawa Terrace Housing Area. The construction area, where existing housing sites are being demolished, will be used to re-build military housing units. As a result, land use should be categorized as Residential.

d. Describe site geology and hydrogeology:

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

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

The nearest surface water body is an unnamed tributary of the New River, which is approximately 2,000 feet southwest of the site. Groundwater flow direction in the surficial aquifer is estimated to flow toward the river. There are no water supply wells within a 1,500 ft radius

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

B. CLOSURE PROCEDURES

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

The tank was discovered by Actus Lend Lease late on September 25, 2008 while personnel were clearing land as part of a housing demolition. The top of the UST was visible and had been exposed by heavy equipment. On September 26, 2008, Osage conducted a site visit to prepare tank and area for removal. Upon arrival, Osage personnel noticed the contents of the tank had been released to the surrounding area, in a Northwesterly direction, due to heavy overnight rains. The release was immediately reported to the Base Fire Department and EMD. Approximately 41.26 tons of contaminated soil was excavated from the release area on September 29, 2008. Approximately 300 gallons of contaminated water was pumped from the tank. The tank was removed and transported to EMD, Resource Conservation and Recovery Section (RCRS) Building 977 for cleaning.

Once removed, Osage was tasked with tank cleaning and disposal. The tank was cleaned with water. Purge water was disposed of at EMD, Resource Conservation and Recovery Section (RCRS) Building 977.

The tank was transported to J&E Salvage Company in Jacksonville, North Carolina for disposal on October 15, 2008. The disposal manifest is in Appendix D.

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

Approximately 300 gallons of contaminated water was pumped from the tank prior to removal.

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

300 gallons of contaminated water was pumped from the tank. Approximately 150 gallons of rinsate water was collected during the cleaning of the tank and disposed at EMD, Resource Conservation and Recovery Section (RCRS) Building 977.

4. Excavation

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

EMD contacted Osage on September 26, 2008 about the discovery of the tank, and a site visit was conducted to inspect the tank area. Osage mobilized to the site on September 29, 2008 to remove the UST. Once the UST was removed, petroleum odor and staining were encountered. A Mini

Rae photo ionization detector (PID) was used to scan soils in the tank basin where readings exceeded 50 ppm. The initial excavation limits measured approximately 10' (Length) x 13' (Width) x 9' (Depth).

An over excavation was performed at the site on October 8, 2008 in an attempt to remove contaminated soil. The final excavation dimensions were 10' (Length) x 13' (Width) x 12' (Depth). No standing water entered the excavation; however, soils in the former tank basin were moist. As a result, Camp Lejeune decided to immediately backfill in preparation for the installation of a groundwater monitoring well.

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 109.67 tons of soil was excavated from the tank basin – 76.43 tons of contaminated soil was excavated on September 29- October 1, 2008, and 33.24 tons were removed during over excavation activities on October 8, 2008. An additional 41.26 tons of soil was excavated from the surface release area.

d. Describe the soil type(s) encountered:

Based on field observation of the tank excavation, the following soil types were noted:

Feet Below Land Surface (BLS)	Description
0.0-2.5	Dry light brown silty sand with dark silty sand.
2.5-6.5	Slightly moist light brown silty clay with sand.
6.5-9.0	Moist light brown to tan clayey sand.
9.0-12.0	Moist tan to white fine sand.

e. Describe the type and source of backfill used:

Common fill (sand) was used as backfill material. Backfilling of the excavation area took place on October 8, 2008. The excavation was filled with common fill sand from Morton Trucking in Jacksonville, North Carolina.

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

No standing water, free product, or bedrock was encountered during the excavation process; however, soils were moist. EMD decided to install a temporary groundwater monitoring well in the former tank basin in order to obtain a groundwater sample.

5. Contaminated soil

During UST removal activities and over excavation, a total of 109.67 tons of contaminated soil were excavated from the former tank basin. The contaminated soil transported to a lay down facility at the Base (Building TP-467) to await disposal via contract N62470-08-D-1007, CTO 056.

Base personnel also excavated contaminated soils from the surface release area as shown on Figure 3. Approximately 41.26 tons of impacted soil was removed from the area of concern. While the entire area was scraped of impacted soil, the majority of the release pooled Northwest of the tank basin in a low spot. The EMD spill notification is located in Appendix B.

C. SITE INVESTIGATION

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

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

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

Soil sample locations are illustrated on Figure 2.

FORMER TANK BASIN

Confirmation soil samples (sample IDs TT2778-S001 through S005) were collected from the tank basin on September 30, 2008 immediately following excavation of the basin. Soil samples TT2778-S001 through S004 were collected from the sidewalls at a depth of 3.0 feet. Soil sample TT2778-S005 was obtained from just beneath the bottom of the former tank at approximately 7 feet Below Land Surface (BLS). The samples were placed into laboratory provided glassware, properly labeled, and transported directly to SGS under proper chain of custody. Samples were analyzed for Total Petroleum Hydrocarbons (TPH) Gasoline and Diesel Range Organics (GRO/DRO) via EPA Method 8015.

On October 8, 2008, Osage returned to the site to over excavate soil sample location S005 (excavation bottom) due to the presence of TPH GRO and TPH DRO concentrations above the 10 mg/kg NCDENR Action Level. Additional contaminated soil was excavated from the bottom of the excavation downward until groundwater was encountered. After over excavation, four confirmation soil samples were collected (soil samples TT2778-S0006, TT2778-S0007, TT2778-S0008, and TT2778-S0009). Soil samples S006, S007, S008, and S009 were collected from the sidewalls at a depth of 11 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.

SURFACE RELEASE FROM TT-2778

Confirmation soil samples were also collected from the surface release area following over excavation. Samples were taken in the area where the release pooled as shown on Figure 3. Soil samples SB01 through SB07 were collected at depths of approximately 6 to 12 inches BLS. They were placed into laboratory provided glassware, properly labeled, and transported directly to SGS under proper chain of custody to be analyzed for TPH GRO and DRO.

One of the soil samples, SB04, contained TPH DRO concentrations above 40 mg/kg, so Osage performed an over excavation of the location. A confirmation soil sample, SB08, was obtained and sent for analysis using EPA Methods 8260, 8270, and MADEP VPH/EPH.

3. Document groundwater sampling information:

One temporary groundwater monitoring well was installed within the tank basin excavation. The well was advanced to a depth of approximately 20 feet BLS. The well was installed to monitor for the presence of free product and to allow for the collection of a groundwater sample. One groundwater sample, TT2778-TW01, was collected on October 9, 2008 and analyzed using EPA Methods 602 w/ Xylenes, 625, and MADEP VPH/EPH. Groundwater analytical results are presented in Table 3 and Figure 4. Monitoring well TT2778-TW01 was permanently abandoned on October 9, 2008.

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:

FORMER TANK BASIN

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

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

Once the tank was removed from the subsurface on September 29, 2008, Osage collected five soil samples as shown on Figure 2. Soil samples S001-S004 were taken from the sidewalls, and sample S005 was taken from the bottom of the excavation. Soil samples were analyzed for TPH GRO and DRO via EPA

Method 8015. Only sample TT2778-S005 exhibited detectable TPH GRO concentrations (279 mg/kg). Sample S005 also contained a noncompliant TPH DRO concentration of 22,500 mg/kg.

Osage returned to the site on October 8, 2008 to over excavate soil from the tank basin bottom. Once over-excavation was complete, Osage obtained additional confirmation soil samples S006 through S009, which were obtained from the tank basin sidewalls at a depth of 11 feet BLS. These samples were sent to SGS for analysis via EPA Methods 8260, 8270, and MADEP VPH/EPH. Laboratory analysis of the four soil samples showed noncompliant detections of several compounds. The following compounds were detected at concentrations above their Soil-to-Groundwater (STGW) Maximum Soil Contaminant Concentrations (MSCCs), but below their Residential MSCCs: n-Butylbenzene, sec-Butylbenzene, Naphthalene, n-Propylbenzene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Total Xylenes, 2-Methylnaphthalene, and C_9-C_{18} Aliphatics. 4-Isopropylbenzene was detected in soil samples S006 through S009. There are no established NCDENR MSCCs for this compound. In addition, noncompliant C_9-C_{22} Aromatics concentrations were detected in all four soil samples. Detected concentrations were above the STGW (34 mg/kg) and Residential (469 mg/kg) MSCCs, but below the Industrial/Commercial (12,264 mg/kg) MSCC.

A groundwater sample was also obtained from the site. Results are summarized in Table 3. A temporary monitoring well, well ID TTII-TW01, was installed on October 9, 2008 and immediately abandoned following sampling and monitoring for the presence of free product. Associated well records are included in Appendix G. Osage collected a groundwater sample from temporary monitoring well TTII-TW01 on October 9, 2008. No free product was measured during gauging and sampling activities. Field personnel measured a static water level of 13 feet Below Top of Casing. The sample was sent under proper Chain of Custody to SGS for analysis via EPA Methods 602, 625, and MADEP VPH/EPH.

Ethylbenzene and Total Xylenes were detected in groundwater sample TT2778-TW01 at concentrations less than the applicable 2L GWQSs. Naphthalene was detected in groundwater sample TT2778-TW01 at a concentration of 137 µg/L, which is greater than the 2L GWQS of 21 µg/L and less than the Gross Contaminant Level (GCL) of 15,500 µg/L. Laboratory analysis detected MADEP fractions C_9-C_{18} Aliphatics, C_{19}-C_{36} Aliphatics and C_9-C_{22} Aromatics in the groundwater sample at concentrations of 5,326 µg/L, 929 µg/L, and 3,375µg/L, respectively. The C_9-C_{18} Aliphatics and C_9-C_{22} Aromatics concentrations are noncompliant as compared to the 2L GWQSs of 4,200 µg/L and 210 µg/L.

SURFACE RELEASE FROM TT-2778

Sample results associated with the surface release are summarized in Tables 4 and 5.

Seven confirmation soil samples, SB01 through SB07, were obtained following excavation of the release area. The samples were collected from the six to 12 inch BLS interval and analyzed for TPH GRO and DRO. Only soil sample SB04 contained a noncompliant TPH DRO concentration of 43.3 mg/kg. All other results were below method detection limits.

An over excavation was performed in the area of soil sample SB04. Another confirmation soil sample was collected, SB08, at a depth of 14 - 18 inches BLS and analyzed using EPA Methods 8260, 8270, and the MADEP Methods. All results were below method detection limits.

D. Conclusions and Recommendations

A total of 109.67 tons of contaminated soil was removed from the Building TT-2778 former tank basin as a result of two excavation events. Final confirmation soil sample results indicate the presence of soil contaminants in the former tank basin area above method detection limits at a depth of approximately 11 feet BLS. Only C_9-C_{22} Aromatics concentrations were detected at 11 feet BLS above the STGW (34 mg/kg) and Residential (469 mg/kg) MSCCs, but below the Industrial/Commercial (12,264 mg/kg) MSCC. All other detected compounds were below their applicable Residential MSCCs as summarized in Table 2.

Groundwater conditions within the former tank basin were monitored by the installation of a temporary monitoring well. Groundwater sample TT2778-TW01 exhibited C_9-C_{18} Aliphatics and C_9-C_{22} Aromatics concentrations at noncompliant concentrations of 5,326 µg/L and 3,375µg/L, as compared to the 2L GWQSs of 4,200 µg/L and 210 µg/L. Naphthalene was also detected in groundwater at the site at a concentration of 137 µg/L, which is above the GWQS of 21 µg/L and less than the GCL of 15,500 µg/L. All other compounds were either below the method detection limit or less than the applicable 2L GWQS.

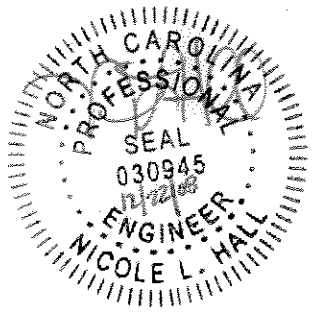
Impacted soils associated with the surface release from the tank were excavated from the site. A total of 41.26 tons were removed. Confirmation soil samples indicate all compounds are below method detection limits; results confirm that impacted soils were removed from the site.

While a formal Land Use Classification has not been performed for this incident, it is reasonable to assume the use of the site is Residential. There are no water supply wells within 1,500 feet of the site as shown on Figure 1, and no free product was detected in temporary monitoring well TT2778-TW01. Soil contaminants have been identified at concentrations above the STGW MSCCs, but less than the Residential MSCCs. One compound, C_9-C_{22} Aromatics, however, is present at concentrations that exceed the Residential MSCC of 469 mg/kg. Since site soils contain C_9-C_{22} Aromatics at concentrations above the

Residential MSCC, MCB Camp Lejeune will need to further define the extent of soil contamination. In addition, groundwater contamination has been identified at concentrations greater than the NCGWQSs for Naphthalene and MADEP compounds, specifically C_9-C_{18} Aliphatics and C_9-C_{22} Aromatics.

E. Signature and seal of certifying Professional Engineer or Licensed Geologist

Nicole L. Hall

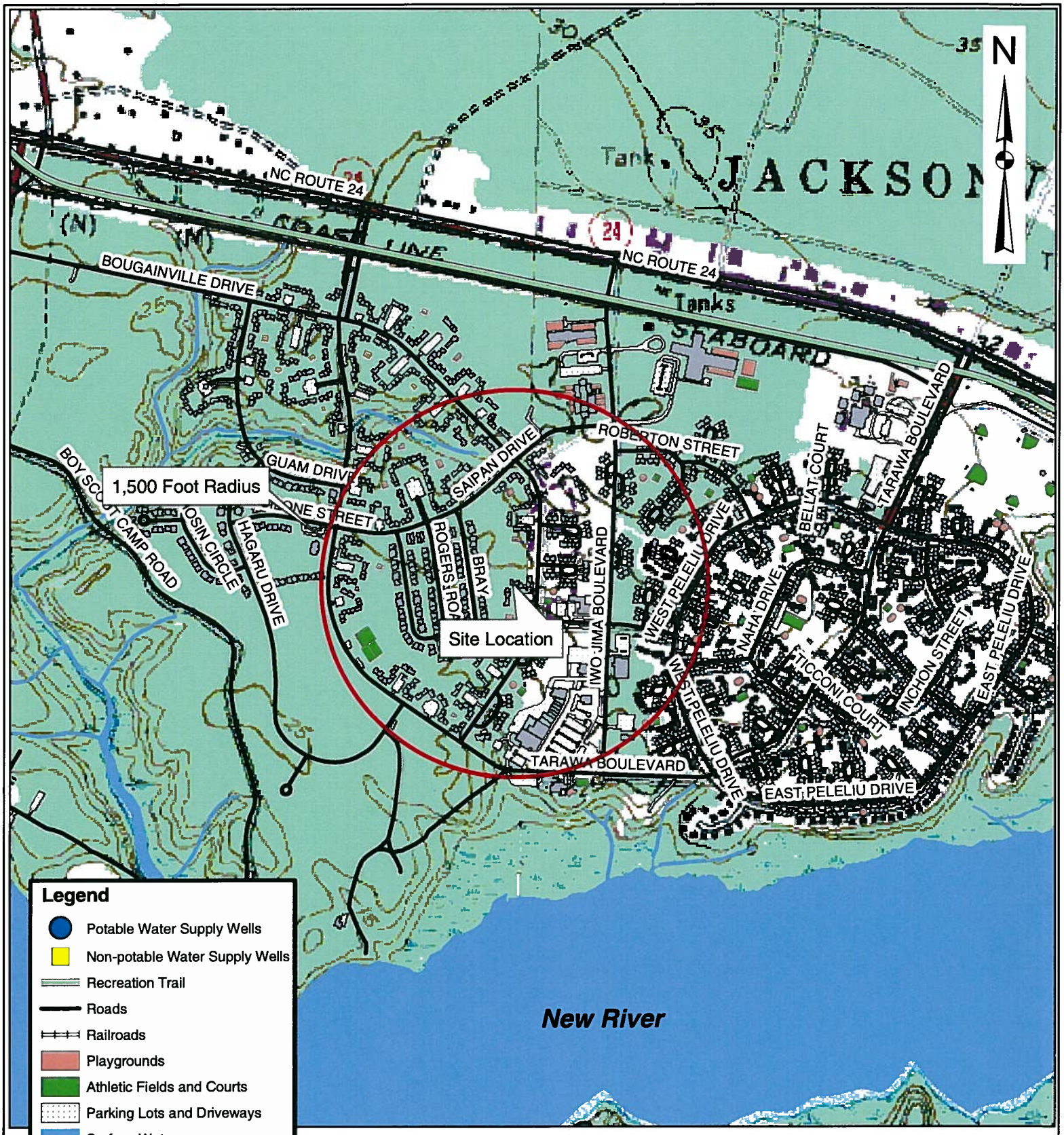


F. Enclosures

1. **Figures**
   a. **USGS Topographic Site Map**
   b. **Site Map with Tank Excavation Soil Sample Results**
   c. **Site Map with Surface Release Soil Sample Results**
   d. **Site Map with Groundwater Sample Results**

2. **Tables**
   a. **Summary of Soil Laboratory Results – Initial Tank Excavation**
   b. **Summary of Soil Laboratory Results – Over Excavation of Tank Basin**
   c. **Summary of Groundwater Laboratory Results**
   d. **Summary of Soil Laboratory Results – Initial Excavation of Surface Release**
   e. **Summary of Soil Laboratory Results – Over Excavation of Surface Release at SB04.**

3. **Appendices**
   Appendix A: Site Investigation Report for Permanent Closure or Change-in-Service of UST (UST-2)
   Appendix B: 24 Hour Release and UST Leak Reporting Form (UST-61) and Surface Release Notification
   Appendix C: Certificate of UST disposal
   Appendix D: Disposal Manifests
   Appendix E: Laboratory Analytical Reports
   Appendix F: Photographs
   Appendix G: Well Records



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

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PROJECT	TITLE	FIGURE
TANK REMOVAL BUILDING TT-2778 MARINE CORPS BASE CAMP LEJEUNE, NC	SITE LOCATION MAP	1

JOB NO.	DATE	SCALE	DRAWN BY	CHECKED BY
206-094	DEC 2008	AS SHOWN	SAC	NLH

TABLE 1
SUMMARY OF SOIL LABORATORY RESULTS
EPA Method 8015 (GRO and DRO)
Excavation/Sampling Event on 9/30/2008 and 10/1/2008

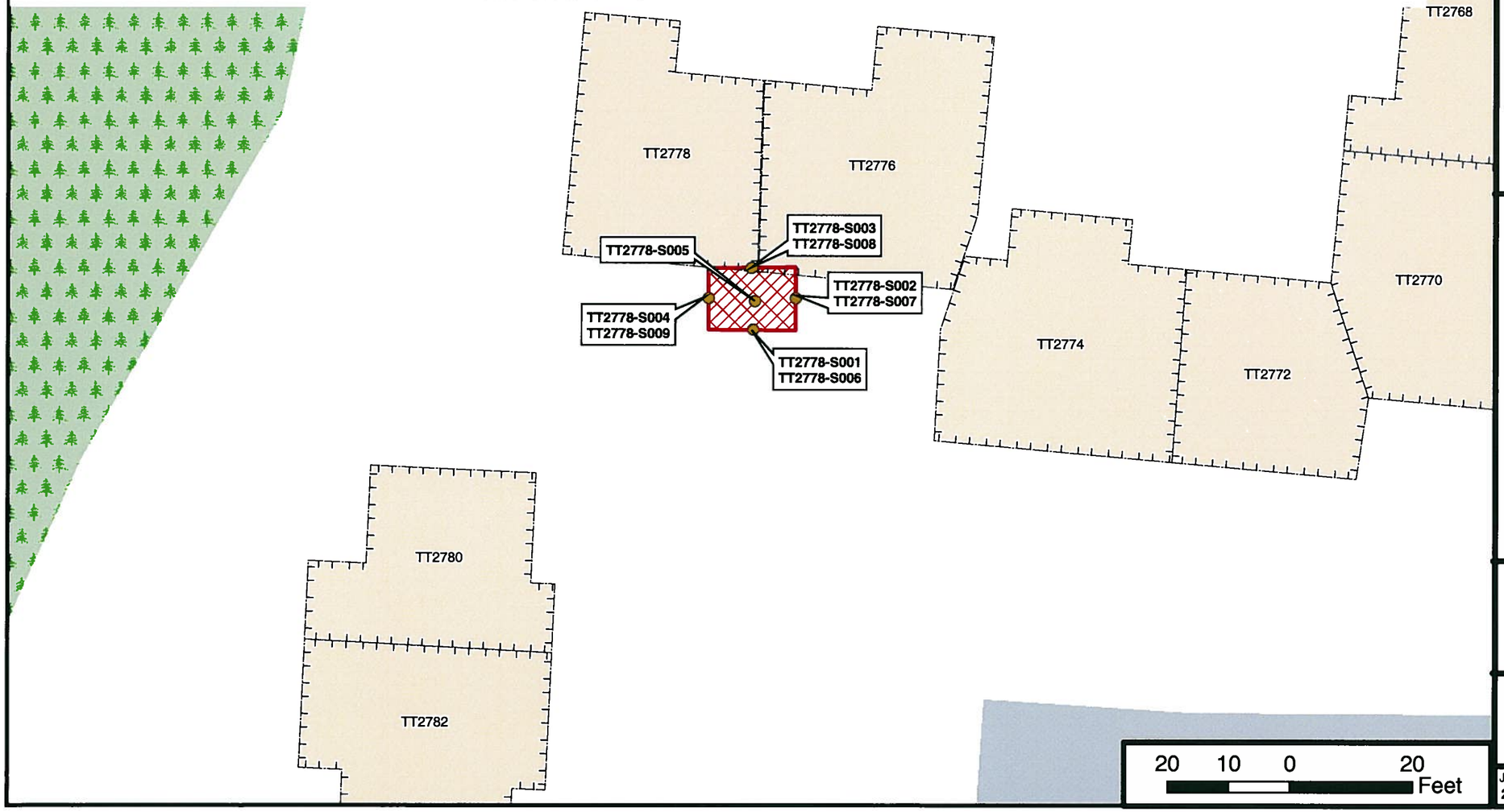
Sample ID	Contaminant of Concern → Date Collected	Sample Depth (ft. BLS)	Gasoline Range Organics	Diesel Range Organics
NCDENR ACTION LEVEL (mg/kg)			**10**	**10**
TT2778-S001	9/30/2008	3.0	<5.69	<7.61
TT2778-S002	9/30/2008	3.0	<5.80	<7.40
TT2778-S003	9/30/2008	3.0	<5.41	<7.80
TT2778-S004	9/30/2008	3.0	<6.12	8.26
TT2778-S005	9/30/2008	7.0	279	22,500

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

TABLE 2
SUMMARY OF SOIL LABORATORY RESULTS
EPA METHODS 8260, 8270, and MADEP VPH/EPH
Excavation/Sampling Event on 10/8/2008

Sample ID	Contaminant of Concern → Date Collected	Sample Depth (ft. BLS)	EPA 8260 n-Butylbenzene	sec-Butylbenzene	Ethylbenzene	Isopropylbenzene	4-Isopropyltoluene	Naphthalene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Total Xylenes	EPA 8270 Fluorene	2-Methylnaphthalene	Naphthalene	Phenanthrene	MADEP VPH/EPH C_9-C_{12} Aliphatics	C_9-C_{18} Aliphatics	C_{19}-C_{36} Aliphatics	C_9-C_{22} Aromatics
Residential MSCC (mg/kg)			**626**	**626**	**1,560**	**1,564**	**NE**	**313**	**4,693**	**782**	**782**	**3,129**	**620**	**63**	**313**	**469**	**939**	**9,386**	**93,860**	**469**
Industrial/Commercial MSCC (mg/kg)			**16,350**	**16,350**	**40,000**	**40,880**	**NE**	**8,176**	**122,600**	**20,440**	**20,440**	**81,760**	**16,400**	**1,635**	**8,176**	**12,264**	**24,528**	**245,280**	**#**	**12,264**
Soil to Groundwater MSCC (mg/kg)			**4.3**	**3.3**	**4.6**	**1.7**	**NE**	**0.58**	**1.7**	**7.5**	**7.3**	**5**	**44**	**1.7**	**0.58**	**60**	**72**	**3,300**	**##**	**34**
TT2778-S006	10/8/2008	11.0	<0.772	2.17	1.57	0.934	**3.01**	**17.6**	**1.88**	**19.6**	**8.03**	**7.06**	<3.25	**26.9**	**8.6**	4.09	43.1	**4,640**	726	**2,058**
TT2778-S007	10/8/2008	11.0	<0.480	0.605	<0.480	<0.480	**0.586**	**4.82**	<0.480	4.64	1.74	1.2	<0.331	0.722	<0.331	0.331	11.9	448	136	**419**
TT2778-S008	10/8/2008	11.0	<0.993	2.47	1.81	1.11	**2.15**	**16.4**	**2.39**	**18.5**	5.36	**6.27**	4.91	**60.2**	**22.7**	9.06	53.5	**3,978**	697	**2,297**
TT2778-S009	10/8/2008	11.0	**7.2**	**3.8**	2.3	1.66	**3.27**	**2.29**	**3.54**	**27.4**	**8.36**	**8.2**	<3.40	**31.1**	**9.73**	4.73	53.6	**3,376**	602	**1,707**

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



TANK REMOVAL BUILDING TT-2778 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 TT2778-S001 provided by Lanier Surveying.
3. Initial excavation limits were approximately 10' by 13' by 7' deep. Over-excavtion increased depth of excavation to 11'.

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SITE MAP WITH TANK EXCAVATION SOIL SAMPLE RESULTS

FIGURE **2**

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

TABLE 4
SUMMARY OF SOIL LABORATORY RESULTS
EPA Method 8015 (GRO and DRO)
Excavation/Sampling Event on 10/1/2008

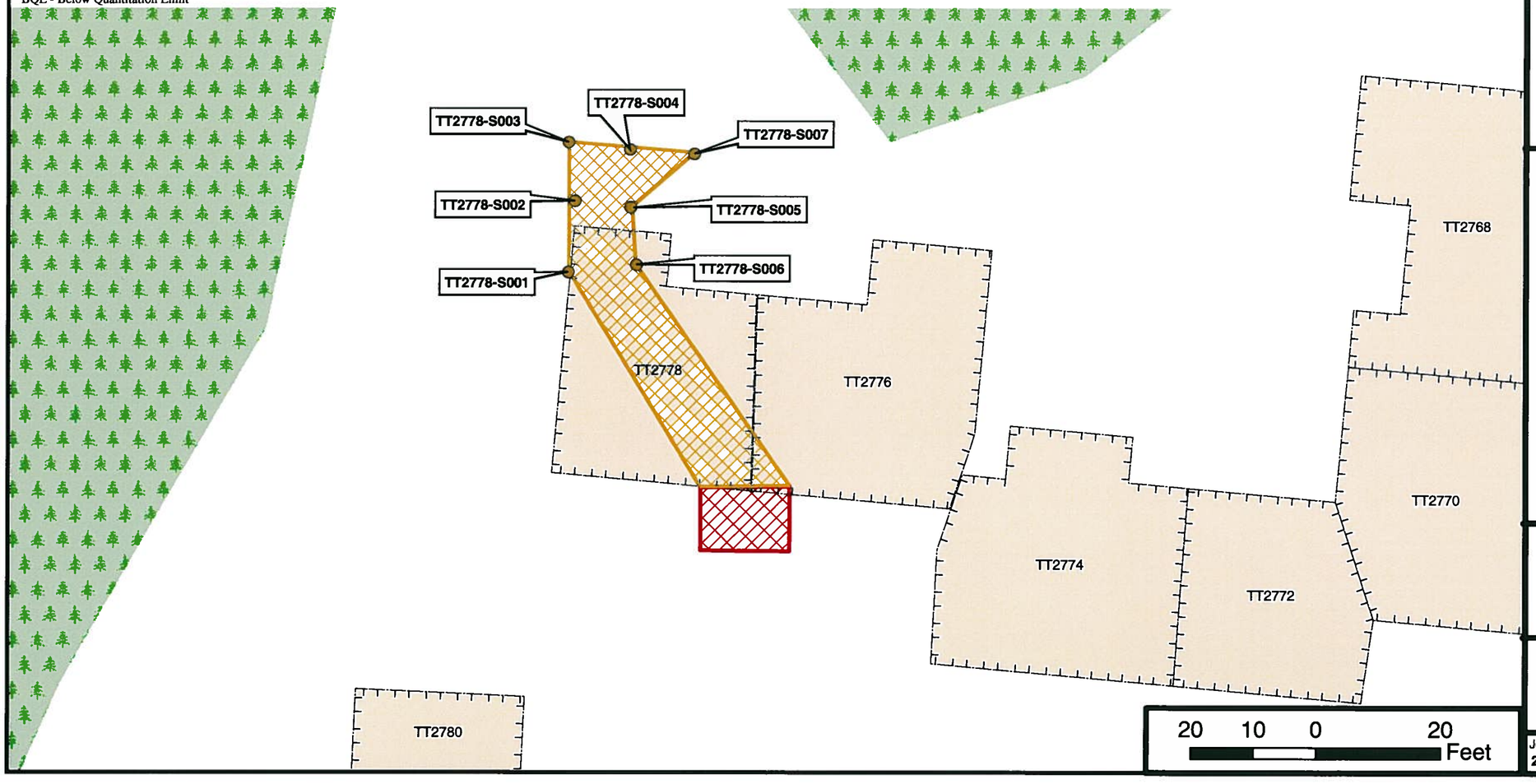
Sample ID	Contaminant of Concern → Date Collected	Boring Depth (inches)	Gasoline Range Organics	Diesel Range Organics
NCDENR ACTION LEVEL (mg/kg)			10	40
SB01	10/1/2008	6"	<5.32	<7.09
SB02	10/1/2008	6-12"	<4.94	<6.73
SB03	10/1/2008	6-12"	<4.94	<6.91
SB04	10/1/2008	6-12"	<7.36	**43.3**
SB05	10/1/2008	6-12"	<5.68	<6.76
SB06	10/1/2008	6"	<5.48	<7.09
SB07	10/1/2008	6"	<4.83	<6.77

All results in milligrams per kilogram (mg/kg).
<# = Less than method detection limit
Bold results indicate concentrations above NCDENR Action Level.
BQL - Below Quantitation Limit

TABLE 5
SUMMARY OF SOIL LABORATORY RESULTS
EPA METHODS 8260, 8270, and MADEP VPH/EPH
Excavation/Sampling Event on 10/08/2008

Sample ID	Contaminant of Concern → Date Collected	Sample Depth (Inches BLS)	EPA 8260 All 8260 Compounds	EPA 8270 All 8270 Compounds	MADEP VPH/EPH C_5-C_8 Aliphatics	C_9-C_{18} Aliphatics	C_{19}-C_{36} Aliphatics	C_9-C_{22} Aromatics
Residential MSCC (mg/kg)			Varies	Varies	939	9,386	93,860	469
Industrial/Commercial MSCC (mg/kg)			Varies	Varies	24,528	245,280	#	12,264
Soil to Groundwater MSCC (mg/kg)			Varies	Varies	72	3,300	##	34
SB08	10/8/2008	14-18"	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0

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



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TANK REMOVAL BUILDING TT-2778 MARINE CORPS BASE CAMP LEJEUNE, NC

NAVFAC Naval Facilities Engineering Command
ATLANTIC DIVISION

LEGEND

- Tank Excavation Area
- Surface Spill 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 locations TT2778-S001 through TT2778-S007 provided by Lanier Surveying.

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SITE MAP WITH SURFACE SPILL SOIL SAMPLE RESULTS

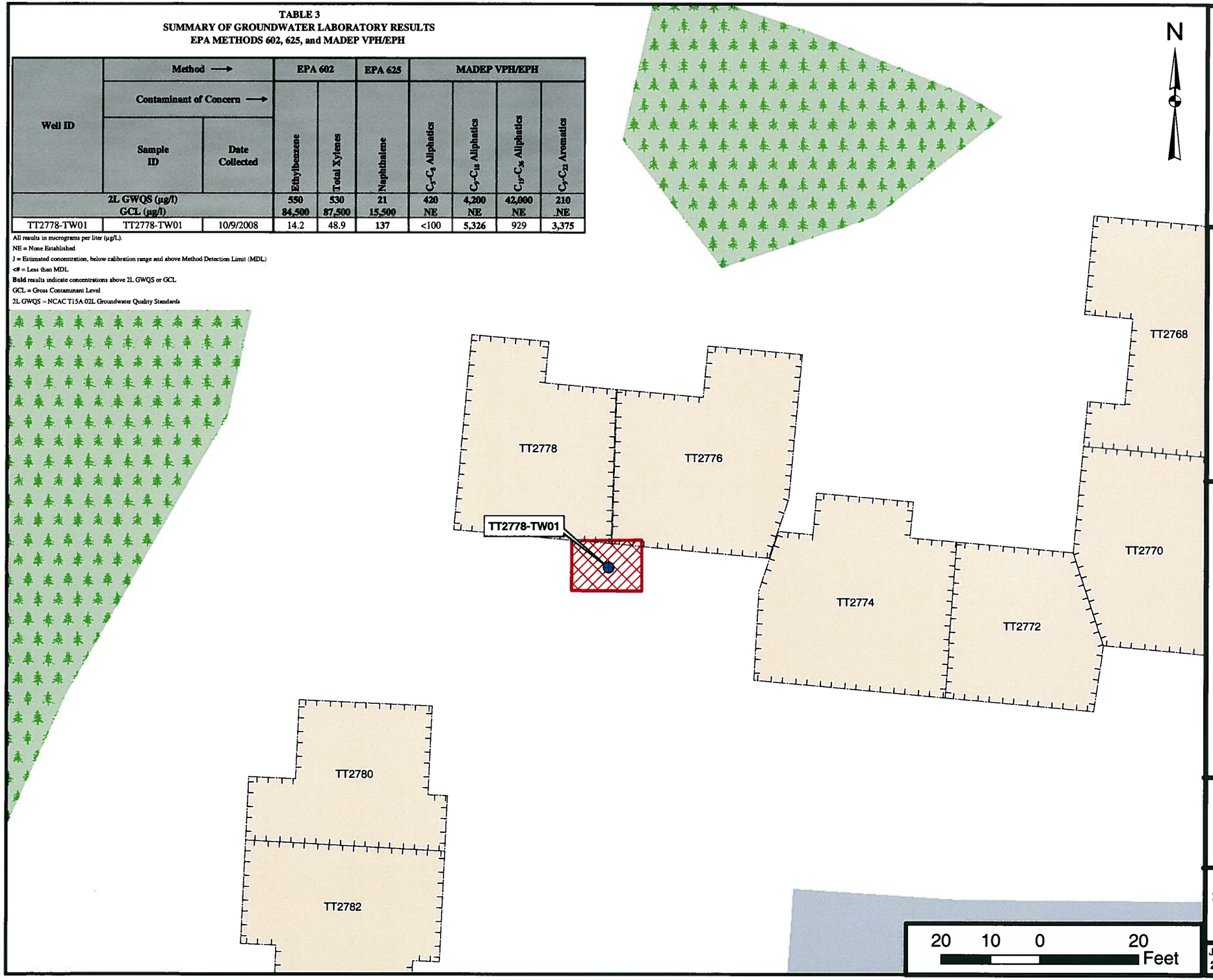
FIGURE 3

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

TABLE 3
SUMMARY OF GROUNDWATER LABORATORY RESULTS
EPA METHODS 602, 625, and MADEP VPH/EPH

Well ID	Method →		EPA 602		EPA 625	MADEP VPH/EPH			
	Contaminant of Concern →		Ethylbenzene	Total Xylenes	Naphthalene	C_5-C_8 Aliphatics	C_9-C_{18} Aliphatics	C_{19}-C_{36} Aliphatics	C_9-C_{22} Aromatics
	Sample ID	Date Collected							
2L GWQS (µg/l)			550	530	21	420	4,200	42,000	210
GCL (µg/l)			84,500	87,500	15,500	NE	NE	NE	NE
TT2778-TW01	TT2778-TW01	10/9/2008	14.2	48.9	137	<100	5,326	929	3,375

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



TANK REMOVAL
BUILDING TT-2778
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 well TT2778-TW01.

OSAGE OF VIRGINIA
environmental consultants

SITE MAP WITH GROUNDWATER SAMPLE RESULTS

FIGURE 4

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

TABLE 1
SUMMARY OF SOIL LABORATORY RESULTS
EPA Method 8015 (GRO and DRO)
Excavation/Sampling Event on 9/30/2008 and 10/1/2008

Sample ID	Contaminant of Concern →		Gasonline Range Organics	Diesel Range Organics
	Date Collected	Sample Depth (ft. BLS)		
NCDENR ACTION LEVEL (mg/kg)			**10**	**10**
TT2778-S001	9/30/2008	3.0	<5.69	<7.61
TT2778-S002	9/30/2008	3.0	<5.80	<7.40
TT2778-S003	9/30/2008	3.0	<5.41	<7.80
TT2778-S004	9/30/2008	3.0	<6.12	8.26
TT2778-S005	9/30/2008	7.0	**279**	**22,500**

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

ft. BLS = Feet Below Land Surface.

<# = Less than method detection limit

Bold results indicate concentrations above NCDENR Action Level.

TABLE 2
SUMMARY OF SOIL LABORATORY RESULTS
EPA METHODS 8260, 8270, and MADEP VPH/EPH
Excavation/Sampling Event on 10/8/2008

Sample ID	Contaminant of Concern →		EPA 8260										EPA 8270				MADEP VPH/EPH			
	Date Collected	Sample Depth (ft. BLS)	n-Butylbenzene	sec-Butylbenzene	Ethylbenzene	Isopropylbenzene	4-Isopropylbenzene	Naphthalene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Total Xylenes	Fluorene	2-Methylnaphthalene	Naphthalene	Phenanthrene	C_5-C_8 Aliphatics	C_9-C_{18} Aliphatics	C_{19}-C_{36} Aliphatics	C_9-C_{22} Aromatics
Residential MSCC (mg/kg)			**626**	**626**	**1,560**	**1,564**	**NE**	**313**	**4,693**	**782**	**782**	**3,129**	**620**	**63**	**313**	**469**	**939**	**9,386**	**93,860**	**469**
Industrial/Commercial MSCC (mg/kg)			**16,350**	**16,350**	**40,000**	**40,880**	**NE**	**8,176**	**122,600**	**20,440**	**20,440**	**81,760**	**16,400**	**1,635**	**8,176**	**12,264**	**24,528**	**245,280**	**#**	**12,264**
Soil to Groundwater MSCC (mg/kg)			**4.3**	**3.3**	**4.6**	**1.7**	**NE**	**0.58**	**1.7**	**7.5**	**7.3**	**5**	**44**	**1.7**	**0.58**	**60**	**72**	**3,300**	**##**	**34**
TT2778-S006	10/8/2008	11.0	<0.772	2.17	1.57	0.934	**3.01**	**17.6**	**1.88**	**19.6**	**8.03**	**7.06**	<3.25	**26.9**	**8.6**	4.09	43.1	**4,640**	726	**2,058**
TT2778-S007	10/8/2008	11.0	<0.480	0.605	<0.480	<0.480	**0.586**	**4.82**	<0.480	4.64	1.74	1.2	<0.331	0.722	<0.331	0.331	11.9	448	136	**419**
TT2778-S008	10/8/2008	11.0	<0.993	2.47	1.81	1.11	**2.15**	**16.4**	**2.39**	**18.5**	5.36	**6.27**	4.91	**60.2**	**22.7**	9.06	53.5	**3,978**	697	**2,297**
TT2778-S009	10/8/2008	11.0	**7.2**	**3.8**	2.3	1.66	**3.27**	**2.29**	**3.54**	**27.4**	**8.36**	**8.2**	<3.40	**31.1**	**9.73**	4.73	53.6	**3,376**	602	**1,707**

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

TABLE 3
SUMMARY OF GROUNDWATER LABORATORY RESULTS
EPA METHODS 602, 625, and MADEP VPH/EPH

Well ID	Method →		EPA 602		EPA 625	MADEP VPH/EPH			
	Contaminant of Concern →								
	Sample ID	Date Collected	Ethylbenzene	Total Xylenes	Naphthalene	C_5-C_8 Aliphatics	C_9-C_{18} Aliphatics	C_{19}-C_{36} Aliphatics	C_9-C_{22} Aromatics
2L GWQS (µg/l)			**550**	**530**	**21**	**420**	**4,200**	**42,000**	**210**
GCL (µg/l)			**84,500**	**87,500**	**15,500**	**NE**	**NE**	**NE**	**NE**
TT2778-TW01	TT2778-TW01	10/9/2008	14.2	48.9	**137**	<100	**5,326**	929	**3,375**

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

NE = None Established

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

<# = Less than MDL

Bold results indicate concentrations above 2L GWQS or GCL

GCL = Gross Contaminant Level

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

TABLE 4
SUMMARY OF SOIL LABORATORY RESULTS
EPA Method 8015 (GRO and DRO)
Surface Release Excavation/Sampling Event on 10/1/2008

Sample ID	Contaminant of Concern →		Gasonline Range Organics	Diesel Range Organics
	Date Collected	Boring Depth (inches)		
NCDENR ACTION LEVEL (mg/kg)			10	40
SB01	10/1/2008	6"	<5.32	<7.09
SB02	10/1/2008	6-12"	<4.94	<6.73
SB03	10/1/2008	6-12"	<4.94	<6.91
SB04	10/1/2008	6-12"	<7.36	**43.3**
SB05	10/1/2008	6-12"	<5.68	<6.76
SB06	10/1/2008	6"	<5.48	<7.09
SB07	10/1/2008	6"	<4.83	<6.77

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

<# = Less than method detection limit

Bold results indicate concentrations above NCDENR Action Level.

TABLE 5
SUMMARY OF SOIL LABORATORY RESULTS
EPA METHODS 8260, 8270, and MADEP VPH/EPH
Surface Release Over Excavation/Sampling of SB04 on 10/08/2008

Sample ID	Contaminant of Concern →		EPA 8260	EPA 8270	MADEP VPH/EPH			
	Date Collected	Sample Depth (Inches BLS)	All 8260 Compounds	All 8270 Compounds	C_5-C_8 Aliphatics	C_9-C_{18} Aliphatics	C_{19}-C_{36} Aliphatics	C_9-C_{22} Aromatics
Residential MSCC (mg/kg)			Varies	Varies	939	9,386	93,860	469
Industrial/Commercial MSCC (mg/kg)			Varies	Varies	24,528	245,280	#	12,264
Soil to Groundwater MSCC (mg/kg)			Varies	Varies	72	3,300	##	34
SB08	10/8/2008	14-18"	BMDL	BMDL	<10.0	<20.0	<10.0	<20.0

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

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 PSC Box 20004
City: Camp Lejeune County: Onslow
State: North Carolina Zip Code: 28542-0004
Phone Number: 910 451-9660

II. LOCATION OF TANKS

Facility Name or Company: Tarawa Terrace Housing, ACTUS Lend Lease
Facility ID # (If known): N/A
Street Address: TT2778 Bougainville Drive
City: Camp Lejeune County: Onslow Zip Code: 28542
Phone Number: 910 451-9660

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: 2618A Colley Ave, Norfolk, VA
Phone. No: 757 440-0400

Primary Consultant Name: Osage of Virginia
Primary Consultant Company:
Address: 23517-1132
Phone. No:

IV. UST INFORMATION FOR REGISTERED UST SYSTEMS

V. EXCAVATION CONDITION

Tank ID No.	Size in Gallons	Tank Dimensions	Last Contents	Last Use Date	Permanent Close Date	Change-in-Service Date	Water in excavation Yes	Water in excavation No	Free product Yes	Free product No	Notable odor or visible soil contamination Yes	Notable odor or visible soil contamination No
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐

VI. UST INFORMATION FOR UNREGISTERED UST SYSTEMS

VII. EXCAVATION CONDITION

Tank ID No.	Size in Gallons	Tank Dimensions	Last Contents	Last Use Date	Permanent Close Date	Tank Owner Name *	Water in excavation Yes	Water in excavation No	Free product Yes	Free product No	Notable odor or visible soil contamination Yes	Notable odor or visible soil contamination No
TT2778	550	4' x 6' D	#2 Fuel Oil	Unkown	Unkown	See Above	☐	☒	☐	☒	☒	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐

* 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. CETIFICATION

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 Environmental Protection Specialist		

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) Yes
Confirmed GW Contamination? (Y/N) No
Confirmed Soil Contamination ?(Y/N) No
Samples Taken?(Y/N) Yes
Free Product? (Y/N) No If Yes, State Greatest Thickness _____

Facility ID Number N/A
Date Leak Discovered 26 Sept 08
Comm/(Non-Commercial)? _____
Reg/(Non-regulated)? _____

INCIDENT DESCRIPTION

Incident Name: TT2778 heating oil incident

Address: TT2778 Bouganville Drive | 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 05.929 N Longitude (decimal degrees) : 77 22 29.927 W

Obtained by:
- ❑ GPS
- ❑ Topographic map
- X 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 Thursday 25 September 2008 during construction of new housing at the Tarawa Terrace housing area aboard Camp lejeune an abandoned heating oil tank was reported found. a significant Rain event the same day filled the abandoned UST damaged by construction equipment allowing rainwater to overfill the container. On Friday 26 September EMD cleaned up the release (See attached report). On Wednesday 1 Oct the UST was removed and samples taken of the UST excavation and spill area. A UST12 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
- X Other (specify) See attached report

SOURCE OF CONTAMINATION

Source of Release *(Check one to indicate primary source)*
- X 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
- X Physical or Mechanical Damage
- ❑ Install Problem
- ❑ Other
- ❑ Unknown

Definitions presented on reverse

Type of Release *(Check one)*
- X Petroleum
- ❑ Non-Petroleum
- ❑ Both

Location *(Check one)*
- ❑ Facility
- ❑ Residence
- ❑ Other

Product Type Released *(Check one to indicate primary product type released)*
- ❑ Gasoline/ Diesel/ Kerosene
- X 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 (circled) 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 Camp :Lejeune

Point of Contact		Address	
Bruce Markwick		Bldg 12 Post Lane	
City	**State**	**Zip Code**	**Telephone Number**
Camp Lejeune	NC	28542	910 451-9660

UST SYSTEM OPERATOR

UST Operator/Company		Address	
USMC		PSC Box 20004	
City	**State**	**Zip Code**	**Telephone Number**
Camp Lejeune	NC	28542	Bruce Markwick

LANDOWNER AT LOCATION OF UST INCIDENT

Landowner		Address	
USMC Lease to Actus Lend Lease		Same as above	
City	**State**	**Zip Code**	**Telephone Number**

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

See map attached to spill report

Person Reporting Incident	Bruce Markwick	Company		Telephone Number	910 451-9660
Title	Environmental Protection Specialist	Address	Same as above	Date	3 Oct 2008

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

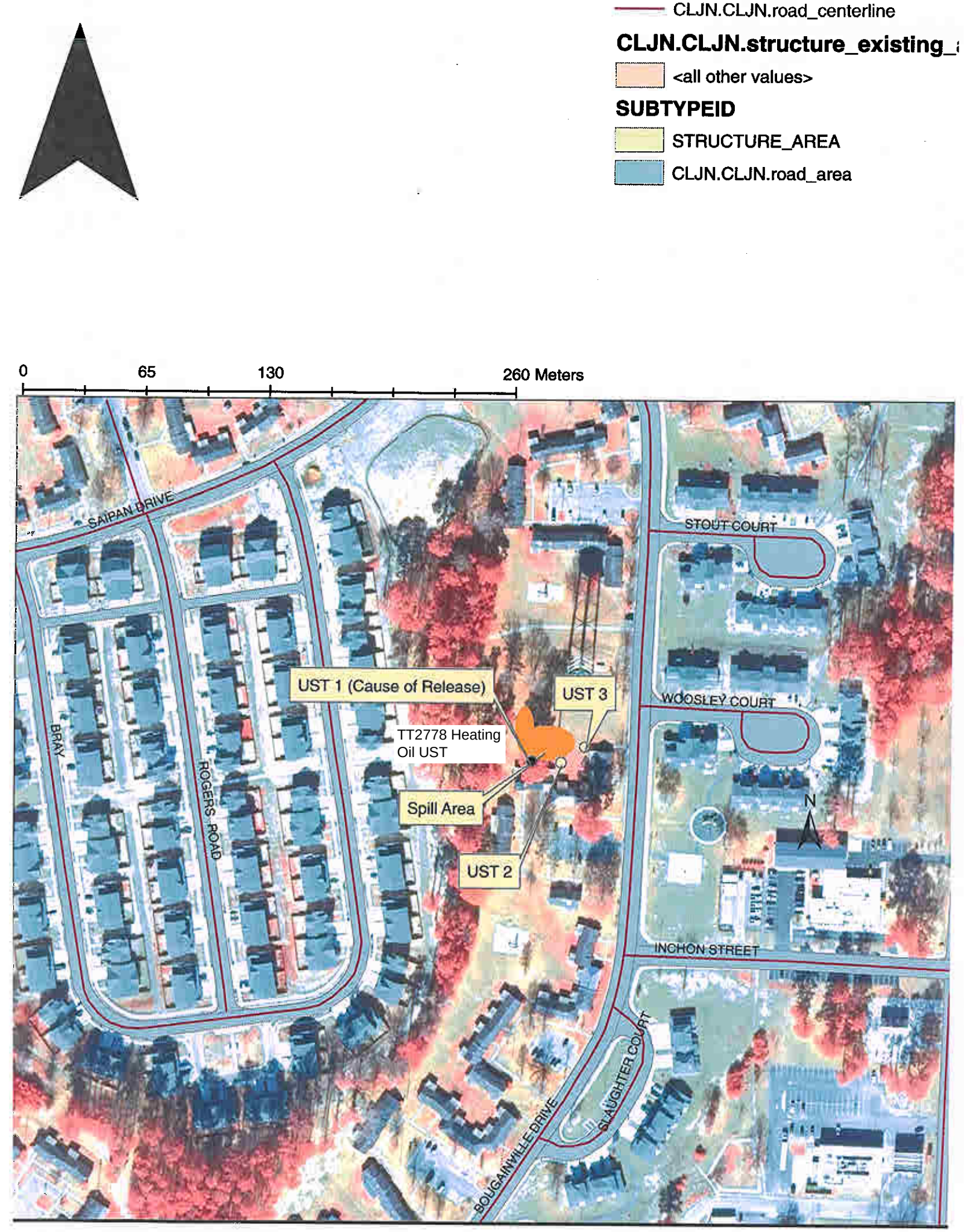
Other: use this option when the cause is known but does not fit into one of the preceding categories (e.g., putting regulated substances into monitoring wells)

Unknown: use when the cause has not been determined

MCBCL/MCASNR SPCC State Notification of Discharge Report (POL's)	
Subj:	Spill of #2 Fuel Oil from UST
Installation POC/Phone Number:	MCBCLNC 910-451-5306
1. Date and Time When Release Occurred/Discovered	Occurred 9/26/08 0700 Responded 9/26/08 0818
2. Activity/Responsible Party Originating Release	MCBCLNC 910-451-5306
2a. Address of Responsible Party	Bldg 977 Michael Street
3. Source of Release (Storage Area, Shop, Vehicle, etc)	Abandoned UST containing #2 Fuel Oil was overfilled from rain event.
4. Location of Spill (Bldg, Highway, Range, etc)	Corner of Bougenville and Inchon at Tarawa Terrace
5. Quantity Released (Gallons/Liters, Pounds/Kilograms) - If Unknown, Indicate Size of Contaminated Area	Intial Report: 12 Gallons Final Report: 80 Gallons
6. Type of Substance Released	#2 Heating Oil
7. Container Involved (Drum, Bag, Storage Tank, etc)	Heating Oil UST
8. Samples Taken (Yes/No; Specify Analyses Requested/Performed)	Samples will be taken
9. Cause of Release	Significant Rain event/ Abandoned UST damaged by construction equipment corrupted containment and allowed rainwater to overfill the container.
10. Release Scene Description (Contaminated Area, Path of Release, etc)	Construction area with pooled water from previos days rain event.
11. Document the Action Taken/Planned to Mitigate the Release	Initial area around exposed UST was bermed. RCRS was contacted and UST was pumped out. Spilled materials were picked up using absorbent matting, vac truck, and front end loader was used to remove contaminated soil.
12. On-Scene Weather/Wind (Temp, Humidity, Wind Velocity, Visibility, etc)	Sunny
13. Areas Threatened/Damaged (Beach, Wetlands, Water Intake, Aquifer, etc)	n/a
14. Potential Dangers (Fire, Explosion, Toxic Vapor, etc)	n/a
15. Notifications Made (NRC, Coast Guard MSO, EPA, State, Local Agency, etc)	NCDEM (0825) Robin Brown NRC (0827) Miss Rawls NCDENR (0833) Bruce Reed
16. Telephonic Report to NRC was made (NRC POC/Report Number)	Miss Rawls 885308
17. POC for Report (Person, Activity, Phone Number)	John D. Hamilton 910-451-5306

18. Document Any Other Relevant Information Pertaining to the Release	Did not reach navigable waters.			
Document the Presence of Free Product (If Known)	Fuel was located on water from rain event.			
State how the Release Was Discovered	Contractor found spill on inspection of construction site.			
Are Their Any Water Supply Wells Within 1,500 Feet of the Release?	No			
If Yes, How Many Water Supply Wells are within 1,500 feet of the Release	n/a			
Was any surface water Impacted or the spill within 100 feet or less of any surface water?	n/a			
Latitude and Longitude of Release	Latitude (Decimal Degrees)	282566.8922	Longitude (Decimal Degrees)	3846218.863
Directions to the spill site	Map Attached			

Report POL Releases to NCEM (800)858-0368 and contact Mr. Bruce Reed at (910) 796-7400. Email or Fax this report to Mr. Bruce Reed (Bruce.Reed@ncmail.net) within 24 hours of the Release.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SAIPAN DRIVE
STOUT COURT
UST 1 (Cause of Release)
UST 3
WOOSLEY COURT
TT2778 Heating Oil UST
BRAY
ROGERS ROAD
Spill Area
UST 2
N
INCHON STREET
SLAUGHTER COURT
BOUGAINVILLE DRIVE

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-2778	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		10/15/08

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

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

Print Name	Signature	Month/Day/Year
Crystal Dirrington	Crystal Dirrington	10.15.2008

APPENDIX D
Disposal Manifests

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

APPENDIX E
Laboratory Analytical Reports

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

Report Number: G649-72

Client Project: CTO 016

Dear Shaun Whitworth,

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

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

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

Sincerely,
SGS Environmental Services, Inc.

Project Manager Date
Ashley Nifong

List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

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

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL/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.

Print Date: 10/3/2008

Client Sample ID: **TT2778-S001**
Client Project ID: CTO 016
Lab Sample ID: G649-72-1D
Lab Project ID: G649-72

Collection Date: 30-Sep-08 15:55
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 81.13
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	BQL	7.61	MG/KG	1	02-Oct-08 14:16

Surrogates

OTP	80.5	40-140	%	1	02-Oct-08 14:16

Batch Information

Analytical Batch: EP100208
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

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

Print Date: 10/3/2008

Client Sample ID: **TT2778-S002**
Client Project ID: CTO 016
Lab Sample ID: G649-72-2D
Lab Project ID: G649-72

Collection Date: 30-Sep-08 15:45
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 83.88
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	BQL	7.40	MG/KG	1	02-Oct-08 14:44

Surrogates

OTP	75.9	40-140	%	1	02-Oct-08 14:44

Batch Information

Analytical Batch: EP100208
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 32.22
Prep Extract Vol: 10

Print Date: 10/3/2008

Client Sample ID: **TT2778-S003**
Client Project ID: CTO 016
Lab Sample ID: G649-72-3D
Lab Project ID: G649-72

Collection Date: 30-Sep-08 16:15
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 79.94
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	BQL	7.80	MG/KG	1	02-Oct-08 15:13

Surrogates

OTP	77	40-140	%	1	02-Oct-08 15:13

Batch Information

Analytical Batch: EP100208
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 32.07
Prep Extract Vol: 10

Print Date: 10/3/2008

Client Sample ID: **TT2778-S004**
Client Project ID: CTO 016
Lab Sample ID: G649-72-4D
Lab Project ID: G649-72

Collection Date: 30-Sep-08 16:30
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 78.91
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	**8.26**	7.60	MG/KG	1	02-Oct-08 15:42

Surrogates

OTP	75.5	40-140	%	1	02-Oct-08 15:42

Batch Information

Analytical Batch: EP100208
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 33.35
Prep Extract Vol: 10

Print Date: 10/3/2008

Client Sample ID: **TT2778-S005**
Client Project ID: CTO 016
Lab Sample ID: G649-72-5D
Lab Project ID: G649-72

Collection Date: 30-Sep-08 17:30
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 85.96
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	**22500**	720	MG/KG	100	02-Oct-08 17:36

Surrogates

OTP	NA *	40-140	%	100	02-Oct-08 17:36

Batch Information

Analytical Batch: EP100208
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 32.33
Prep Extract Vol: 10

* Not applicable, surrogate diluted out

Print Date: 10/3/2008

Client Sample ID: **TT2778-S001**
Client Project ID: CTO 016
Lab Sample ID: G649-72-1A
Lab Project ID: G649-72

Collection Date: 30-Sep-08 15:55
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 81.13
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	5.69	MG/KG	1	01-Oct-08 16:33

Surrogates

BFB	97.1	70-130	%	1	01-Oct-08 16:33

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.5
Prep Extract Vol: 5

Print Date: 10/3/2008

Client Sample ID: **TT2778-S002**
Client Project ID: CTO 016
Lab Sample ID: G649-72-2A
Lab Project ID: G649-72

Collection Date: 30-Sep-08 15:45
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 83.88
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	5.80	MG/KG	1	01-Oct-08 16:59

Surrogates

BFB	97.9	70-130	%	1	01-Oct-08 16:59

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.17
Prep Extract Vol: 5

Print Date: 10/3/2008

Client Sample ID: **TT2778-S003**
Client Project ID: CTO 016
Lab Sample ID: G649-72-3A
Lab Project ID: G649-72

Collection Date: 30-Sep-08 16:15
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 79.94
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	5.41	MG/KG	1	01-Oct-08 17:26

Surrogates

BFB	98.9	70-130	%	1	01-Oct-08 17:26

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.94
Prep Extract Vol: 5

Print Date: 10/3/2008

Client Sample ID: **TT2778-S004**
Client Project ID: CTO 016
Lab Sample ID: G649-72-4A
Lab Project ID: G649-72

Collection Date: 30-Sep-08 16:30
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 78.91
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	6.12	MG/KG	1	01-Oct-08 17:53

Surrogates

BFB	106	70-130	%	1	01-Oct-08 17:53

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.21
Prep Extract Vol: 5

Print Date: 10/3/2008

Client Sample ID: **TT2778-S005**
Client Project ID: CTO 016
Lab Sample ID: G649-72-5A
Lab Project ID: G649-72

Collection Date: 30-Sep-08 17:30
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 85.96
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	**279**	84.9	MG/KG	25	01-Oct-08 18:20

Surrogates

BFB	101	70-130	%	25	01-Oct-08 18:20

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.85
Prep Extract Vol: 5

Print Date: 10/3/2008

Client Sample ID: **Trip Blank**
Client Project ID: CTO 016
Lab Sample ID: G649-72-6A
Lab Project ID: G649-72

Collection Date: 01-Oct-08 0:00
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 100.0
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	6.00	MG/KG	1	01-Oct-08 16:06

Surrogates

BFB	94.1	70-130	%	1	01-Oct-08 16:06

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

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

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

089742

(1)

CLIENT: OSAGE OF VA

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

PROJECT: CTO 016 SITE/PWSID#: 11 2778

REPORTS TO: Shaun Whitworth E-MAIL: swhitworth@osagevа.com

FAX NO.: (757) 440-0411

INVOICE TO: MIKE CREE QUOTE #

P.O. NUMBER CTO 016

SGS Reference: 6649-72

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used: METHANOL	Preservatives Used: None	Analysis Required (3): 5030	Analysis Required (3): 3550	REMARKS
	IT 2778-S001	9/30/08	1555	S	3		X	X			SAMPLE DEPTH 3'ft
	IT 2778-S002	↑	1545	S	3		X	X			" " 3'
	IT 2778-S003		1615	S	3		X	X			" " 3'
	IT 2778-S004	↓	1630	S	3		X	X			" " 3'
	IT 2778-S005	9/30/08	1730	S	3		X	X			" " 7'ft
	TRIP BLANK	10/1/08	1000	—	1		X				

(5)

Relinquished By:	Date	Time	Received By:	Date	Time
Collected/Relinquished By:(1)	10/1/08	1120		10/1/08	1120
Relinquished By: (2)	10/1/08	1315		10/1/08	1315
Relinquished By: (3)					
Relinquished By: (4)					

(4)

Shipping Carrier: Hand Delivered

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature °C: 4.2°C

Special Deliverable Requirements: EDD Format

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions: Email results to: swhitworth@osagevа.com, mhall@catlinusa.com, tellerman@osagevа.com

Requested Turnaround Time:

☒ RUSH ASAP Date Needed ☐ STD

❑ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
❑ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557
❑ 1270 Greenbrier Street **Charleston, WV 25311** Tel: (304) 346-0725 Fax: (304) 346-0761

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

Report Number: G649-74

Client Project: CTO 002

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 10/15/08

Project Manager Date
Ashley Nifong

List of Reporting Abbreviations
And Data Qualifiers

B = Compound also detected in batch blank

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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

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: TT2778-S006
Client Project ID: CTO 002
Lab Sample ID: G649-74-1D
Lab Project ID: G649-74
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 10/8/2008 10:25
Date Received: 10/9/2008
Matrix: Soil
Sample Amount: 4.46 g
%Solids: 93.0

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	19300	640	10/12/2008
Benzene	BQL	772	640	10/12/2008
Bromobenzene	BQL	772	640	10/12/2008
Bromochloromethane	BQL	772	640	10/12/2008
Bromodichloromethane	BQL	772	640	10/12/2008
Bromoform	BQL	772	640	10/12/2008
Bromomethane	BQL	772	640	10/12/2008
2-Butanone	BQL	19300	640	10/12/2008
n-Butylbenzene	BQL	772	640	10/12/2008
sec-Butylbenzene	**2170**	772	640	10/12/2008
tert-Butylbenzene	BQL	772	640	10/12/2008
Carbon disulfide	BQL	772	640	10/12/2008
Carbon tetrachloride	BQL	772	640	10/12/2008
Chlorobenzene	BQL	772	640	10/12/2008
Chloroethane	BQL	772	640	10/12/2008
Chloroform	BQL	772	640	10/12/2008
Chloromethane	BQL	772	640	10/12/2008
2-Chlorotoluene	BQL	772	640	10/12/2008
4-Chlorotoluene	BQL	772	640	10/12/2008
Dibromochloromethane	BQL	772	640	10/12/2008
1,2-Dibromo-3-chloropropane	BQL	3860	640	10/12/2008
Dibromomethane	BQL	772	640	10/12/2008
1,2-Dibromoethane (EDB)	BQL	772	640	10/12/2008
1,2-Dichlorobenzene	BQL	772	640	10/12/2008
1,3-Dichlorobenzene	BQL	772	640	10/12/2008
1,4-Dichlorobenzene	BQL	772	640	10/12/2008
trans-1,4-Dichloro-2-butene	BQL	3860	640	10/12/2008
1,1-Dichloroethane	BQL	772	640	10/12/2008
1,1-Dichloroethene	BQL	772	640	10/12/2008
1,2-Dichloroethane	BQL	772	640	10/12/2008
cis-1,2-Dichloroethene	BQL	772	640	10/12/2008
trans-1,2-dichloroethene	BQL	772	640	10/12/2008
1,2-Dichloropropane	BQL	772	640	10/12/2008
1,3-Dichloropropane	BQL	772	640	10/12/2008
2,2-Dichloropropane	BQL	772	640	10/12/2008
1,1-Dichloropropene	BQL	772	640	10/12/2008
cis-1,3-Dichloropropene	BQL	772	640	10/12/2008
trans-1,3-Dichloropropene	BQL	772	640	10/12/2008
Dichlorodifluoromethane	BQL	3860	640	10/12/2008
Diisopropyl ether (DIPE)	BQL	772	640	10/12/2008
Ethylbenzene	**1570**	772	640	10/12/2008
Hexachlorobutadiene	BQL	772	640	10/12/2008
2-Hexanone	BQL	3860	640	10/12/2008
Iodomethane	BQL	772	640	10/12/2008
Isopropylbenzene	**934**	772	640	10/12/2008

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: TT2778-S006
Client Project ID: CTO 002
Lab Sample ID: G649-74-1D
Lab Project ID: G649-74
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 10/8/2008 10:25
Date Received: 10/9/2008
Matrix: Soil
Sample Amount: 4.46 g
%Solids: 93.0

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
4-Isopropyltoluene	**3010**	772	640	10/12/2008
Methylene chloride	BQL	3860	640	10/12/2008
4-Methyl-2-pentanone	BQL	3860	640	10/12/2008
Methyl-tert-butyl ether (MTBE)	BQL	772	640	10/12/2008
Naphthalene	**17600**	772	640	10/12/2008
n-Propyl benzene	**1880**	772	640	10/12/2008
Styrene	BQL	772	640	10/12/2008
1,1,1,2-Tetrachloroethane	BQL	772	640	10/12/2008
1,1,2,2-Tetrachloroethane	BQL	772	640	10/12/2008
Tetrachloroethene	BQL	772	640	10/12/2008
Toluene	BQL	772	640	10/12/2008
1,2,3-Trichlorobenzene	BQL	772	640	10/12/2008
1,2,4-Trichlorobenzene	BQL	772	640	10/12/2008
Trichloroethene	BQL	772	640	10/12/2008
1,1,1-Trichloroethane	BQL	772	640	10/12/2008
1,1,2-Trichloroethane	BQL	772	640	10/12/2008
Trichlorofluoromethane	BQL	772	640	10/12/2008
1,2,3-Trichloropropane	BQL	772	640	10/12/2008
1,2,4-Trimethylbenzene	**19600**	772	640	10/12/2008
1,3,5-Trimethylbenzene	**8030**	772	640	10/12/2008
Vinyl chloride	BQL	772	640	10/12/2008
m-,p-Xylene	**5700**	1540	640	10/12/2008
o-Xylene	**1360**	772	640	10/12/2008

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	10	8.63	86
Toluene-d8	10	9.88	99
4-Bromofluorobenzene	10	9.98	100

Comments:

Flags:
BQL = Below Quantitation Limits.

Analyst: _____

Reviewed By: _____

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: TT2778-S007
Client Project ID: CTO 002
Lab Sample ID: G649-74-2D
Lab Project ID: G649-74
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 10/8/2008 10:15
Date Received: 10/9/2008
Matrix: Soil
Sample Amount: 4.47 g
%Solids: 93.2

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	12000	400	10/12/2008
Benzene	BQL	480	400	10/12/2008
Bromobenzene	BQL	480	400	10/12/2008
Bromochloromethane	BQL	480	400	10/12/2008
Bromodichloromethane	BQL	480	400	10/12/2008
Bromoform	BQL	480	400	10/12/2008
Bromomethane	BQL	480	400	10/12/2008
2-Butanone	BQL	12000	400	10/12/2008
n-Butylbenzene	BQL	480	400	10/12/2008
sec-Butylbenzene	**605**	480	400	10/12/2008
tert-Butylbenzene	BQL	480	400	10/12/2008
Carbon disulfide	BQL	480	400	10/12/2008
Carbon tetrachloride	BQL	480	400	10/12/2008
Chlorobenzene	BQL	480	400	10/12/2008
Chloroethane	BQL	480	400	10/12/2008
Chloroform	BQL	480	400	10/12/2008
Chloromethane	BQL	480	400	10/12/2008
2-Chlorotoluene	BQL	480	400	10/12/2008
4-Chlorotoluene	BQL	480	400	10/12/2008
Dibromochloromethane	BQL	480	400	10/12/2008
1,2-Dibromo-3-chloropropane	BQL	2400	400	10/12/2008
Dibromomethane	BQL	480	400	10/12/2008
1,2-Dibromoethane (EDB)	BQL	480	400	10/12/2008
1,2-Dichlorobenzene	BQL	480	400	10/12/2008
1,3-Dichlorobenzene	BQL	480	400	10/12/2008
1,4-Dichlorobenzene	BQL	480	400	10/12/2008
trans-1,4-Dichloro-2-butene	BQL	2400	400	10/12/2008
1,1-Dichloroethane	BQL	480	400	10/12/2008
1,1-Dichloroethene	BQL	480	400	10/12/2008
1,2-Dichloroethane	BQL	480	400	10/12/2008
cis-1,2-Dichloroethene	BQL	480	400	10/12/2008
trans-1,2-dichloroethene	BQL	480	400	10/12/2008
1,2-Dichloropropane	BQL	480	400	10/12/2008
1,3-Dichloropropane	BQL	480	400	10/12/2008
2,2-Dichloropropane	BQL	480	400	10/12/2008
1,1-Dichloropropene	BQL	480	400	10/12/2008
cis-1,3-Dichloropropene	BQL	480	400	10/12/2008
trans-1,3-Dichloropropene	BQL	480	400	10/12/2008
Dichlorodifluoromethane	BQL	2400	400	10/12/2008
Diisopropyl ether (DIPE)	BQL	480	400	10/12/2008
Ethylbenzene	BQL	480	400	10/12/2008
Hexachlorobutadiene	BQL	480	400	10/12/2008
2-Hexanone	BQL	2400	400	10/12/2008
Iodomethane	BQL	480	400	10/12/2008
Isopropylbenzene	BQL	480	400	10/12/2008

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: TT2778-S007
Client Project ID: CTO 002
Lab Sample ID: G649-74-2D
Lab Project ID: G649-74
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 10/8/2008 10:15
Date Received: 10/9/2008
Matrix: Soil
Sample Amount: 4.47 g
%Solids: 93.2

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
4-Isopropyltoluene	**586**	480	400	10/12/2008
Methylene chloride	BQL	2400	400	10/12/2008
4-Methyl-2-pentanone	BQL	2400	400	10/12/2008
Methyl-tert-butyl ether (MTBE)	BQL	480	400	10/12/2008
Naphthalene	**4820**	480	400	10/12/2008
n-Propyl benzene	BQL	480	400	10/12/2008
Styrene	BQL	480	400	10/12/2008
1,1,1,2-Tetrachloroethane	BQL	480	400	10/12/2008
1,1,2,2-Tetrachloroethane	BQL	480	400	10/12/2008
Tetrachloroethene	BQL	480	400	10/12/2008
Toluene	BQL	480	400	10/12/2008
1,2,3-Trichlorobenzene	BQL	480	400	10/12/2008
1,2,4-Trichlorobenzene	BQL	480	400	10/12/2008
Trichloroethene	BQL	480	400	10/12/2008
1,1,1-Trichloroethane	BQL	480	400	10/12/2008
1,1,2-Trichloroethane	BQL	480	400	10/12/2008
Trichlorofluoromethane	BQL	480	400	10/12/2008
1,2,3-Trichloropropane	BQL	480	400	10/12/2008
1,2,4-Trimethylbenzene	**4640**	480	400	10/12/2008
1,3,5-Trimethylbenzene	**1740**	480	400	10/12/2008
Vinyl chloride	BQL	480	400	10/12/2008
m-,p-Xylene	**1200**	961	400	10/12/2008
o-Xylene	BQL	480	400	10/12/2008

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	10	8.65	87
Toluene-d8	10	10	100
4-Bromofluorobenzene	10	10.1	101

Comments:

Flags:
BQL = Below Quantitation Limits.

Analyst: _____

Reviewed By: _____

Results for Volatiles by GCMS 8260B/5035

Client Sample ID: TT2778-S008
Client Project ID: CTO 002
Lab Sample ID: G649-74-3D
Lab Project ID: G649-74
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 10/8/2008 10:19
Date Received: 10/9/2008
Matrix: Soil
Sample Amount: 5.63 g
%Solids: 89.5

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	24800	1000	10/12/2008
Benzene	BQL	993	1000	10/12/2008
Bromobenzene	BQL	993	1000	10/12/2008
Bromochloromethane	BQL	993	1000	10/12/2008
Bromodichloromethane	BQL	993	1000	10/12/2008
Bromoform	BQL	993	1000	10/12/2008
Bromomethane	BQL	993	1000	10/12/2008
2-Butanone	BQL	24800	1000	10/12/2008
n-Butylbenzene	BQL	993	1000	10/12/2008
sec-Butylbenzene	**2470**	993	1000	10/12/2008
tert-Butylbenzene	BQL	993	1000	10/12/2008
Carbon disulfide	BQL	993	1000	10/12/2008
Carbon tetrachloride	BQL	993	1000	10/12/2008
Chlorobenzene	BQL	993	1000	10/12/2008
Chloroethane	BQL	993	1000	10/12/2008
Chloroform	BQL	993	1000	10/12/2008
Chloromethane	BQL	993	1000	10/12/2008
2-Chlorotoluene	BQL	993	1000	10/12/2008
4-Chlorotoluene	BQL	993	1000	10/12/2008
Dibromochloromethane	BQL	993	1000	10/12/2008
1,2-Dibromo-3-chloropropane	BQL	4960	1000	10/12/2008
Dibromomethane	BQL	993	1000	10/12/2008
1,2-Dibromoethane (EDB)	BQL	993	1000	10/12/2008
1,2-Dichlorobenzene	BQL	993	1000	10/12/2008
1,3-Dichlorobenzene	BQL	993	1000	10/12/2008
1,4-Dichlorobenzene	BQL	993	1000	10/12/2008
trans-1,4-Dichloro-2-butene	BQL	4960	1000	10/12/2008
1,1-Dichloroethane	BQL	993	1000	10/12/2008
1,1-Dichloroethene	BQL	993	1000	10/12/2008
1,2-Dichloroethane	BQL	993	1000	10/12/2008
cis-1,2-Dichloroethene	BQL	993	1000	10/12/2008
trans-1,2-dichloroethene	BQL	993	1000	10/12/2008
1,2-Dichloropropane	BQL	993	1000	10/12/2008
1,3-Dichloropropane	BQL	993	1000	10/12/2008
2,2-Dichloropropane	BQL	993	1000	10/12/2008
1,1-Dichloropropene	BQL	993	1000	10/12/2008
cis-1,3-Dichloropropene	BQL	993	1000	10/12/2008
trans-1,3-Dichloropropene	BQL	993	1000	10/12/2008
Dichlorodifluoromethane	BQL	4960	1000	10/12/2008
Diisopropyl ether (DIPE)	BQL	993	1000	10/12/2008
Ethylbenzene	**1810**	993	1000	10/12/2008
Hexachlorobutadiene	BQL	993	1000	10/12/2008
2-Hexanone	BQL	4960	1000	10/12/2008
Iodomethane	BQL	993	1000	10/12/2008
Isopropylbenzene	**1110**	993	1000	10/12/2008

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: TT2778-S008
Client Project ID: CTO 002
Lab Sample ID: G649-74-3D
Lab Project ID: G649-74
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 10/8/2008 10:19
Date Received: 10/9/2008
Matrix: Soil
Sample Amount: 5.63 g
%Solids: 89.5

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
4-Isopropyltoluene	**2150**	993	1000	10/12/2008
Methylene chloride	BQL	4960	1000	10/12/2008
4-Methyl-2-pentanone	BQL	4960	1000	10/12/2008
Methyl-tert-butyl ether (MTBE)	BQL	993	1000	10/12/2008
Naphthalene	**16400**	993	1000	10/12/2008
n-Propyl benzene	**2390**	993	1000	10/12/2008
Styrene	BQL	993	1000	10/12/2008
1,1,1,2-Tetrachloroethane	BQL	993	1000	10/12/2008
1,1,2,2-Tetrachloroethane	BQL	993	1000	10/12/2008
Tetrachloroethene	BQL	993	1000	10/12/2008
Toluene	BQL	993	1000	10/12/2008
1,2,3-Trichlorobenzene	BQL	993	1000	10/12/2008
1,2,4-Trichlorobenzene	BQL	993	1000	10/12/2008
Trichloroethene	BQL	993	1000	10/12/2008
1,1,1-Trichloroethane	BQL	993	1000	10/12/2008
1,1,2-Trichloroethane	BQL	993	1000	10/12/2008
Trichlorofluoromethane	BQL	993	1000	10/12/2008
1,2,3-Trichloropropane	BQL	993	1000	10/12/2008
1,2,4-Trimethylbenzene	**18500**	993	1000	10/12/2008
1,3,5-Trimethylbenzene	**5360**	993	1000	10/12/2008
Vinyl chloride	BQL	993	1000	10/12/2008
m-,p-Xylene	**6270**	1990	1000	10/12/2008
o-Xylene	BQL	993	1000	10/12/2008

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	10	8.8	88
Toluene-d8	10	9.98	100
4-Bromofluorobenzene	10	10	100

Comments:

Flags:
BQL = Below Quantitation Limits.

Analyst: _____

Reviewed By: _____

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: TT2778-S009
Client Project ID: CTO 002
Lab Sample ID: G649-74-4D
Lab Project ID: G649-74
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 10/8/2008 10:12
Date Received: 10/9/2008
Matrix: Soil
Sample Amount: 4.02 g
%Solids: 87.0

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	35700	1000	10/12/2008
Benzene	BQL	1430	1000	10/12/2008
Bromobenzene	BQL	1430	1000	10/12/2008
Bromochloromethane	BQL	1430	1000	10/12/2008
Bromodichloromethane	BQL	1430	1000	10/12/2008
Bromoform	BQL	1430	1000	10/12/2008
Bromomethane	BQL	1430	1000	10/12/2008
2-Butanone	BQL	35700	1000	10/12/2008
n-Butylbenzene	**7220**	1430	1000	10/12/2008
sec-Butylbenzene	**3800**	1430	1000	10/12/2008
tert-Butylbenzene	BQL	1430	1000	10/12/2008
Carbon disulfide	BQL	1430	1000	10/12/2008
Carbon tetrachloride	BQL	1430	1000	10/12/2008
Chlorobenzene	BQL	1430	1000	10/12/2008
Chloroethane	BQL	1430	1000	10/12/2008
Chloroform	BQL	1430	1000	10/12/2008
Chloromethane	BQL	1430	1000	10/12/2008
2-Chlorotoluene	BQL	1430	1000	10/12/2008
4-Chlorotoluene	BQL	1430	1000	10/12/2008
Dibromochloromethane	BQL	1430	1000	10/12/2008
1,2-Dibromo-3-chloropropane	BQL	7150	1000	10/12/2008
Dibromomethane	BQL	1430	1000	10/12/2008
1,2-Dibromoethane (EDB)	BQL	1430	1000	10/12/2008
1,2-Dichlorobenzene	BQL	1430	1000	10/12/2008
1,3-Dichlorobenzene	BQL	1430	1000	10/12/2008
1,4-Dichlorobenzene	BQL	1430	1000	10/12/2008
trans-1,4-Dichloro-2-butene	BQL	7150	1000	10/12/2008
1,1-Dichloroethane	BQL	1430	1000	10/12/2008
1,1-Dichloroethene	BQL	1430	1000	10/12/2008
1,2-Dichloroethane	BQL	1430	1000	10/12/2008
cis-1,2-Dichloroethene	BQL	1430	1000	10/12/2008
trans-1,2-dichloroethene	BQL	1430	1000	10/12/2008
1,2-Dichloropropane	BQL	1430	1000	10/12/2008
1,3-Dichloropropane	BQL	1430	1000	10/12/2008
2,2-Dichloropropane	BQL	1430	1000	10/12/2008
1,1-Dichloropropene	BQL	1430	1000	10/12/2008
cis-1,3-Dichloropropene	BQL	1430	1000	10/12/2008
trans-1,3-Dichloropropene	BQL	1430	1000	10/12/2008
Dichlorodifluoromethane	BQL	7150	1000	10/12/2008
Diisopropyl ether (DIPE)	BQL	1430	1000	10/12/2008
Ethylbenzene	**2300**	1430	1000	10/12/2008
Hexachlorobutadiene	BQL	1430	1000	10/12/2008
2-Hexanone	BQL	7150	1000	10/12/2008
Iodomethane	BQL	1430	1000	10/12/2008
Isopropylbenzene	**1660**	1430	1000	10/12/2008

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: TT2778-S009
Client Project ID: CTO 002
Lab Sample ID: G649-74-4D
Lab Project ID: G649-74
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 10/8/2008 10:12
Date Received: 10/9/2008
Matrix: Soil
Sample Amount: 4.02 g
%Solids: 87.0

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
4-Isopropyltoluene	**3270**	1430	1000	10/12/2008
Methylene chloride	BQL	7150	1000	10/12/2008
4-Methyl-2-pentanone	BQL	7150	1000	10/12/2008
Methyl-tert-butyl ether (MTBE)	BQL	1430	1000	10/12/2008
Naphthalene	**22900**	1430	1000	10/12/2008
n-Propyl benzene	**3540**	1430	1000	10/12/2008
Styrene	BQL	1430	1000	10/12/2008
1,1,1,2-Tetrachloroethane	BQL	1430	1000	10/12/2008
1,1,2,2-Tetrachloroethane	BQL	1430	1000	10/12/2008
Tetrachloroethene	BQL	1430	1000	10/12/2008
Toluene	BQL	1430	1000	10/12/2008
1,2,3-Trichlorobenzene	BQL	1430	1000	10/12/2008
1,2,4-Trichlorobenzene	BQL	1430	1000	10/12/2008
Trichloroethene	BQL	1430	1000	10/12/2008
1,1,1-Trichloroethane	BQL	1430	1000	10/12/2008
1,1,2-Trichloroethane	BQL	1430	1000	10/12/2008
Trichlorofluoromethane	BQL	1430	1000	10/12/2008
1,2,3-Trichloropropane	BQL	1430	1000	10/12/2008
1,2,4-Trimethylbenzene	**27400**	1430	1000	10/12/2008
1,3,5-Trimethylbenzene	**8360**	1430	1000	10/12/2008
Vinyl chloride	BQL	1430	1000	10/12/2008
m-,p-Xylene	**8200**	2860	1000	10/12/2008
o-Xylene	BQL	1430	1000	10/12/2008

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	10	8.65	87
Toluene-d8	10	9.88	99
4-Bromofluorobenzene	10	9.99	100

Comments:

Flags:
BQL = Below Quantitation Limits.

Analyst: _____

Reviewed By: _____

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: Trip BlanK
Client Project ID: CTO 002
Lab Sample ID: G649-74-5B
Lab Project ID: G649-74
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 10/8/2008 0:00
Date Received: 10/9/2008
Matrix: Soil
Sample Amount: 5 g
%Solids: 100.0

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	1250	50	10/12/2008
Benzene	BQL	50.0	50	10/12/2008
Bromobenzene	BQL	50.0	50	10/12/2008
Bromochloromethane	BQL	50.0	50	10/12/2008
Bromodichloromethane	BQL	50.0	50	10/12/2008
Bromoform	BQL	50.0	50	10/12/2008
Bromomethane	BQL	50.0	50	10/12/2008
2-Butanone	BQL	1250	50	10/12/2008
n-Butylbenzene	BQL	50.0	50	10/12/2008
sec-Butylbenzene	BQL	50.0	50	10/12/2008
tert-Butylbenzene	BQL	50.0	50	10/12/2008
Carbon disulfide	BQL	50.0	50	10/12/2008
Carbon tetrachloride	BQL	50.0	50	10/12/2008
Chlorobenzene	BQL	50.0	50	10/12/2008
Chloroethane	BQL	50.0	50	10/12/2008
Chloroform	BQL	50.0	50	10/12/2008
Chloromethane	BQL	50.0	50	10/12/2008
2-Chlorotoluene	BQL	50.0	50	10/12/2008
4-Chlorotoluene	BQL	50.0	50	10/12/2008
Dibromochloromethane	BQL	50.0	50	10/12/2008
1,2-Dibromo-3-chloropropane	BQL	250	50	10/12/2008
Dibromomethane	BQL	50.0	50	10/12/2008
1,2-Dibromoethane (EDB)	BQL	50.0	50	10/12/2008
1,2-Dichlorobenzene	BQL	50.0	50	10/12/2008
1,3-Dichlorobenzene	BQL	50.0	50	10/12/2008
1,4-Dichlorobenzene	BQL	50.0	50	10/12/2008
trans-1,4-Dichloro-2-butene	BQL	250	50	10/12/2008
1,1-Dichloroethane	BQL	50.0	50	10/12/2008
1,1-Dichloroethene	BQL	50.0	50	10/12/2008
1,2-Dichloroethane	BQL	50.0	50	10/12/2008
cis-1,2-Dichloroethene	BQL	50.0	50	10/12/2008
trans-1,2-dichloroethene	BQL	50.0	50	10/12/2008
1,2-Dichloropropane	BQL	50.0	50	10/12/2008
1,3-Dichloropropane	BQL	50.0	50	10/12/2008
2,2-Dichloropropane	BQL	50.0	50	10/12/2008
1,1-Dichloropropene	BQL	50.0	50	10/12/2008
cis-1,3-Dichloropropene	BQL	50.0	50	10/12/2008
trans-1,3-Dichloropropene	BQL	50.0	50	10/12/2008
Dichlorodifluoromethane	BQL	250	50	10/12/2008
Diisopropyl ether (DIPE)	BQL	50.0	50	10/12/2008
Ethylbenzene	BQL	50.0	50	10/12/2008
Hexachlorobutadiene	BQL	50.0	50	10/12/2008
2-Hexanone	BQL	250	50	10/12/2008
Iodomethane	BQL	50.0	50	10/12/2008
Isopropylbenzene	BQL	50.0	50	10/12/2008

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: Trip BlanK
Client Project ID: CTO 002
Lab Sample ID: G649-74-5B
Lab Project ID: G649-74
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 10/8/2008 0:00
Date Received: 10/9/2008
Matrix: Soil
Sample Amount: 5 g
%Solids: 100.0

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
4-Isopropyltoluene	BQL	50.0	50	10/12/2008
Methylene chloride	BQL	250	50	10/12/2008
4-Methyl-2-pentanone	BQL	250	50	10/12/2008
Methyl-tert-butyl ether (MTBE)	BQL	50.0	50	10/12/2008
Naphthalene	BQL	50.0	50	10/12/2008
n-Propyl benzene	BQL	50.0	50	10/12/2008
Styrene	BQL	50.0	50	10/12/2008
1,1,1,2-Tetrachloroethane	BQL	50.0	50	10/12/2008
1,1,2,2-Tetrachloroethane	BQL	50.0	50	10/12/2008
Tetrachloroethene	BQL	50.0	50	10/12/2008
Toluene	BQL	50.0	50	10/12/2008
1,2,3-Trichlorobenzene	BQL	50.0	50	10/12/2008
1,2,4-Trichlorobenzene	BQL	50.0	50	10/12/2008
Trichloroethene	BQL	50.0	50	10/12/2008
1,1,1-Trichloroethane	BQL	50.0	50	10/12/2008
1,1,2-Trichloroethane	BQL	50.0	50	10/12/2008
Trichlorofluoromethane	BQL	50.0	50	10/12/2008
1,2,3-Trichloropropane	BQL	50.0	50	10/12/2008
1,2,4-Trimethylbenzene	BQL	50.0	50	10/12/2008
1,3,5-Trimethylbenzene	BQL	50.0	50	10/12/2008
Vinyl chloride	BQL	50.0	50	10/12/2008
m-,p-Xylene	BQL	100	50	10/12/2008
o-Xylene	BQL	50.0	50	10/12/2008

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	10	8.56	86
Toluene-d8	10	9.7	97
4-Bromofluorobenzene	10	10.3	103

Comments:

Flags:
BQL = Below Quantitation Limits.

Analyst: _____

Reviewed By: _____

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2778-S006
Client Project ID: CTO 002
Lab Sample ID: G649-74-1I
Lab Project ID: G649-74
Report Basis: Dry weight
Initial Weight: 33.14 g

Analyzed By: DES
Date Collected: 10/8/2008 10:25
Date Received: 10/9/2008
Date Extracted: 10/9/2008
Matrix: Soil
% Solids: 92.98

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	3250	10	10/12/2008
Acenaphthylene	BQL	3250	10	10/12/2008
Anthracene	BQL	3250	10	10/12/2008
Benzo[a]anthracene	BQL	3250	10	10/12/2008
Benzo[a]pyrene	BQL	3250	10	10/12/2008
Benzo[b]fluoranthene	BQL	3250	10	10/12/2008
Benzo[g,h,i]perylene	BQL	3250	10	10/12/2008
Benzo[k]fluoranthene	BQL	3250	10	10/12/2008
Benzoic Acid	BQL	6490	10	10/12/2008
Bis(2-chloroethoxy)methane	BQL	3250	10	10/12/2008
Bis(2-chloroethyl)ether	BQL	3250	10	10/12/2008
Bis(2-chloroisopropyl)ether	BQL	3250	10	10/12/2008
Bis(2-ethylhexyl)phthalate	BQL	3250	10	10/12/2008
4-bromophenyl phenyl ether	BQL	3250	10	10/12/2008
Butylbenzylphthalate	BQL	3250	10	10/12/2008
2-Chloronaphthalene	BQL	3250	10	10/12/2008
2-Chlorophenol	BQL	3250	10	10/12/2008
4-Chloro-3-methylphenol	BQL	3250	10	10/12/2008
4-Chloroaniline	BQL	16200	10	10/12/2008
4-Chlorophenyl phenyl ether	BQL	3250	10	10/12/2008
Chrysene	BQL	3250	10	10/12/2008
Dibenzo[a,h]anthracene	BQL	3250	10	10/12/2008
Dibenzofuran	BQL	3250	10	10/12/2008
Di-n-Butylphthalate	BQL	3250	10	10/12/2008
1,2-Dichlorobenzene	BQL	3250	10	10/12/2008
1,3-Dichlorobenzene	BQL	3250	10	10/12/2008
1,4-Dichlorobenzene	BQL	3250	10	10/12/2008
3,3'-Dichlorobenzidine	BQL	6490	10	10/12/2008
2,4-Dichlorophenol	BQL	3250	10	10/12/2008
Diethylphthalate	BQL	3250	10	10/12/2008
Dimethylphthalate	BQL	3250	10	10/12/2008
1,4-Dioxane	BQL	3250	10	10/12/2008
2,4-Dimethylphenol	BQL	3250	10	10/12/2008
Di-n-octylphthalate	BQL	3250	10	10/12/2008
4,6-Dinitro-2-methylphenol	BQL	16200	10	10/12/2008
2,4-Dinitrophenol	BQL	16200	10	10/12/2008
2,4-Dinitrotoluene	BQL	3250	10	10/12/2008
2,6-Dinitrotoluene	BQL	3250	10	10/12/2008
Diphenylamine *	BQL	3250	10	10/12/2008
Fluoranthene	BQL	3250	10	10/12/2008
Fluorene	BQL	3250	10	10/12/2008
Hexachlorobenzene	BQL	3250	10	10/12/2008
Hexachlorobutadiene	BQL	3250	10	10/12/2008
Hexachlorocyclopentadiene	BQL	6490	10	10/12/2008
Hexachloroethane	BQL	3250	10	10/12/2008
Indeno(1,2,3-c,d)pyrene	BQL	3250	10	10/12/2008
Isophorone	BQL	3250	10	10/12/2008

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2778-S006
Client Project ID: CTO 002
Lab Sample ID: G649-74-1I
Lab Project ID: G649-74
Report Basis: Dry weight
Initial Weight: 33.14 g

Analyzed By: DES
Date Collected: 10/8/2008 10:25
Date Received: 10/9/2008
Date Extracted: 10/9/2008
Matrix: Soil
% Solids: 92.98

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylnaphthalene	**26900**	3250	10	10/12/2008
2-Methylphenol	BQL	3250	10	10/12/2008
3- & 4-Methylphenol	BQL	3250	10	10/12/2008
Naphthalene	**8600**	3250	10	10/12/2008
2-Nitroaniline	BQL	3250	10	10/12/2008
3-Nitroaniline	BQL	16200	10	10/12/2008
4-Nitroaniline	BQL	16200	10	10/12/2008
Nitrobenzene	BQL	3250	10	10/12/2008
2-Nitrophenol	BQL	3250	10	10/12/2008
4-Nitrophenol	BQL	16200	10	10/12/2008
N-Nitrosodi-n-propylamine	BQL	3250	10	10/12/2008
Pentachlorophenol	BQL	16200	10	10/12/2008
Phenanthrene	**4090**	3250	10	10/12/2008
Phenol	BQL	3250	10	10/12/2008
Pyrene	BQL	3250	10	10/12/2008
1,2,4-Trichlorobenzene	BQL	3250	10	10/12/2008
2,4,5-Trichlorophenol	BQL	3250	10	10/12/2008
2,4,6-Trichlorophenol	BQL	3250	10	10/12/2008

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	1	NA	NA
2-Fluorophenol	1	NA	NA
Nitrobenzene-d5	1	NA	NA
Phenol-d6	1	NA	NA
2,4,6-Tribromophenol	1	NA	NA
4-Terphenyl-d14	1	NA	NA

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: TT2778-S007
Client Project ID: CTO 002
Lab Sample ID: G649-74-2K
Lab Project ID: G649-74
Report Basis: Dry weight
Initial Weight: 32.4 g

Analyzed By: DES
Date Collected: 10/8/2008 10:15
Date Received: 10/9/2008
Date Extracted: 10/9/2008
Matrix: Soil
% Solids: 93.16

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	331	1	10/10/2008
Acenaphthylene	BQL	331	1	10/10/2008
Anthracene	BQL	331	1	10/10/2008
Benzo[a]anthracene	BQL	331	1	10/10/2008
Benzo[a]pyrene	BQL	331	1	10/10/2008
Benzo[b]fluoranthene	BQL	331	1	10/10/2008
Benzo[g,h,i]perylene	BQL	331	1	10/10/2008
Benzo[k]fluoranthene	BQL	331	1	10/10/2008
Benzoic Acid	BQL	663	1	10/10/2008
Bis(2-chloroethoxy)methane	BQL	331	1	10/10/2008
Bis(2-chloroethyl)ether	BQL	331	1	10/10/2008
Bis(2-chloroisopropyl)ether	BQL	331	1	10/10/2008
Bis(2-ethylhexyl)phthalate	BQL	331	1	10/10/2008
4-bromophenyl phenyl ether	BQL	331	1	10/10/2008
Butylbenzylphthalate	BQL	331	1	10/10/2008
2-Chloronaphthalene	BQL	331	1	10/10/2008
2-Chlorophenol	BQL	331	1	10/10/2008
4-Chloro-3-methylphenol	BQL	331	1	10/10/2008
4-Chloroaniline	BQL	1660	1	10/10/2008
4-Chlorophenyl phenyl ether	BQL	331	1	10/10/2008
Chrysene	BQL	331	1	10/10/2008
Dibenzo[a,h]anthracene	BQL	331	1	10/10/2008
Dibenzofuran	BQL	331	1	10/10/2008
Di-n-Butylphthalate	BQL	331	1	10/10/2008
1,2-Dichlorobenzene	BQL	331	1	10/10/2008
1,3-Dichlorobenzene	BQL	331	1	10/10/2008
1,4-Dichlorobenzene	BQL	331	1	10/10/2008
3,3'-Dichlorobenzidine	BQL	663	1	10/10/2008
2,4-Dichlorophenol	BQL	331	1	10/10/2008
Diethylphthalate	BQL	331	1	10/10/2008
Dimethylphthalate	BQL	331	1	10/10/2008
1,4-Dioxane	BQL	331	1	10/10/2008
2,4-Dimethylphenol	BQL	331	1	10/10/2008
Di-n-octylphthalate	BQL	331	1	10/10/2008
4,6-Dinitro-2-methylphenol	BQL	1660	1	10/10/2008
2,4-Dinitrophenol	BQL	1660	1	10/10/2008
2,4-Dinitrotoluene	BQL	331	1	10/10/2008
2,6-Dinitrotoluene	BQL	331	1	10/10/2008
Diphenylamine *	BQL	331	1	10/10/2008
Fluoranthene	BQL	331	1	10/10/2008
Fluorene	BQL	331	1	10/10/2008
Hexachlorobenzene	BQL	331	1	10/10/2008
Hexachlorobutadiene	BQL	331	1	10/10/2008
Hexachlorocyclopentadiene	BQL	663	1	10/10/2008
Hexachloroethane	BQL	331	1	10/10/2008
Indeno(1,2,3-c,d)pyrene	BQL	331	1	10/10/2008
Isophorone	BQL	331	1	10/10/2008

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2778-S007
Client Project ID: CTO 002
Lab Sample ID: G649-74-2K
Lab Project ID: G649-74
Report Basis: Dry weight
Initial Weight: 32.4 g

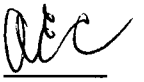
Analyzed By: DES
Date Collected: 10/8/2008 10:15
Date Received: 10/9/2008
Date Extracted: 10/9/2008
Matrix: Soil
% Solids: 93.16

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylnaphthalene	**722**	331	1	10/10/2008
2-Methylphenol	BQL	331	1	10/10/2008
3- & 4-Methylphenol	BQL	331	1	10/10/2008
Naphthalene	BQL	331	1	10/10/2008
2-Nitroaniline	BQL	331	1	10/10/2008
3-Nitroaniline	BQL	1660	1	10/10/2008
4-Nitroaniline	BQL	1660	1	10/10/2008
Nitrobenzene	BQL	331	1	10/10/2008
2-Nitrophenol	BQL	331	1	10/10/2008
4-Nitrophenol	BQL	1660	1	10/10/2008
N-Nitrosodi-n-propylamine	BQL	331	1	10/10/2008
Pentachlorophenol	BQL	1660	1	10/10/2008
Phenanthrene	**331**	331	1	10/10/2008
Phenol	BQL	331	1	10/10/2008
Pyrene	BQL	331	1	10/10/2008
1,2,4-Trichlorobenzene	BQL	331	1	10/10/2008
2,4,5-Trichlorophenol	BQL	331	1	10/10/2008
2,4,6-Trichlorophenol	BQL	331	1	10/10/2008

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.5	94
2-Fluorophenol	10	8.4	84
Nitrobenzene-d5	10	9.3	93
Phenol-d6	10	8.7	87
2,4,6-Tribromophenol	10	8.5	85
4-Terphenyl-d14	10	8.3	83

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

Flags:
BQL = Below Quantitation Limits.

Reviewed By: 

Results for Semivolatiles by GCMS 8270

Client Sample ID: TT2778-S008
Client Project ID: CTO 002
Lab Sample ID: G649-74-3I
Lab Project ID: G649-74
Report Basis: Dry weight
Initial Weight: 33.93 g

Analyzed By: DES
Date Collected: 10/8/2008 10:19
Date Received: 10/9/2008
Date Extracted: 10/9/2008
Matrix: Soil
% Solids: 89.46

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	3290	10	10/12/2008
Acenaphthylene	BQL	3290	10	10/12/2008
Anthracene	BQL	3290	10	10/12/2008
Benzo[a]anthracene	BQL	3290	10	10/12/2008
Benzo[a]pyrene	BQL	3290	10	10/12/2008
Benzo[b]fluoranthene	BQL	3290	10	10/12/2008
Benzo[g,h,i]perylene	BQL	3290	10	10/12/2008
Benzo[k]fluoranthene	BQL	3290	10	10/12/2008
Benzoic Acid	BQL	6590	10	10/12/2008
Bis(2-chloroethoxy)methane	BQL	3290	10	10/12/2008
Bis(2-chloroethyl)ether	BQL	3290	10	10/12/2008
Bis(2-chloroisopropyl)ether	BQL	3290	10	10/12/2008
Bis(2-ethylhexyl)phthalate	BQL	3290	10	10/12/2008
4-bromophenyl phenyl ether	BQL	3290	10	10/12/2008
Butylbenzylphthalate	BQL	3290	10	10/12/2008
2-Chloronaphthalene	BQL	3290	10	10/12/2008
2-Chlorophenol	BQL	3290	10	10/12/2008
4-Chloro-3-methylphenol	BQL	3290	10	10/12/2008
4-Chloroaniline	BQL	16500	10	10/12/2008
4-Chlorophenyl phenyl ether	BQL	3290	10	10/12/2008
Chrysene	BQL	3290	10	10/12/2008
Dibenzo[a,h]anthracene	BQL	3290	10	10/12/2008
Dibenzofuran	BQL	3290	10	10/12/2008
Di-n-Butylphthalate	BQL	3290	10	10/12/2008
1,2-Dichlorobenzene	BQL	3290	10	10/12/2008
1,3-Dichlorobenzene	BQL	3290	10	10/12/2008
1,4-Dichlorobenzene	BQL	3290	10	10/12/2008
3,3'-Dichlorobenzidine	BQL	6590	10	10/12/2008
2,4-Dichlorophenol	BQL	3290	10	10/12/2008
Diethylphthalate	BQL	3290	10	10/12/2008
Dimethylphthalate	BQL	3290	10	10/12/2008
1,4-Dioxane	BQL	3290	10	10/12/2008
2,4-Dimethylphenol	BQL	3290	10	10/12/2008
Di-n-octylphthalate	BQL	3290	10	10/12/2008
4,6-Dinitro-2-methylphenol	BQL	16500	10	10/12/2008
2,4-Dinitrophenol	BQL	16500	10	10/12/2008
2,4-Dinitrotoluene	BQL	3290	10	10/12/2008
2,6-Dinitrotoluene	BQL	3290	10	10/12/2008
Diphenylamine *	BQL	3290	10	10/12/2008
Fluoranthene	BQL	3290	10	10/12/2008
Fluorene	**4910**	3290	10	10/12/2008
Hexachlorobenzene	BQL	3290	10	10/12/2008
Hexachlorobutadiene	BQL	3290	10	10/12/2008
Hexachlorocyclopentadiene	BQL	6590	10	10/12/2008
Hexachloroethane	BQL	3290	10	10/12/2008
Indeno(1,2,3-c,d)pyrene	BQL	3290	10	10/12/2008
Isophorone	BQL	3290	10	10/12/2008

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2778-S008
Client Project ID: CTO 002
Lab Sample ID: G649-74-3I
Lab Project ID: G649-74
Report Basis: Dry weight
Initial Weight: 33.93 g

Analyzed By: DES
Date Collected: 10/8/2008 10:19
Date Received: 10/9/2008
Date Extracted: 10/9/2008
Matrix: Soil
% Solids: 89.46

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylnaphthalene	**60200**	3290	10	10/12/2008
2-Methylphenol	BQL	3290	10	10/12/2008
3- & 4-Methylphenol	BQL	3290	10	10/12/2008
Naphthalene	**22700**	3290	10	10/12/2008
2-Nitroaniline	BQL	3290	10	10/12/2008
3-Nitroaniline	BQL	16500	10	10/12/2008
4-Nitroaniline	BQL	16500	10	10/12/2008
Nitrobenzene	BQL	3290	10	10/12/2008
2-Nitrophenol	BQL	3290	10	10/12/2008
4-Nitrophenol	BQL	16500	10	10/12/2008
N-Nitrosodi-n-propylamine	BQL	3290	10	10/12/2008
Pentachlorophenol	BQL	16500	10	10/12/2008
Phenanthrene	**9060**	3290	10	10/12/2008
Phenol	BQL	3290	10	10/12/2008
Pyrene	BQL	3290	10	10/12/2008
1,2,4-Trichlorobenzene	BQL	3290	10	10/12/2008
2,4,5-Trichlorophenol	BQL	3290	10	10/12/2008
2,4,6-Trichlorophenol	BQL	3290	10	10/12/2008

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	1	NA	NA
2-Fluorophenol	1	NA	NA
Nitrobenzene-d5	1	NA	NA
Phenol-d6	1	NA	NA
2,4,6-Tribromophenol	1	NA	NA
4-Terphenyl-d14	1	NA	NA

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: TT2778-S009
Client Project ID: CTO 002
Lab Sample ID: G649-74-4I
Lab Project ID: G649-74
Report Basis: Dry weight
Initial Weight: 33.77 g

Analyzed By: DES
Date Collected: 10/8/2008 10:12
Date Received: 10/9/2008
Date Extracted: 10/9/2008
Matrix: Soil
% Solids: 87.02

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	3400	10	10/12/2008
Acenaphthylene	BQL	3400	10	10/12/2008
Anthracene	BQL	3400	10	10/12/2008
Benzo[a]anthracene	BQL	3400	10	10/12/2008
Benzo[a]pyrene	BQL	3400	10	10/12/2008
Benzo[b]fluoranthene	BQL	3400	10	10/12/2008
Benzo[g,h,i]perylene	BQL	3400	10	10/12/2008
Benzo[k]fluoranthene	BQL	3400	10	10/12/2008
Benzoic Acid	BQL	6810	10	10/12/2008
Bis(2-chloroethoxy)methane	BQL	3400	10	10/12/2008
Bis(2-chloroethyl)ether	BQL	3400	10	10/12/2008
Bis(2-chloroisopropyl)ether	BQL	3400	10	10/12/2008
Bis(2-ethylhexyl)phthalate	BQL	3400	10	10/12/2008
4-bromophenyl phenyl ether	BQL	3400	10	10/12/2008
Butylbenzylphthalate	BQL	3400	10	10/12/2008
2-Chloronaphthalene	BQL	3400	10	10/12/2008
2-Chlorophenol	BQL	3400	10	10/12/2008
4-Chloro-3-methylphenol	BQL	3400	10	10/12/2008
4-Chloroaniline	BQL	17000	10	10/12/2008
4-Chlorophenyl phenyl ether	BQL	3400	10	10/12/2008
Chrysene	BQL	3400	10	10/12/2008
Dibenzo[a,h]anthracene	BQL	3400	10	10/12/2008
Dibenzofuran	BQL	3400	10	10/12/2008
Di-n-Butylphthalate	BQL	3400	10	10/12/2008
1,2-Dichlorobenzene	BQL	3400	10	10/12/2008
1,3-Dichlorobenzene	BQL	3400	10	10/12/2008
1,4-Dichlorobenzene	BQL	3400	10	10/12/2008
3,3'-Dichlorobenzidine	BQL	6810	10	10/12/2008
2,4-Dichlorophenol	BQL	3400	10	10/12/2008
Diethylphthalate	BQL	3400	10	10/12/2008
Dimethylphthalate	BQL	3400	10	10/12/2008
1,4-Dioxane	BQL	3400	10	10/12/2008
2,4-Dimethylphenol	BQL	3400	10	10/12/2008
Di-n-octylphthalate	BQL	3400	10	10/12/2008
4,6-Dinitro-2-methylphenol	BQL	17000	10	10/12/2008
2,4-Dinitrophenol	BQL	17000	10	10/12/2008
2,4-Dinitrotoluene	BQL	3400	10	10/12/2008
2,6-Dinitrotoluene	BQL	3400	10	10/12/2008
Diphenylamine *	BQL	3400	10	10/12/2008
Fluoranthene	BQL	3400	10	10/12/2008
Fluorene	BQL	3400	10	10/12/2008
Hexachlorobenzene	BQL	3400	10	10/12/2008
Hexachlorobutadiene	BQL	3400	10	10/12/2008
Hexachlorocyclopentadiene	BQL	6810	10	10/12/2008
Hexachloroethane	BQL	3400	10	10/12/2008
Indeno(1,2,3-c,d)pyrene	BQL	3400	10	10/12/2008
Isophorone	BQL	3400	10	10/12/2008

Results for Semivolatiles
by GCMS 8270

Client Sample ID: TT2778-S009
Client Project ID: CTO 002
Lab Sample ID: G649-74-4I
Lab Project ID: G649-74
Report Basis: Dry weight
Initial Weight: 33.77 g

Analyzed By: DES
Date Collected: 10/8/2008 10:12
Date Received: 10/9/2008
Date Extracted: 10/9/2008
Matrix: Soil
% Solids: 87.02

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylnaphthalene	**31100**	3400	10	10/12/2008
2-Methylphenol	BQL	3400	10	10/12/2008
3- & 4-Methylphenol	BQL	3400	10	10/12/2008
Naphthalene	**9730**	3400	10	10/12/2008
2-Nitroaniline	BQL	3400	10	10/12/2008
3-Nitroaniline	BQL	17000	10	10/12/2008
4-Nitroaniline	BQL	17000	10	10/12/2008
Nitrobenzene	BQL	3400	10	10/12/2008
2-Nitrophenol	BQL	3400	10	10/12/2008
4-Nitrophenol	BQL	17000	10	10/12/2008
N-Nitrosodi-n-propylamine	BQL	3400	10	10/12/2008
Pentachlorophenol	BQL	17000	10	10/12/2008
Phenanthrene	**4730**	3400	10	10/12/2008
Phenol	BQL	3400	10	10/12/2008
Pyrene	BQL	3400	10	10/12/2008
1,2,4-Trichlorobenzene	BQL	3400	10	10/12/2008
2,4,5-Trichlorophenol	BQL	3400	10	10/12/2008
2,4,6-Trichlorophenol	BQL	3400	10	10/12/2008

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	1	NA	NA
2-Fluorophenol	1	NA	NA
Nitrobenzene-d5	1	NA	NA
Phenol-d6	1	NA	NA
2,4,6-Tribromophenol	1	NA	NA
4-Terphenyl-d14	1	NA	NA

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

Flags:
BQL = Below Quantitation Limits.

Reviewed By: _____

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 002

Sample Information	
Sample Identification	TT2778-S006
Sample Matrix	SOIL
Date Collected	10/08/08
Date Received	10/09/08
Date Extracted	10/09/08
Date Analyzed	10/13/08 10:12 - 10/13/08 10:40
Dry Weight	93.0
Dilution Factor	20 - 5
Initial weight (g)	13.27
Final Volume (mL)	10.0

Analytical Results			
Analytes**	Result mg/Kg	Report Limit mg/Kg	Flags
C9-C18 Aliphatics	4230	15.1	
C19-C36 Aliphatics	726	15.1	
C11-C22 Aromatics	1410	10.0	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (tricosane)	136		40	140
Aromatic (ortho-terphenyl)	102		40	140
Fractionation 1 (2-bromonaphthalene)	106		40	140
Fractionation 2 (2-fluorobiphenyl)	82.2		40	140

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

Lab Info: G649-74-1H	Lab Info: G649-74-1H
Aliphatic: EP101308/003F0301.D	Aromatic: EP101308/004F0401.D

Reviewed By:

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 002

Sample Information	
Sample Identification	TT2778-S007
Sample Matrix	SOIL
Date Collected	10/08/08
Date Received	10/09/08
Date Extracted	10/09/08
Date Analyzed	10/13/08 11:09 - 10/14/08 11:21
Dry Weight	93.2
Dilution Factor	2 - 1
Initial weight (g)	12.31
Final Volume (mL)	10.0

Analytical Results			
Analytes**	Result mg/Kg	Report Limit mg/Kg	Flags
C9-C18 Aliphatics	335	10.0	
C19-C36 Aliphatics	136	10.0	
C11-C22 Aromatics	214	10.0	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (tricosane)	67.8		40	140
Aromatic (ortho-terphenyl)	87.6		40	140
Fractionation 1 (2-bromonaphthalene)	102		40	140
Fractionation 2 (2-fluorobiphenyl)	90.9		40	140

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

Lab Info: G649-74-2H	Lab Info: G649-74-2H
Aliphatic: EP101308/005F0501.D	Aromatic: EP101408/007F0701.D

Reviewed By:

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 002

Sample Information	
Sample Identification	TT2778-S008
Sample Matrix	SOIL
Date Collected	10/08/08
Date Received	10/09/08
Date Extracted	10/09/08
Date Analyzed	10/13/08 11:37 - 10/13/08 12:05
Dry Weight	89.5
Dilution Factor	20 - 5
Initial weight (g)	12.18
Final Volume (mL)	10.0

Analytical Results			
Analytes**	Result mg/Kg	Report Limit mg/Kg	Flags
C9-C18 Aliphatics	3610	16.4	
C19-C36 Aliphatics	697	16.4	
C11-C22 Aromatics	1770	10.0	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (tricosane)	94.9		40	140
Aromatic (ortho-terphenyl)	84.0		40	140
Fractionation 1 (2-bromonaphthalene)	86.5		40	140
Fractionation 2 (2-fluorobiphenyl)	73.1		40	140

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

Lab Info: G649-74-3H	Lab Info: G649-74-3H
Aliphatic: EP101308/006F0601.D	Aromatic: EP101308/007F0701.D

Reviewed By:

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 002

Sample Information	
Sample Identification	TT2778-S009
Sample Matrix	SOIL
Date Collected	10/08/08
Date Received	10/09/08
Date Extracted	10/09/08
Date Analyzed	10/13/08 12:33 - 10/13/08 13:02
Dry Weight	87.0
Dilution Factor	20 - 5
Initial weight (g)	12.48
Final Volume (mL)	10.0

Analytical Results			
Analytes**	Result mg/Kg	Report Limit mg/Kg	Flags
C9-C18 Aliphatics	3020	16.0	
C19-C36 Aliphatics	602	16.0	
C11-C22 Aromatics	1220	10.0	

Surrogates	Percent Recovery	Flags	Limits	
			Lower	Upper
Aliphatic (tricosane)	104		40	140
Aromatic (ortho-terphenyl)	87.5		40	140
Fractionation 1 (2-bromonaphthalene)	103		40	140
Fractionation 2 (2-fluorobiphenyl)	83.9		40	140

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

Lab Info: G649-74-4H	Lab Info: G649-74-4H
Aliphatic: EP101308/008F0801.D	Aromatic: EP101308/009F0901.D

Reviewed By:

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 08/19/08

Calibration Ranges and Limits

Range	MDL (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	5.17	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	5.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	3.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 10/13/08 / 10/13/08

Filenames: ep101308/001f0101.d / ep101308/002f0201.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	1.0	≤±25%
C19-C36 Aliphatics	100	16.7	-5.4	≤±25%
C11-C22 Aromatics	100	16.7	-1.1	≤±25%

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

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 08/19/08

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	5.17	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	5.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	3.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 10/14/08
10/14/08

Filenames: ep101408/001f0101.d
ep101408/002f0201.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	8.0	≤±25%
C19-C36 Aliphatics	100	16.7	4.2	≤±25%
C11-C22 Aromatics	100	16.7	4.2	≤±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

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 08/19/08

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	5.17	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	5.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	3.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 10/15/08
10/15/08

Filenames: ep101508/001f0101.d
ep101508/002f0201.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	2.9	≤±25%
C19-C36 Aliphatics	100	16.7	-1.5	≤±25%
C11-C22 Aromatics	100	16.7	0.1	≤±25%

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

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 002

Sample Information	
Sample Identification	TT2778-S006
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	10/08/08
Date Received	10/09/08
Date Extracted	10/10/08
Date Analyzed	10/10/08 06:16 - 10/10/08 06:16
Dry Weight	93.0
Dilution Factor	10 - 10

Analytical Results			
Analyte	Result mg/Kg	Report Limit mg/Kg	Flags
C_5-C_8 Aliphatics**	43.1	10.0	
C_9-C_{12} Aliphatics**	410	10.0	
C_9-C_{10} Aromatics**	648	10.0	

	Percent Recovery	Flags	Limits Lower	Limits Upper
Surrogate % Recovery - PID	101		70	130
Surrogate % Recovery - FID	107		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:	G649-74-1F	Lab Info:	G649-74-1F
FID Info:	VP100908/032F0101.D	PID Info:	VP100908/032R0101.D

Reviewed By:

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 002

Sample Information	
Sample Identification	TT2778-S007
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	10/08/08
Date Received	10/09/08
Date Extracted	10/10/08
Date Analyzed	10/10/08 06:43 - 10/10/08 06:43
Dry Weight	93.2
Dilution Factor	2 - 2

Analytical Results			
Analyte	Result mg/Kg	Report Limit mg/Kg	Flags
C_5-C_8 Aliphatics**	11.9	10.0	
C_9-C_{12} Aliphatics**	113	10.0	
C_9-C_{10} Aromatics**	205	10.0	

	Percent Recovery	Flags	Limits Lower	Limits Upper
Surrogate % Recovery - PID	101		70	130
Surrogate % Recovery - FID	109		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:	G649-74-2F	Lab Info:	G649-74-2F
FID Info:	VP100908/033F0101.D	PID Info:	VP100908/033R0101.D

Reviewed By:

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 002

Sample Information	
Sample Identification	TT2778-S008
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	10/08/08
Date Received	10/09/08
Date Extracted	10/10/08
Date Analyzed	10/10/08 07:10 - 10/10/08 07:10
Dry Weight	89.5
Dilution Factor	10 - 10

Analytical Results			
Analyte	Result mg/Kg	Report Limit mg/Kg	Flags
C_5-C_8 Aliphatics**	53.3	10.0	
C_9-C_{12} Aliphatics**	368	10.0	
C_9-C_{10} Aromatics**	527	10.0	

	Percent Recovery	Flags	Limits Lower	Limits Upper
Surrogate % Recovery - PID	98.5		70	130
Surrogate % Recovery - FID	101		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: G649-74-3F	Lab Info: G649-74-3F
FID Info: VP100908/034F0101.D	PID Info: VP100908/034R0101.D

Reviewed By:

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 002

Sample Information	
Sample Identification	TT2778-S009
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	10/08/08
Date Received	10/09/08
Date Extracted	10/10/08
Date Analyzed	10/10/08 07:36 - 10/10/08 07:36
Dry Weight	87.0
Dilution Factor	10 - 10

Analytical Results			
Analyte	Result mg/Kg	Report Limit mg/Kg	Flags
C_5-C_8 Aliphatics**	53.6	10.0	
C_9-C_{12} Aliphatics**	356	10.0	
C_9-C_{10} Aromatics**	487	10.0	

	Percent Recovery	Flags	Limits Lower	Limits Upper
Surrogate % Recovery - PID	101		70	130
Surrogate % Recovery - FID	104		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: G649-74-4F	Lab Info: G649-74-4F
FID Info: VP100908/035F0101.D	PID Info: VP100908/035R0101.D

Reviewed By: ACC

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 002

Sample Information	
Sample Identification	Trip BlanK
Sample Matrix	Soil
Collection Option (for Soil)*	NA
Date Collected	10/08/08
Date Received	10/09/08
Date Extracted	10/10/08
Date Analyzed	10/10/08 05:23 - 10/10/08 05:23
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	89.3		70	130
Surrogate % Recovery - FID	90.8		70	130

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

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

Lab Info:	G649-74-5B	Lab Info:	G649-74-5B
FID Info:	VP100908/030F0101.D	PID Info:	VP100908/030R0101.D

Reviewed By:

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 09/25/08 PID Initial Calibration Date: 09/25/08

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	6.17	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	9.53	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 10/09/08 Filename: VP100908/002F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	18.9	±25%
C_9-C_{12} Aliphatics	200	16	6.4	±25%
C_9-C_{10} Aromatics	200	16	11.5	±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

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 09/25/08 PID Initial Calibration Date: 09/25/08

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	6.17	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	9.53	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 10/09/08 Filename: VP100908/038F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	12.6	±25%
C_9-C_{12} Aliphatics	200	16	3.8	±25%
C_9-C_{10} Aromatics	200	16	10.4	±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

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SGS ENVIRONMENTAL SERVICES, INC.

(1) CLIENT: Osage of VA

CONTACT: T/tt Ellerman PHONE NO: 757 274-4949

PROJECT: CTO 002 SITE/PWSID#: TT2778

REPORTS TO: Shaun Whitworth E-MAIL: Below

FAX NO.: 757 440-0411

INVOICE TO: Mike Cree QUOTE #

P.O. NUMBER CTO 002

SGS Reference: G649-74

PAGE 1 OF 1

(3) Preservatives Used: NaBi | None | None | METH

Analysis Required: 8260 | 8270 | EDH | VPH

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C= COMP, G= GRAB)	8260	8270	EDH	VPH						REMARKS
	TT2778-S006	10.8.08	1025	S	7		X	X	X	X						Sample depth 11'
	TT2778-S007	10.8.08	1015	S	7		X	X	X	X						" " 11'
	TT2778-S008	10.8.08	1019	S	7		X	X	X	X						" " 11'
	TT2778-S009	10.8.08	1012	S	7		X	X	X	X						" " 11'
	Trip Blank	10.8.08	1430	–	2		X			X						

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:	Date	Time
[signature]	10/8/08	1430	[signature]	10/9/08	1020
Relinquished By: (2)	Date	Time	Received By:	Date	Time
Relinquished By: (3)	Date	Time	Received By:	Date	Time
Relinquished By: (4)	Date	Time	Received By:	Date	Time

(4) Shipping Carrier: FED EX

Shipping Ticket No: 8673 6074 3453

Samples Received Cold? (Circle) YES (circled) NO

Temperature °C: 4.2°C

Special Deliverable Requirements: EDD Format

Chain of Custody Seal: (Circle) INTACT (circled) BROKEN ABSENT

Special Instructions: Email to: swhitworth + tellerman@osageva.com nhall@catlinusa.com

Requested Turnaround Time: ☒ RUSH ASAP Date Needed ☐ STD

❏ 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
❏ 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557
❏ 1270 Greenbrier Street Charleston, WV 25311 Tel: (304) 346-0725 Fax: (304) 346-0761

White - Retained by Lab
Yellow - Returned with Report
Pink - Retained by Sampler

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

Report Number: G649-76

Client Project: CTO 002

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.

Ashley Nifong 10/17/08

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.

MI34.021808.4

Results for Volatiles
by GC 602

Client Sample ID: TT2778-TW01
Client Project ID: CTO 002
Lab Sample ID: G649-76-1B
Lab Project ID: G649-76

Analyzed By: RSB
Date Collected: 10/9/2008 11:49
Date Received: 10/10/2008
Matrix: Water

Analyte	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	4.00	4	10/13/2008
Diisopropyl ether (DIPE)	BQL	4.00	4	10/13/2008
Ethylbenzene	**14.2**	4.00	4	10/13/2008
Methyl-tert butyl ether (MTBE)	BQL	8.00	4	10/13/2008
Toluene	BQL	4.00	4	10/13/2008
m/p-Xylene	**48.9**	8.00	4	10/13/2008
o-Xylene	BQL	8.00	4	10/13/2008

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.8	99.5

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

Reviewed By: GC-VOA_WA

Results for Volatiles
by GC 602

Client Sample ID: Trip Blank
Client Project ID: CTO 002
Lab Sample ID: G649-76-2B
Lab Project ID: G649-76

Analyzed By: RSB
Date Collected: 10/9/2008 12:00
Date Received: 10/10/2008
Matrix: Water

Analyte	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.00	1	10/13/2008
Diisopropyl ether (DIPE)	BQL	1.00	1	10/13/2008
Ethylbenzene	BQL	1.00	1	10/13/2008
Methyl-tert butyl ether (MTBE)	BQL	2.00	1	10/13/2008
Toluene	BQL	1.00	1	10/13/2008
m/p-Xylene	BQL	2.00	1	10/13/2008
o-Xylene	BQL	2.00	1	10/13/2008

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.2	101

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

Reviewed By: GC-VOA_WA

Results for Semivolatiles
by GCMS 625

Client Sample ID: TT2778-TW01
Client Project ID: CTO 002
Lab Sample ID: G649-76-1J
Lab Project ID: G649-76

Initial/Final Amt: 877 mL / 5.0 mL

Analyzed By: DES
Date Collected: 10/9/2008 11:49
Date Received: 10/10/2008
Date Extracted: 10/13/2008
Matrix: Water

Compound	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Acenaphthene	BQL	57.0	10	10/14/2008
Acenaphthylene	BQL	57.0	10	10/14/2008
Anthracene	BQL	57.0	10	10/14/2008
Benzo[a]anthracene	BQL	57.0	10	10/14/2008
Benzo[a]pyrene	BQL	57.0	10	10/14/2008
Benzo[b]fluoranthene	BQL	57.0	10	10/14/2008
Benzo[g,h,i]perylene	BQL	57.0	10	10/14/2008
Benzo[k]fluoranthene	BQL	57.0	10	10/14/2008
Bis(2-chloroethoxy)methane	BQL	57.0	10	10/14/2008
Bis(2-chloroethyl)ether	BQL	57.0	10	10/14/2008
Bis(2-chloroisopropyl)ether	BQL	57.0	10	10/14/2008
Bis(2-ethylhexyl)phthalate	BQL	57.0	10	10/14/2008
4-bromophenyl phenyl ether	BQL	57.0	10	10/14/2008
Butylbenzylphthalate	BQL	57.0	10	10/14/2008
2-Chloronaphthalene	BQL	57.0	10	10/14/2008
2-Chlorophenol	BQL	57.0	10	10/14/2008
4-Chloro-3-methylphenol	BQL	57.0	10	10/14/2008
4-Chlorophenyl phenyl ether	BQL	57.0	10	10/14/2008
Chrysene	BQL	57.0	10	10/14/2008
Dibenzo[a,h]anthracene	BQL	57.0	10	10/14/2008
Di-n-Butylphthalate	BQL	57.0	10	10/14/2008
3,3'-Dichlorobenzidine	BQL	114	10	10/14/2008
2,4-Dichlorophenol	BQL	57.0	10	10/14/2008
Diethylphthalate	BQL	57.0	10	10/14/2008
Dimethylphthalate	BQL	57.0	10	10/14/2008
2,4-Dimethylphenol	BQL	57.0	10	10/14/2008
Di-n-octylphthalate	BQL	57.0	10	10/14/2008
4,6-Dinitro-2-methylphenol	BQL	285	10	10/14/2008
2,4-Dinitrophenol	BQL	285	10	10/14/2008
2,4-Dinitrotoluene	BQL	57.0	10	10/14/2008
2,6-Dinitrotoluene	BQL	57.0	10	10/14/2008
Diphenylamine *	BQL	57.0	10	10/14/2008
Fluoranthene	BQL	57.0	10	10/14/2008
Fluorene	BQL	57.0	10	10/14/2008
Hexachlorobenzene	BQL	57.0	10	10/14/2008
Hexachlorobutadiene	BQL	57.0	10	10/14/2008
Hexachlorocyclopentadiene	BQL	114	10	10/14/2008
Hexachloroethane	BQL	57.0	10	10/14/2008
Indeno(1,2,3-c,d)pyrene	BQL	57.0	10	10/14/2008
Isophorone	BQL	57.0	10	10/14/2008
Naphthalene	**137**	57.0	10	10/14/2008
Nitrobenzene	BQL	57.0	10	10/14/2008
2-Nitrophenol	BQL	57.0	10	10/14/2008
4-Nitrophenol	BQL	285	10	10/14/2008
N-Nitrosodi-n-propylamine	BQL	57.0	10	10/14/2008
Pentachlorophenol	BQL	285	10	10/14/2008
Phenanthrene	BQL	57.0	10	10/14/2008

Results for Semivolatiles
by GCMS 625

Client Sample ID: TT2778-TW01
Client Project ID: CTO 002
Lab Sample ID: G649-76-1J
Lab Project ID: G649-76

Initial/Final Amt: 877 mL / 5.0 mL

Analyzed By: DES
Date Collected: 10/9/2008 11:49
Date Received: 10/10/2008
Date Extracted: 10/13/2008
Matrix: Water

Compound	Result ug/L	RL ug/L	Dilution Factor	Date Analyzed
Phenol	BQL	57.0	10	10/14/2008
Pyrene	BQL	57.0	10	10/14/2008
1,2,4-Trichlorobenzene	BQL	57.0	10	10/14/2008
2,4,6-Trichlorophenol	BQL	57.0	10	10/14/2008

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	1	NA	NA
2-Fluorophenol	1	NA	NA
Nitrobenzene-d5	1	NA	NA
Phenol-d6	1	NA	NA
2,4,6-Tribromophenol	1	NA	NA
4-Terphenyl-d14	1	NA	NA

Comments:

Flags:
BQL = Below Quantitation Limits.

Reviewed By:

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 002

Sample Information	
Sample Identification	TT2778-TW01
Sample Matrix	Water
Collection Option (for Soil)*	NA
Date Collected	10/09/08
Date Received	10/10/08
Date Extracted	10/13/08 16:29 - 10/13/08 16:29
Date Analyzed	10/13/08 16:29 - 10/13/08 16:29
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**	406	100	
C_9-C_{10} Aromatics**	705	100	

	Percent Recovery	Flags	Limits Lower	Limits Upper
Surrogate % Recovery - PID	105		70	130
Surrogate % Recovery - FID	103		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: G649-76-1A	Lab Info: G649-76-1A
FID Info: VP101308/014F0101.D	PID Info: VP101308/014R0101.D

Reviewed By:

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 002

Sample Information	
Sample Identification	Trip Blank
Sample Matrix	Water
Collection Option (for Soil)*	NA
Date Collected	10/09/08
Date Received	10/10/08
Date Extracted	10/13/08 13:21 - 10/13/08 13:21
Date Analyzed	10/13/08 13:21 - 10/13/08 13:21
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**	BQL	100	
C_9-C_{10} Aromatics**	BQL	100	

	Percent Recovery	Flags	Limits Lower	Limits Upper
Surrogate % Recovery - PID	96.7		70	130
Surrogate % Recovery - FID	94.1		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:	G649-76-2A	Lab Info:	G649-76-2A
FID Info:	VP101308/007F0101.D	PID Info:	VP101308/007R0101.D

Reviewed By:

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 09/25/08 PID Initial Calibration Date: 09/25/08

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	6.17	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	9.53	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 10/13/08 Filename: VP101308/002F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	18.6	±25%
C_9-C_{12} Aliphatics	200	16	2.3	±25%
C_9-C_{10} Aromatics	200	16	9.7	±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: 09/25/08 PID Initial Calibration Date: 09/25/08

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	6.17	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	9.53	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 10/13/08 Filename: VP101308/027F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	12.2	±25%
C_9-C_{12} Aliphatics	200	16	1.3	±25%
C_9-C_{10} Aromatics	200	16	12.3	±25%

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

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Osage of Virginia

Project Name: CTO 002

Sample Information	
Sample Identification	TT2778-TW01
Sample Matrix	WATER
Date Collected	10/09/08
Date Received	10/10/08
Date Extracted	10/15/08
Date Analyzed	10/17/08 10:33 - 10/16/08 14:34
Dry Weight	NA
Dilution Factor	2 - 1
Initial Volume (mL)	886
Final Volume (mL)	5.0

Analytical Results			
Analytes**	Result µg/L	Report Limit µg/L	Flags
C9-C18 Aliphatics	4920	100	
C19-C36 Aliphatics	929	100	
C11-C22 Aromatics	2670	100	

Surrogates	Percent Recovery	Flags	Limits Lower	Limits Upper
Aliphatic (tricosane)	43.9		40	140
Aromatic (ortho-terphenyl)	89.9		40	140
Fractionation 1 (2-bromonaphthalene)	108		40	140
Fractionation 2 (2-fluorobiphenyl)	88.1		40	140

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

Lab Info: G649-76-1M	Lab Info: G649-76-1M
Aliphatic: EP101708/005F0501.D	Aromatic: EP101608/010F0801.D

Reviewed By: _____

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 08/19/08

Calibration Ranges and Limits

Range	MDL (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	5.17	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	5.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	3.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 10/17/08 / 10/17/08

Filenames: ep101708/001f0101.d / ep101708/004f0401.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	18.5	≤±25%
C19-C36 Aliphatics	100	16.7	18.1	≤±25%
C11-C22 Aromatics	100	16.7	-21.5	≤±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

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 08/19/08

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	5.17	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	5.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	3.29	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 10/17/08 / 10/17/08

Filenames: ep101708/006f0601.d / ep101708/007f0701.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	9.7	≤±25%
C19-C36 Aliphatics	100	16.7	8.7	≤±25%
C11-C22 Aromatics	100	16.7	5.2	≤±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

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(1)

CLIENT: OSAGE of VA

CONTACT: Thomas Ellerman PHONE NO: (757 274-4949

PROJECT: CTO 002 SITE/PWSID#: TT2778

REPORTS TO: Shaun Whitworth E-MAIL: swhitworth@osageva.com FAX NO.: (757 440-0411

INVOICE TO: Mike Crist QUOTE # P.O. NUMBER CTO 002

SGS Reference: 6649-76

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE C=COMP G=GRAB	Preservatives Used	HCL	NonHCL	HCL							
							Analysis Required (3)	602 + xylenes	625	VPH	EPH						REMARKS
	TT2778-TW01	10/9/08	1149	W	9			X	X	X	X						
2	Trip Blank	10/9/08	1200	W	1			X		X							

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:	Date	Time
	10/9/08	1430		10/10/08	1000
Relinquished By: (2)	Date	Time	Received By:	Date	Time
Relinquished By: (3)	Date	Time	Received By:	Date	Time
Relinquished By: (4)	Date	Time	Received By:	Date	Time

(4)

Shipping Carrier: FEDEX

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature °C: 3.1°C

Special Deliverable Requirements: EDD Format

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions: Email results to: swhitworth+tellerman@osageva.com + mhall@catlinusa.com

Requested Turnaround Time:

☒ RUSH _____ Date Needed ☐ STD

N.C. CERTIFICATION #481

SGS ENVIRONMENTAL SERVICES, INC.

❑ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
❑ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557
❑ 1270 Greenbrier Street **Charleston, WV 25311** Tel: (304) 346-0725 Fax: (304) 346-0761

White - Retained by Lab
Yellow - Returned with Report
Pink - Retained by Sampler

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

Report Number: G649-71

Client Project: CTO 016

Dear Shaun Whitworth,

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

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

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

Sincerely,
SGS Environmental Services, Inc.

Project Manager Date
Ashley Nifong

List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

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

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL/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.

Print Date: 10/2/2008

Client Sample ID: **SB01**
Client Project ID: CTO 016
Lab Sample ID: G649-71-1D
Lab Project ID: G649-71

Collection Date: 01-Oct-08 8:30
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 87.81
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	BQL	7.09	MG/KG	1	02-Oct-08 10:55

Surrogates

OTP	81.9	40-140	%	1	02-Oct-08 10:55

Batch Information

Analytical Batch: EP100208
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 32.14
Prep Extract Vol: 10

Print Date: 10/2/2008

Client Sample ID: **SB02**
Client Project ID: CTO 016
Lab Sample ID: G649-71-2D
Lab Project ID: G649-71

Collection Date: 01-Oct-08 8:40
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 89.13
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	BQL	6.73	MG/KG	1	02-Oct-08 11:24

Surrogates

OTP	76.8	40-140	%	1	02-Oct-08 11:24

Batch Information

Analytical Batch: EP100208
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 33.36
Prep Extract Vol: 10

Print Date: 10/2/2008

Client Sample ID: **SB03**
Client Project ID: CTO 016
Lab Sample ID: G649-71-3D
Lab Project ID: G649-71

Collection Date: 01-Oct-08 8:50
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 86.92
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	BQL	6.91	MG/KG	1	02-Oct-08 11:52

Surrogates

OTP	83.5	40-140	%	1	02-Oct-08 11:52

Batch Information

Analytical Batch: EP100208
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 33.28
Prep Extract Vol: 10

Print Date: 10/2/2008

Client Sample ID: **SB04**
Client Project ID: CTO 016
Lab Sample ID: G649-71-4D
Lab Project ID: G649-71

Collection Date: 01-Oct-08 9:03
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 86.90
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	**43.3**	7.03	MG/KG	1	02-Oct-08 12:21

Surrogates

OTP	77.7	40-140	%	1	02-Oct-08 12:21

Batch Information

Analytical Batch: EP100208
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 32.76
Prep Extract Vol: 10

Print Date: 10/2/2008

Client Sample ID: **SB05**
Client Project ID: CTO 016
Lab Sample ID: G649-71-5D
Lab Project ID: G649-71

Collection Date: 01-Oct-08 9:22
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 87.42
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	BQL	6.76	MG/KG	1	02-Oct-08 12:49

Surrogates

OTP	79	40-140	%	1	02-Oct-08 12:49

Batch Information

Analytical Batch: EP100208
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 33.85
Prep Extract Vol: 10

Print Date: 10/2/2008

Client Sample ID: **SB06**
Client Project ID: CTO 016
Lab Sample ID: G649-71-6D
Lab Project ID: G649-71

Collection Date: 01-Oct-08 9:35
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 87.05
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	BQL	7.09	MG/KG	1	02-Oct-08 13:18

Surrogates

OTP	85.5	40-140	%	1	02-Oct-08 13:18

Batch Information

Analytical Batch: EP100208
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 32.42
Prep Extract Vol: 10

Print Date: 10/2/2008

Client Sample ID: **SB07**
Client Project ID: CTO 016
Lab Sample ID: G649-71-7D
Lab Project ID: G649-71

Collection Date: 01-Oct-08 9:10
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 89.23
Basis: Dry

Results by 8015DRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Diesel Range Organics	BQL	6.77	MG/KG	1	02-Oct-08 13:47

Surrogates

OTP	80	40-140	%	1	02-Oct-08 13:47

Batch Information

Analytical Batch: EP100208
Analytical Method: 8015DRO
Instrument: GC6
Analyst: EAW

Prep Batch:
Prep Method: 3541
Prep Date/Time:
Initial Prep Wt./Vol.: 33.11
Prep Extract Vol: 10

Print Date: 10/2/2008

Client Sample ID: **SB01**
Client Project ID: CTO 016
Lab Sample ID: G649-71-1A
Lab Project ID: G649-71

Collection Date: 01-Oct-08 8:30
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 87.81
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	5.32	MG/KG	1	01-Oct-08 18:47

Surrogates

BFB	106	70-130	%	1	01-Oct-08 18:47

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.42
Prep Extract Vol: 5

Print Date: 10/2/2008

Client Sample ID: **SB02**
Client Project ID: CTO 016
Lab Sample ID: G649-71-2A
Lab Project ID: G649-71

Collection Date: 01-Oct-08 8:40
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 89.13
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	4.94	MG/KG	1	01-Oct-08 19:13

Surrogates

BFB	99.6	70-130	%	1	01-Oct-08 19:13

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.81
Prep Extract Vol: 5

Print Date: 10/2/2008

Client Sample ID: **SB03**
Client Project ID: CTO 016
Lab Sample ID: G649-71-3A
Lab Project ID: G649-71

Collection Date: 01-Oct-08 8:50
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 86.92
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	4.94	MG/KG	1	01-Oct-08 19:40

Surrogates

BFB	95.1	70-130	%	1	01-Oct-08 19:40

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.99
Prep Extract Vol: 5

Print Date: 10/2/2008

Client Sample ID: **SB04**
Client Project ID: CTO 016
Lab Sample ID: G649-71-4A
Lab Project ID: G649-71

Collection Date: 01-Oct-08 9:03
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 86.90
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	7.36	MG/KG	1	01-Oct-08 21:53

Surrogates

BFB	99.8	70-130	%	1	01-Oct-08 21:53

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 4.69
Prep Extract Vol: 5

Print Date: 10/2/2008

Client Sample ID: **SB05**
Client Project ID: CTO 016
Lab Sample ID: G649-71-5A
Lab Project ID: G649-71

Collection Date: 01-Oct-08 9:22
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 87.42
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	5.68	MG/KG	1	01-Oct-08 23:14

Surrogates

BFB	96.5	70-130	%	1	01-Oct-08 23:14

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.04
Prep Extract Vol: 5

Print Date: 10/2/2008

Client Sample ID: **SB06**
Client Project ID: CTO 016
Lab Sample ID: G649-71-6A
Lab Project ID: G649-71

Collection Date: 01-Oct-08 9:35
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 87.05
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	5.48	MG/KG	1	02-Oct-08 0:07

Surrogates

BFB	95.1	70-130	%	1	02-Oct-08 0:07

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.29
Prep Extract Vol: 5

Print Date: 10/2/2008

Client Sample ID: **SB07**
Client Project ID: CTO 016
Lab Sample ID: G649-71-7A
Lab Project ID: G649-71

Collection Date: 01-Oct-08 9:10
Received Date: 01-Oct-08
Matrix: SOIL
Solids: 89.23
Basis: Dry

Results by 8015GRO

Parameter	Result	RL/CL	Units	DF	Date Analyzed
Gasoline Range Organics	BQL	4.83	MG/KG	1	02-Oct-08 0:34

Surrogates

BFB	95.6	70-130	%	1	02-Oct-08 0:34

Batch Information

Analytical Batch: VP100108
Analytical Method: 8015GRO
Instrument: GC4
Analyst: DVG

Prep Batch:
Prep Method: 5035
Prep Date/Time:
Initial Prep Wt./Vol.: 6.96
Prep Extract Vol: 5

SGS

CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

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

www.us.sgs.com

087391

(1)

CLIENT: OSAGE of VA

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

PROJECT: CTO 016 SITE/PWSID#: TT2778 RELEASE AREA

REPORTS TO: Sharon Whitworth E-MAIL: swhitworth@osageva.com

Sharon Whitworth FAX NO: (757) 440-0411

INVOICE TO: Mike Cree QUOTE #

P.O. NUMBER CTO 016

SGS Reference: 6649-71

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used: METHANOL	NONE	Analysis Required (3): 5030 by 8260	3550	REMARKS
	SB01	10/1/08	0830	S	3		X	X			Sample Depth 6" In.
	SB02	↑	0840	S	3		X	X			" " 6-12"
	SB03		0850	S	3		X	X			" " 6-12"
	SB04		0903	S	3		X	X			" " 6-12"
	SB05		0922	S	3		X	X			" " 6-12"
	SB06	↓	0935	S	3		X	X			" " 6"
	SB07	10/1/08	0910	S	3		X	X			" " 6 "Inches

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:	Date	Time
	10/1/08	1120		10/1/08	1120
Relinquished By: (2)	Date	Time	Received By:	Date	Time
	10/1/08	1315		10/1/08	1315
Relinquished By: (3)	Date	Time	Received By:	Date	Time
Relinquished By: (4)	Date	Time	Received By:	Date	Time

(4)

Shipping Carrier: Hand Delivered

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature °C: 4.2°C °F:

Special Deliverable Requirements: EDD Format

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions: Email results all

Requested Turnaround Time:

☒ RUSH ASAP Date Needed ☐ STD

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☐ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557
☐ 1270 Greenbrier Street **Charleston, WV 25311** Tel: (304) 346-0725 Fax: (304) 346-0761

APPENDIX F
Photographs of Excavation Activities

Tank TT-2778 prior to removal

TT-2778 prior to removal

Photo of Tank TT-2778

Final excavation of TT-2778 tank basin

Surface Release of Tank TT-2778 contents

Surface Release area excavation with sample flags

NORTH CAROLINA – DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
– DIVISION OF WATER QUALITY – GROUNDWATER SECTION
1636 MAIL SERVICE CENTER –
RALEIGH, N.C. 27699-1636 – PHONE (919) 733-3221

WELL CONSTRUCTION RECORD

WELL CONTRACTOR: Bobbie Fowler
WELL CONTRACTOR CERTIFICATION #: 2869
STATE WELL CONSTRUCTION PERMIT #: N/A

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
   Recovery Heat Pump Water Injection Other If Other, list use: _____

2. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: Jacksonville County: Onslow
   _____
   (Road Name and Numbers, Community, or Subdivision and Lot No.)

3. OWNER Osage
   Address _____
   (Street or Route No.)
   _____
   City or Town State Zip Code

4. DATE DRILLED 10-9-08
5. TOTAL DEPTH 20'
6. CUTTINGS COLLECTED ____YES __X__NO
7. DOES WELL REPLACE EXISTING WELL? ____YES __X__NO
8. STATIC WATER LEVEL Below Top of Casing 13 Ft.
   (Use "+" if Above Top of Casing)
9. TOP OF CASING IS _____ Ft. Above Land Surface*
   *Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118
10. YIELD (gpm): _____ METHOD OF TEST —
11. WATER ZONES (depth) —
12. CHLORINATION: Type — Amount —
13. CASING:

	Depth		Diameter or Wall Thickness	Weight/Ft.	Material
From 0	To 10	Ft. 2"			PVC
From	To	Ft.			
From	To	Ft.			

14. GROUT:

	Depth		Material	Method
From	To	Ft.		
From	To	Ft.		

15. SCREEN:

	Depth		Diameter	Slot Size	Material
From 10	To 20	Ft. 2"	in.	in.	PVC
From	To	Ft.	in.	in.	
From	To	Ft.	in.	in.	

16. SAND/GRAVEL PACK:

	Depth		Size	Material
From	To	Ft.		
From	To	Ft.		

17. REMARKS: _____

DRILLING LOG From	To	DEPTH Formation Description
SEE BORING LOG		

If additional space is needed use back of form

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

SEE FIGURE 1.2

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

Bobbie D Fowler — 10-13-08
SIGNATURE OF PERSON CONSTRUCTING THE WELL — DATE

FOR OFFICE USE ONLY
Quad No: _____
Serial No: _____

Submit original to Division of Water Quality, Groundwater Section within 30 days

GW-1 REV.12/99

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

WELL ABANDONMENT RECORD

WELL CONTRACTOR Catlin Bobbie Fowler

WELL CONTRACTOR CERTIFICATION # 2869

1. WELL USE (Check Applicable Box): Residential ☐ Municipal ☐ Industrial ☐ Agricultural ☐ Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use: _____

2. WELL LOCATION: (Show a sketch of the location on back of form.)
Nearest Town: Jacksonville County Onslow
Terrawa Terrace TT 2278
(Road Name and Number, Community, Subdivision , Lot No.) Quadrangle No.

3. OWNER: O Sage

4. ADDRESS: _____

5. TOPOGRAPHY: draw, slope, hilltop, valley, flat (circle one)

6. TOTAL DEPTH: 20 DIAMETER 2"

7. CASING REMOVED:

feet	diameter
20'	2"

8. DISINFECTION: —
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:

Neat Cement	Sand Cement
bags of cement _____	bags of cement _____
gallons of water _____	gallons of water _____

Other
Type material 3/8 hole plug
Amount 100 lbs

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL.
Remove well four hole plug.

11. DATE WELL ABANDONED 10-9-08

WELL DIAGRAM: Draw a detailed sketch of the well showing total depth, depth and diameter of screens remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.

I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well Bobbie Fowler Date 10-13-08

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.

Submit original to the Division of Water Quality, Attn: Information Management- 1617 Mail Service Center - Raleigh, NC 27699-1617, Phone No. (919) 733-7015, and one copy to the owner within 30 days from completion of abandonment.