

PRELIMINARY SITE ASSESSMENT REPORT

**SR 1406 (Piney Green Road) from NC 24 to US 17
1381 Piney Green Road, Parcel #149
Jacksonville, North Carolina
State Project U-3810
WBS Element # 35801.1.1
Onslow County**

North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

April 16, 2010

PRELIMINARY SITE ASSESSMENT REPORT

**SR 1406 (Piney Green Road) from NC 24 to US 17
1381 Piney Green Road, Parcel #149
Jacksonville, North Carolina
State Project U-3810
WBS Element # 35801.1.1
Onslow County**

TABLE OF CONTENTS

<u>Section</u>	<u>Subject</u>	<u>Page</u>
Signature Page		ii
Executive Summary		iii
1.0	Introduction.....	1
2.0	Background.....	1
3.0	Local Geology and Surroundings	1
4.0	Subsurface Investigation.....	2
4.1	Geophysical Evaluation at Parcel #149	3
	4.1.1 Ground Penetrating Radar Methodology	3
	4.1.2 Time Domain Electromagnetic Methodology	4
	4.1.3 Field Procedures	4
4.2	Subsurface Soil Investigation at Parcel #149.....	5
5.0	Conclusions and Recommendations	9

Figures

- 1 USGS Topographic Location Map
- 2 Site Sketch Showing Soil Boring Locations
- 3 Key Map Showing Parcel Location
- 4 Site Map Showing Results of Geophysical Survey Investigation, Parcel 149

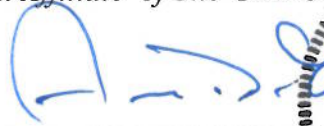
Appendices

- I Soil Boring Lithologic Logs
- II Certificates of Analysis and Chain of Custody Record for Soil Samples
- III Photographs Showing Soil Boring Locations

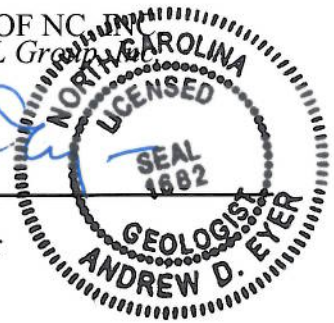
Signature Page

This document, entitled "Preliminary Site Assessment Report," has been prepared for Parcel #149, located at 1381 Piney Green Road in Jacksonville, North Carolina (State Project U-3810, WBS Element # 35801.1.1, Onslow County). It has been prepared by GEL Engineering of NC, Inc. in accordance with the Notice to Proceed provided by the North Carolina Department of Transportation-GeoEnvironmental Section, Geotechnical Engineering Unit for the exclusive use of the North Carolina Department of Transportation. It has been prepared in accordance with accepted quality control practices and has been reviewed by the undersigned.

GEL ENGINEERING OF NC, INC.
an Affiliate of The GEL Group



Andrew D. Eyer, L.G.
Senior Project Manager



Keith D. McCulloch, P.E.
Senior Staff Engineer

04-16-10

Date

PRELIMINARY SITE ASSESSMENT REPORT

**SR 1406 (Piney Green Road) from NC 24 to US 17
1381 Piney Green Road, Parcel #149
Jacksonville, North Carolina
State Project U-3810
WBS Element # 35801.1.1
Onslow County**

Executive Summary

The subject site is Parcel #149, located at 1381 Piney Green Road in Jacksonville, North Carolina. The primary purpose of this investigation was to determine the presence or absence of underground storage tanks (USTs) and constituents of concern in soil within the North Carolina Department of Transportation (NCDOT) proposed easterly Right-of-Way (ROW) of Piney Green Road adjacent to Parcel #149. Currently, there is an active automobile repair and retail tire facility located on Parcel #149, as well as two residences.

GEL performed a preliminary site assessment within the NCDOT proposed easterly ROW of Piney Green Road adjacent to Parcel #149 that included a geophysical survey, and the collection and analysis of soil samples. Two subsurface anomalies were identified by EM-61 and/or GPR data during the geophysical investigation, and both anomalies are considered "Probable" USTs.

Soil samples were collected for analysis from 12 borings constructed within the NCDOT proposed easterly ROW of Piney Green Road adjacent to Parcel #149. All soil samples except the sample collected from boring S12-4 were analyzed for diesel range organics (DRO), gasoline range organics (GRO), volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). The sample collected from boring S12-4 was analyzed for DRO and GRO only.

Analytical results for a soil sample collected from boring S12-2 indicated a methylene chloride concentration slightly exceeding the North Carolina Department of Environment and Natural Resources (NCDENR) Maximum Soil Contaminant Concentration (MSCC) for methylene chloride. Therefore, this analytical result is indicative of potential soil impact. The total estimated quantity of impacted soil (methylene chloride >0.020 mg/kg) encompassing soil boring S12-2 at the subject site is

PRELIMINARY SITE ASSESSMENT REPORT

**SR 1406 (Piney Green Road) from NC 24 to US 17
1381 Piney Green Road, Parcel #149
Jacksonville, North Carolina
State Project U-3810
WBS Element # 35801.1.1
Onslow County**

Executive Summary (continued)

approximately 60 cubic yards in a localized area. In addition, analytical results for the soil sample collected from boring S12-4 (adjacent to a “Probable” underground heating oil storage tank) indicated that the detected GRO and DRO concentrations significantly exceeded the NCDENR recommended GRO and DRO action levels of 10 mg/kg, and are indicative of soil impact. However, analysis of the soil for petroleum hydrocarbon constituents such as VOCs and polynuclear aromatic hydrocarbons (PAHs) would be needed to confirm the soil impact. The total estimated quantity of impacted soil (DRO >10 mg/kg and/or GRO >10 mg/kg) encompassing boring S12-4 at the subject site is approximately 207 cubic yards.

Lastly, analytical results for the soil sample collected from boring S12-11 (adjacent to a “Probable” UST) indicated soil impact from petroleum hydrocarbons, based on the detection of DRO, GRO, and VOCs in the soil sample. The total estimated quantity of impacted soil encompassing boring S12-11 at the subject site is approximately 119 cubic yards.

Based on the data generated from this investigation, there is evidence that a release(s) of constituents of concern have potentially occurred within the NCDOT proposed ROW at the subject site in the vicinity of borings S12-2, S12-4, and S12-11. Further investigation of the suspected areas of soil impact encompassing these borings, as shown in Figure 2, may be warranted to confirm and delineate the areas of soil impact. In any case, it is recommended that confirmation soil samples be collected and analyzed for VOCs and SVOCs (including PAHs) following any planned excavation in the vicinity of borings S12-2, S12-4, and S12-11 in order to confirm the presence or absence of soil impact from constituents of concern.

PRELIMINARY SITE ASSESSMENT REPORT

**SR 1406 (Piney Green Road) from NC 24 to US 17
1381 Piney Green Road, Parcel #149
Jacksonville, North Carolina
State Project U-3810
WBS Element # 35801.1.1
Onslow County**

1.0 Introduction

This document presents the details of a preliminary site assessment performed within the North Carolina Department of Transportation (NCDOT) proposed easterly Right-of-Way (ROW) at to Parcel #149 located at 1381 Piney Green Road in Jacksonville, North Carolina. Currently, there is an active automobile repair and retail tire facility located on Parcel #149, as well as two residences. The site location is shown on Figure 1, an excerpt from the United States Geological Survey (USGS) 7.5-minute quadrangle map of Camp Lejeune, North Carolina. The preliminary site assessment, which included a geophysical survey, was conducted by GEL Engineering of NC, Inc. (GEL) in accordance with the Notice to Proceed issued by NCDOT on February 9, 2010.

The primary purpose of this investigation was to determine the presence or absence of underground storage tanks (USTs) and on-site constituents of concern in soil within the NCDOT proposed easterly ROW of Piney Green Road at the subject site as a result of current and/or former operations.

2.0 Background

NCDOT is planning road improvements to SR 1406 (Piney Green Road) between NC 24 and US 17 in Onslow County, North Carolina. NCDOT wanted to assess the proposed ROWs adjacent to the site to evaluate the presence or absence of USTs and soil contamination related to the current and/or former on-site operations, and the impact (if any) of these operations on the proposed road improvements. Figures 2 and 3 show the general site layout for Parcel #149 and its location on Piney Green Road, respectively.

3.0 Local Geology and Surroundings

Parcel #149 is in a developed area of Jacksonville in Onslow County, North Carolina. Surrounding land uses include residential and commercial activities.

The site is located approximately approximately 6 miles east of the center of Jacksonville, North Carolina. This area is located in the Coastal Plain physiographic province of North Carolina. The land surface of the area is characterized by nearly level,

GEL Engineering of NC, Inc.
an Affiliate of The GEL Group, Inc.

fc: ncdt00110

and gently sloping, well drained soils. Coastal Plain geology in the vicinity of the site is characterized by undifferentiated post-Miocene interbedded sand and clay terrace deposits overlain by aqueous and aeolian deposits of marine and non-marine origin (USGS, 1955).

The United States Department of Agriculture's *Soil Survey of Onslow County, North Carolina* (1992) maps the area as Goldsboro-Urban Land Complex (GpB), typically composed of fine sandy loam grading to sandy clay loam with depth, and Craven Fine Sandy Loam (CrC), which is typically composed of fine sandy loam interstratified with clay. The soils encountered at the site during the preliminary site assessment consisted predominantly of tan/orange/brown clayey, silty sand and sandy clay to depths of 8 feet below land surface (bls).

Based on the moisture content of the subsurface soil encountered during the preliminary site assessment, the water table is located at approximately 7 to 8 feet bls. Based on the USGS topographic map presented as Figure 1, the site is located approximately 15 feet above mean sea level. The topography in Figure 1 indicates that groundwater in the vicinity of Parcel #149 most likely flows in a northwesterly direction towards Poplar Creek.

4.0 Subsurface Investigation

To determine the presence or absence of USTs and impact to subsurface soil within the NCDOT proposed ROW at Parcel #149, GEL performed a limited site assessment that consisted of the following tasks:

- Performance of a geophysical investigation to identify the presence or absence of USTs and associated appurtenances within the proposed easterly ROW of Piney Green Road adjacent to Parcel #149.
- Soil vapor screening of soil samples collected from subsurface soil borings at Parcel #149 within the proposed easterly ROW of Piney Green Road to determine the potential presence or absence of soil impact from petroleum constituents of concern.
- Collection and laboratory analysis of soil samples from the proposed easterly ROW of Piney Green Road at Parcel #149.

The details of these tasks are discussed in the following sections.

4.1 Geophysical Evaluation at Parcel #149

The geophysical investigation included the deployment of ground penetrating radar (GPR) technology and time domain electromagnetic technology (TDEM) to the site. These technologies were used in concert with one another in order to identify subsurface metallic anomalies and, more specifically, to identify the potential presence of USTs on site. A brief description of each technology is presented in the following paragraphs followed by a discussion of the results of the geophysical investigation.

4.1.1 Ground Penetrating Radar Methodology

A RAMAC digital radar control system configured with a 250 Megahertz (MHz) antenna array was used in this investigation. GPR is an electromagnetic geophysical method that detects interfaces between subsurface materials with differing dielectric constants. The GPR system consists of an antenna that houses the transmitter and receiver, a digital control unit that both generates and digitally records the GPR data, and a color video monitor to view data as they are collected in the field.

The transmitter radiates repetitive short-duration electromagnetic waves (at radar frequencies) into the earth from an antenna moving across the ground surface. These radar waves are reflected back to the receiver from the interface of materials with different dielectric constants. The intensity of the reflected signal is a function of the contrast in the dielectric constant between the materials, the conductivity of the material through which the wave is traveling, and the frequency of the signal. Subsurface features that commonly cause such reflections are: 1) natural geologic conditions, such as changes in sediment composition, bedding, and cementation horizons and voids; or 2) unnatural changes to the subsurface, such as disturbed soils, soil backfill, buried debris, tanks, pipelines, and utilities. The digital control unit processes the signal from the receiver and produces a continuous cross-section of the subsurface interface reflection events.

GPR data profiles are collected along transects, which are measured paths along which the GPR antenna is moved. During a survey, marks are placed in the data by the operator at designated points along the GPR transects or with a survey wheel odometer. These marks allow for a correlation between the GPR data and the position of the GPR antenna on the ground.

Depth of investigation of the GPR signal is highly site-specific and is limited by signal attenuation (absorption) in the subsurface materials. Signal attenuation is dependent on the electrical conductivity of the subsurface materials. Signal attenuation is

greatest in materials with relatively high electrical conductivities, such as clays, brackish groundwater, or groundwater with a high dissolved solid content from natural or man-made sources. Signal attenuation is lowest in relatively low-conductivity materials, such as dry sand or rock. Depth of investigation is also dependent on the antenna's transmitting frequency. Depth of investigation generally increases as transmitting frequency decreases; however, the ability to resolve smaller subsurface features is diminished as frequency is decreased.

The GPR antenna used at this site is internally shielded from aboveground interference sources. Accordingly, the GPR response is not affected by overhead power lines, metallic buildings, or nearby objects.

4.1.2 Time Domain Electromagnetic Methodology

The TDEM methods measure the electrical conductivity of subsurface materials. The conductivity is determined by inducing (from a transmitter) a time or frequency-varying magnetic field and measuring (with a receiver) the amplitude and phase shift of an induced secondary magnetic field. The secondary magnetic field is created by subsurface conductive materials behaving as an inductor as the primary magnetic field is passed through them.

The Geonics EM-61 system used in this investigation operates within these principles. However, the EM-61 TDEM system can discriminate between moderately conductive earth materials and very conductive metallic targets. The EM-61 consists of a portable coincident loop time domain transmitter and receiver with a 0.5-meter by 1.0-meter coil system. The EM-61 generates 150 pulses per second and measures the response from the ground after transmission or between pulses. The secondary EM responses from metallic targets are of longer duration than those created by conductive earth materials. By recording the later time EM arrivals, only the response from metallic targets is measured, rather than the field generated by the earth material.

4.1.3 Field Procedures

The GPR and TDEM field investigation was performed at Parcel #149 on March 16, 2010. The extent of the investigation covers only the proposed ROW indicated by NCDOT. A GPR system time range setting of 90 nanoseconds (ns) was used during the entire investigation. This range was determined after a series of test lines were conducted to evaluate the GPR response in the local geologic section. A preliminary interpretation of the GPR data was conducted in the field and potential USTs were marked on the

ground. Following the completion of the fieldwork, the data were post-processed and analyzed in more detail. GPR data processing typically included band pass filtering, background removal, horizontal smoothing, and gain adjustments.

TDEM was also used to scan the project site. Electromagnetic anomalies indicative of buried metallic objects were marked in the field.

It should be noted that “One Call” underground utility locations had been performed within the easterly ROW of Piney Green Road at Parcel #149 prior to the initiation of the preliminary site assessment field activities at the site. Several underground utilities were marked by “One Call” within the ROW at Parcel #149.

As shown on Figure 4, EM anomalies indicated the potential presence of USTs. A suspected area is located in the asphalt directly in front of the garage area of Piney Green Tire and Auto. GPR data was consistent with a large metallic object in size and shape of a possible UST. This anomaly is considered a “Probable” UST. A second area located on the west side of the house just east of Piney Green Tire and Auto showed GPR data consistent with an UST. EM data in this area was unreliable due to overhead canopy cover and the proximity of the house. Surface fill ports and historical data are consistent with the presence of a heating oil “fuel tank.” This area is considered a “Probable” UST.

4.2 Subsurface Soil Investigation at Parcel #149

To determine the presence or absence of impact to subsurface soil by constituents of concern, GEL collected soil samples from eleven subsurface soil borings, S12-1 through S12-3 and S12-5 through S12-12, at Parcel #149 on March 22, 2010, for analysis of total petroleum hydrocarbon indicator parameters, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). The soil sample collected from boring S12-4 was analyzed for petroleum hydrocarbon indicator parameters only. The soil borings were constructed within the proposed NCDOT easterly ROW of Piney Green Road, as shown on Figure 2 and in the photographs in Appendix III. The longitude and latitude coordinates for the boring locations are listed in the table below.

All borings were advanced to a total depth of 8 feet bls. Soil samples were collected at 3-4 feet and 7-8 feet bls from each borehole. All soil samples were inspected for indications of impact by constituents of concern, including petroleum hydrocarbons, such as odors, discoloration, or visible sheen. This sampling was accomplished using DPT provided by Regional Probing Services of Wake Forest, North Carolina (Regional Probing). Soil boring lithologic logs are attached as Appendix I of this document. No groundwater was encountered during construction of the borings.

The soil samples were screened for the presence of organic vapors using a portable photoionization detector (PID). The PID measures the concentration of organic compounds in the vapor space above a soil sample resulting from volatilization of organic compounds contained in the soil. To screen the soils, each sample was placed in a clean, resealable polyethylene bag. The bag was sealed, and the sample was allowed to equilibrate for approximately 5 minutes, after which time a small opening was made in the bag. The probe of the PID was then inserted into the bag, and the airspace above the soil was screened for organic vapors.

To assess the subsurface soil quality, one soil sample was collected from each soil boring at the sampled depth interval with the highest PID reading and submitted for laboratory analysis. The depth intervals and PID measurements of the collected soil samples submitted to the laboratory for analysis are listed below.

**Summary of Location Data and PID Measurements
for Soil Samples Collected for Analysis at Parcel No. 149**

Soil Boring	Depth Interval of Soil Sample Collected for Analysis (feet bls)	PID Reading (ppm)	Latitude/Longitude (NAD83)
S12-1	7-8	0.5	34°45'34.98"N / 77°20'14.58"W
S12-2	7-8	0.0	34°45'35.52"N / 77°20'15.96"W
S12-3	7-8	0.0	34°45'35.70"N / 77°20'16.50"W
S12-4	7-8	145	34°45'35.34"N / 77°20'16.80"W
S12-5	7-8	0.0	34°45'34.56"N / 77°20'17.58"W
S12-6	7-8	0.0	34°45'34.68"N / 77°20'16.38"W
S12-7	7-8	0.0	34°45'35.04"N / 77°20'17.76"W
S12-8	7-8	0.0	34°45'35.28"N / 77°20'17.52"W
S12-9	3-4	0.0	34°45'34.74"N / 77°20'18.72"W
S12-10	7-8	0.0	34°45'34.98"N / 77°20'19.32"W
S12-11	3-4	0.0	34°45'35.16"N / 77°20'19.38"W
S12-12	3-4	0.0	34°45'34.80"N / 77°20'19.62"W

Notes:

- 1) Coordinates are based on North American Datum of 1983 (NAD83)
- 2) bls = below land surface
- 3) PID = photoionization detector
- 4) ppm = parts per million

Following completion of the soil sampling activities, all borings were abandoned by filling the boreholes with soil cuttings and hydrated bentonite. Soil samples were submitted to SGS Laboratories, Inc. in Wilmington, North Carolina (North Carolina

Certification No. 481) for analysis of diesel range organics (DRO) by EPA Method 8015 with EPA Method 3545 sample preparation, and gasoline range organics (GRO) by EPA Method 8015 with EPA Method 5035A/5030B sample preparation, VOCs by EPA Method 8260B, and SVOCs by EPA Method 8270D. The sample collected from boring S12-4 was submitted for analysis of DRO and GRO only, since it was collected solely to provide an indication of the presence or absence of potential soil impact from any releases from the adjacent suspected heating oil tank. The analytical results are summarized in the following table and are included on the Certificates of Analysis provided in Appendix II.

Summary of Analytical Results for Soil Samples

Soil Sample	Depth Interval of Soil Sample Collected for Analysis	DRO	GRO	Toluene	4-Isopropyl-toluene	Methylene Chloride
S12-1-8	7-8	BQL	BQL	BQL	BQL	BQL
S12-2-8	7-8	BQL	BQL	BQL	BQL	0.035
S12-3-8	7-8	BQL	BQL	BQL	BQL	BQL
S12-4-8	7-8	3280	81.6	NA	NA	NA
S12-5-8	7-8	BQL	BQL	BQL	BQL	BQL
S12-6-8	7-8	BQL	BQL	BQL	BQL	BQL
S12-7-8	7-8	BQL	BQL	BQL	BQL	BQL
S12-8-8	7-8	BQL	BQL	BQL	BQL	BQL
S12-9-4	3-4	BQL	BQL	BQL	BQL	BQL
S12-10-8	7-8	BQL	BQL	BQL	BQL	BQL
S12-11-4	3-4	119	6.61	0.188	0.227	BQL
S12-12-4	3-4	BQL	BQL	BQL	BQL	BQL
NCDENR Action Level		10*	10	--	--	--
NCDENR MSCC		--	--	7.3	PQL	0.020
NCDENR RSCL		--	--	3200	PQL	85

Notes:

- 1) BQL = Below Quantitation Limit
- 2) MCC = Soil-to-Water Maximum Soil Contaminant Concentration (July 2008)
- 3) RSCL = Residential Soil Cleanup Level
- 4) PQL = Practical Quantitation Limit (default NCDENR standard for constituents with no established MSCC or RSCL).
- 5) NA = not analyzed
- 6) Concentrations shown are in milligrams per kilogram (mg/kg).
- 7) **Bold** = detected concentration above the NCDENR action level
- 8) * = Recommended action level for DRO. Currently the enforced NCDENR action level is 40 mg/kg.

Neither DRO nor GRO was detected in soil sample S12-2-8, but one VOC, methylene chloride, was detected at a concentration of 0.035 milligrams per kilogram (mg/kg), which slightly exceeds the NCDENR Soil-to-Water Maximum Soil Contaminant Concentration (MSCC) for methylene chloride (0.020 mg/kg). No other VOCs and no SVOCs were detected in the sample. The detection of methylene chloride in the soil sample may be anomalous or it may be due to a previous incidental surface spill. Regardless, it is indicative of potential soil impact, and it is estimated that there is an approximate total volume of 60 cubic yards of potentially impacted soil (methylene chloride >0.020 mg/kg) in the vicinity of boring S12-2, based on the following assumed area (as shown on Figure 2) and depth of impacted soil:

- S12-2: 200 sq. feet x 8 feet (assumed depth to water table) = 1,600 cubic feet = 60 cubic yards

GRO and DRO were detected at elevated concentrations in soil sample S12-4-8, which was collected near the suspected underground heating oil storage tank identified during the geophysical investigation. VOCs and SVOCs were not analyzed in this sample. However, based on the elevated DRO and GRO concentrations detected in the sample and the strong petroleum odor observed in boring S12-4, it has been concluded that the soil in the vicinity of boring S12-4 has most likely been impacted by a release from the suspected heating oil storage tank. It is estimated that there is an approximate total volume of 207 cubic yards of impacted soil (DRO >10 mg/kg and/or GRO >10 mg/kg) in the vicinity of boring S12-4, based on the following assumed area (as shown on Figure 2) and depth of impacted soil:

- S12-4: 700 sq. feet x 8 feet (assumed depth to water table) = 5,600 cubic feet = 207 cubic yards

As discussed in Section 4.1.3 above, a “Probable” UST was identified in front of the Piney Green Tire and Auto building. Therefore, soil samples were collected from borings S12-10 and S12-11, located adjacent to the suspected UST. No DRO, GRO, VOCs, or SVOCs were detected in soil sample S12-10-8. However, DRO, GRO, and two VOCs (toluene, and 4-isopropyltoluene) were detected in soil sample S12-11-4. The DRO detected concentration exceeded the NCDENR action level for DRO (10 mg/kg), and the detected 4-isopropyltoluene exceeded the NCDENR 4-isopropyltoluene MSCC (practical quantitation limit). Therefore, there is suspected soil impact in the vicinity of

boring S12-11. It is estimated that there is an approximate total volume of 119 cubic yards of impacted soil in the vicinity of boring S12-11, based on the following assumed area (as shown on Figure 2) and depth of impacted soil:

- S12-11: 400 sq. feet x 8 feet (assumed depth to water table) = 3,200 cubic feet = 119 cubic yards

5.0 Conclusions and Recommendations

GEL performed a preliminary site assessment within the NCDOT proposed easterly ROW of Piney Green Road adjacent to Parcel #149 that included a geophysical survey, and the collection and analysis of soil samples. Two subsurface anomalies were identified by EM-61 and/or GPR data during the geophysical investigation, and both anomalies are considered “Probable” USTs.

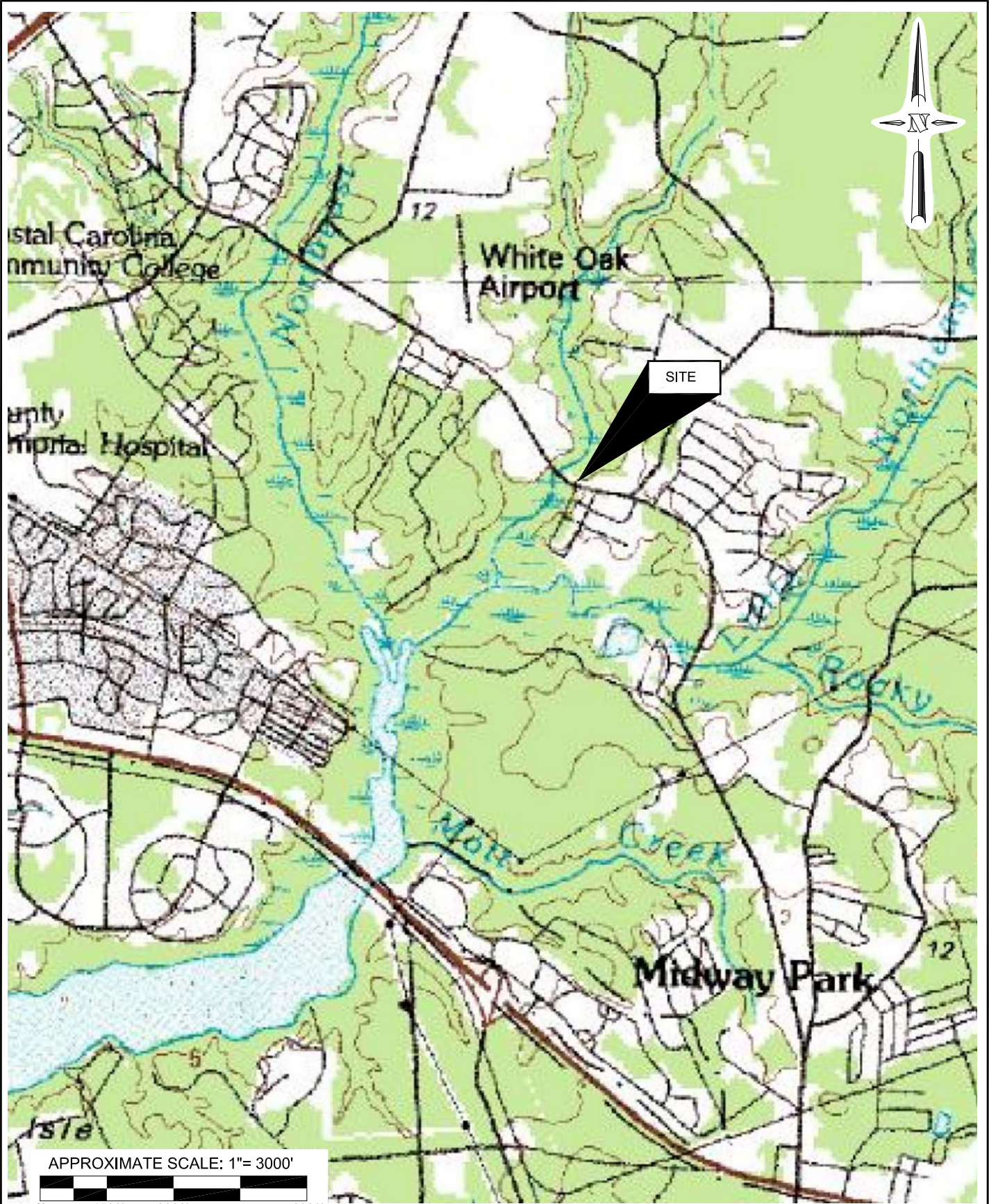
Soil samples were collected for analysis from 12 borings constructed within the NCDOT proposed easterly ROW of Piney Green Road adjacent to Parcel #149. All soil samples except the sample collected from boring S12-4 were analyzed for DRO, GRO, VOCs, and SVOCs. The sample collected from boring S12-4 was analyzed for DRO and GRO only.

Analytical results for a soil sample collected from boring S12-2 indicated a methylene chloride concentration slightly exceeding the NCDENR MSCC for methylene chloride. Therefore, this analytical result is indicative of potential soil impact. The total estimated quantity of impacted soil (methylene chloride >0.020 mg/kg) encompassing soil boring S12-2 at the subject site is approximately 60 cubic yards in a localized area. In addition, analytical results for the soil sample collected from boring S12-4 (adjacent to a “Probable” underground heating oil storage tank) indicated that the detected GRO and DRO concentrations significantly exceeded the NCDENR recommended GRO and DRO action levels of 10 mg/kg, and are indicative of soil impact. However, analysis of the soil for petroleum hydrocarbon constituents such as VOCs and polynuclear aromatic hydrocarbons (PAHs) would be needed to confirm the soil impact. The total estimated quantity of impacted soil (DRO >10 mg/kg and/or GRO >10 mg/kg) encompassing boring S12-4 at the subject site is approximately 207 cubic yards.

Lastly, analytical results for the soil sample collected from boring S12-11 (adjacent to a “Probable” UST) indicated soil impact from petroleum hydrocarbons, based on the detection of DRO, GRO, and VOCs in the soil sample. The total estimated quantity of

impacted soil encompassing boring S12-11 at the subject site is approximately 119 cubic yards.

Based on the data generated from this investigation, there is evidence that a release(s) of constituents of concern have potentially occurred within the NCDOT proposed ROW at the subject site in the vicinity of borings S12-2, S12-4, and S12-11. Further investigation of the suspected areas of soil impact encompassing these borings, as shown in Figure 2, may be warranted to confirm and delineate the areas of soil impact. In any case, it is recommended that confirmation soil samples be collected and analyzed for VOCs and SVOCs (including PAHs) following any planned excavation in the vicinity of borings S12-2, S12-4, and S12-11 in order to confirm the presence or absence of soil impact from constituents of concern.



APPROXIMATE SCALE: 1"= 3000'



DRAWING TAKEN FROM USGS 7.5 MINUTE TOPOGRAPHIC MAP (CAMP LEJEUNE, NC QUADRANGLE)

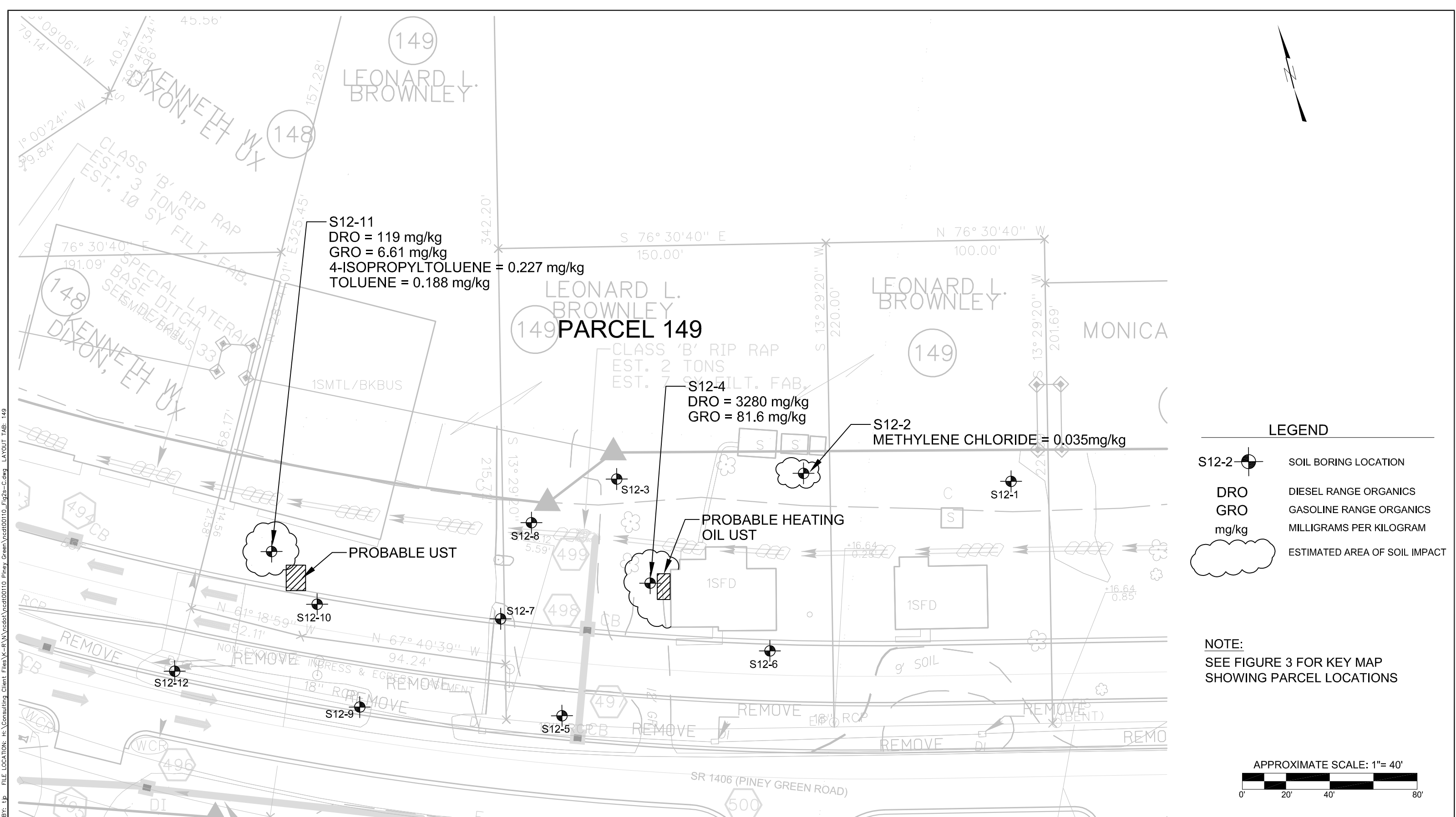
GEL Engineering of NC Inc.

an Affiliate of THE GEL GROUP INC

problem solved

P.O. Box 14262
RTP, NC 27709
P: 919.544.1100
F: 919.406.1807
www.gel.com

PROJECT: ncd100110			
PRELIMINARY SITE ASSESSMENT REPORT PARCEL 149 JACKSONVILLE, NORTH CAROLINA STATE PROJECT U-3810, WBS# 35801.1.1	USGS TOPOGRAPHIC LOCATION MAP	FIGURE 1	
DATE: April 6, 2010	DRAWN BY: TJP	APPRV. BY: ADE	



GEL Engineering of NC Inc.
an Affiliate of THE GEL GROUP INC

Post Office Box 14262
Research Triangle Park, NC 27709
P 919-544-1100
F 919-406-1807
www.gel.com

PROJECT: ncdt00110
PRELIMINARY SITE ASSESSMENT REPORT
PARCEL NO. 149, LEONARD LEE BROWLEY
1381 PINEY GREEN ROAD
JACKSONVILLE, NORTH CAROLINA
STATE PROJECT U-3810, WBS #35801.1.1

SITE SKETCH SHOWING
SOIL BORING LOCATIONS

FIGURE
2

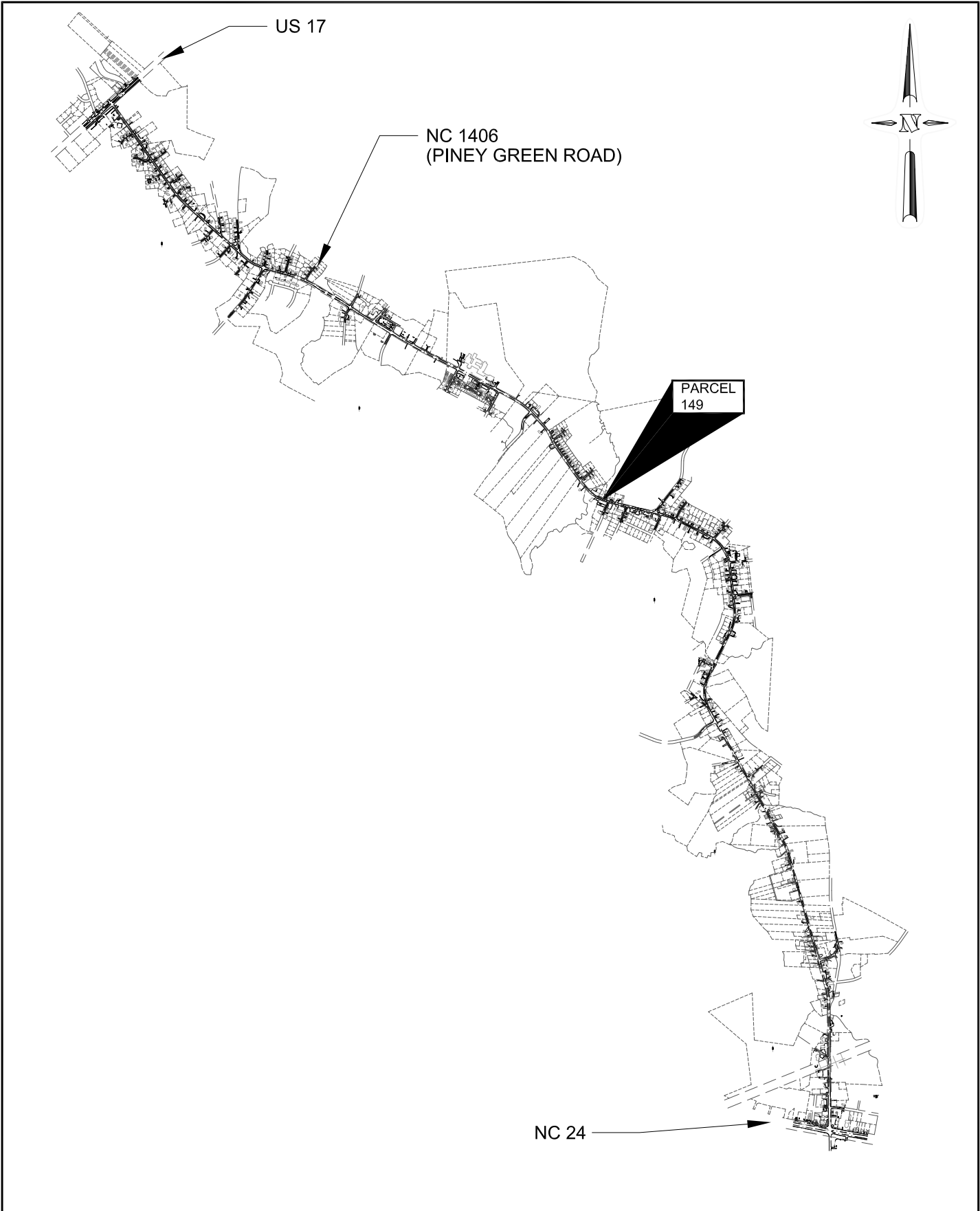
problem solved

DATE: May 3, 2010

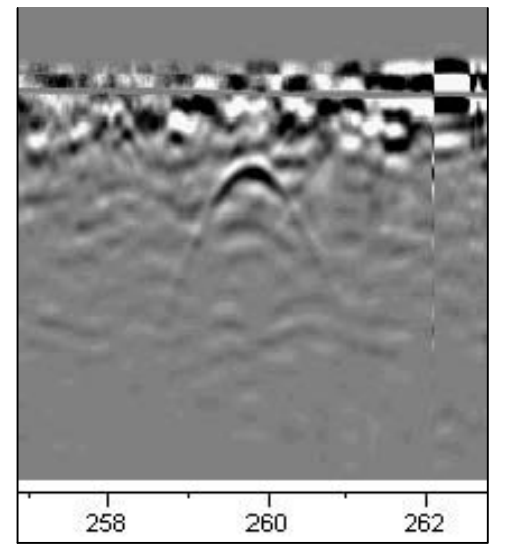
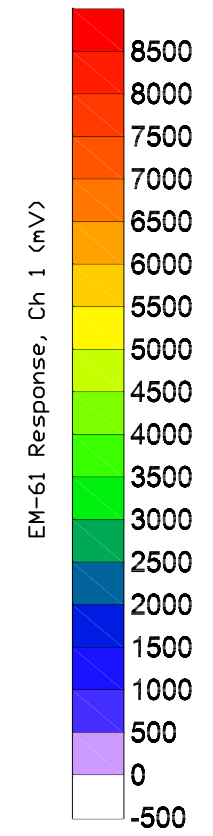
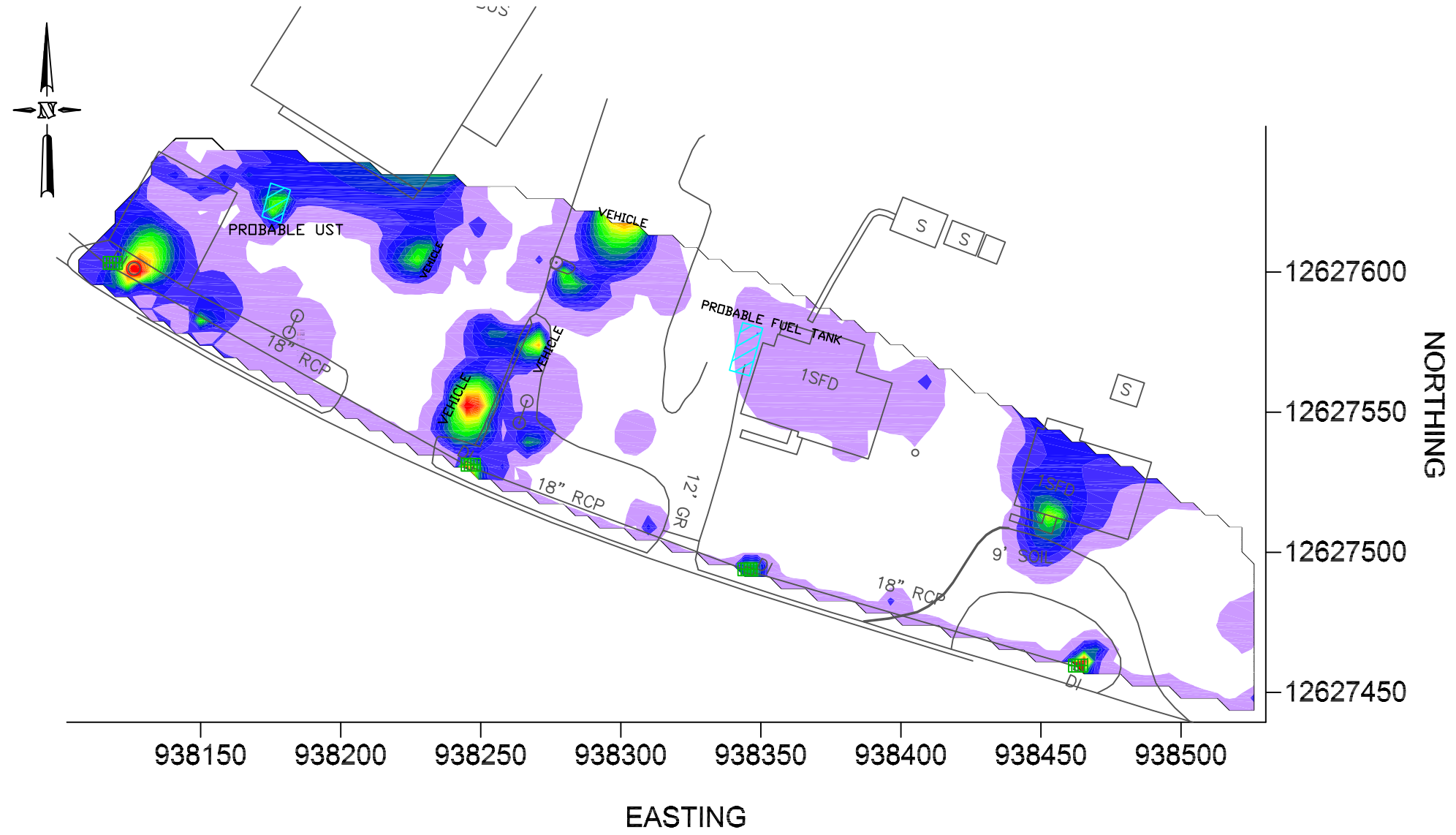
DRAWN BY: TJP

APPRV. BY: ADE

PLOTTED: May 07, 2010 - 9:51am BY: tjp FILE LOCATION: H:\Consulting Client Files\K-R\N\ncdt00110_Piney Green\ncdt00110_Fig2s-C.dwg LAYOUT TAB: 149

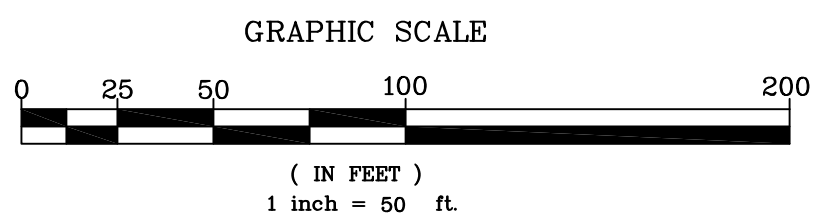


GEL Engineering of NC Inc. an Affiliate of THE GEL GROUP INC problem solved	P.O. Box 14262 RTP, NC 27709 P: 919.544.1100 F: 919.406.1807 www.gel.com	PROJECT: ncdt00110	KEY MAP SHOWING PARCEL LOCATION	FIGURE 3
		PRELIMINARY SITE ASSESSMENT REPORT PARCEL 149 JACKSONVILLE, NORTH CAROLINA STATE PROJECT U-3810, WBS# 35801.1.1		






GPR IMAGE OF POSSIBLE UST

EASTING: 938150, 938200, 938250, 938300, 938350, 938400, 938450, 938500
 NORTHING: 12627450, 12627500, 12627550, 12627600



LEGEND

-  UTILITY POLE
-  STORMWATER DRAINAGE GRATE
-  POSSIBLE/PROBABLE UST

NOTES

- 1) UNDERGROUND FEATURES WERE LOCATED USING VISUAL EVIDENCE, GROUND PENETRATING RADAR (GPR), AND TIME DOMAIN ELECTROMAGNETIC (TDEM) METHODS. OTHER BURIED UTILITIES AND STRUCTURES MAY EXIST BUT WERE NOT DETECTED DUE TO LIMITATIONS OF THE GEOPHYSICAL METHODS, SITE ACCESS, AND/OR HIGH TARGET CONGESTION. THEREFORE, DUE CAUTION SHOULD BE USED WHEN PERFORMING SUBSURFACE EXCAVATION ACTIVITIES WHERE POTENTIAL CONFLICTS EXIST. GEL ENGINEERING OF NC INC. IS NOT RESPONSIBLE FOR DAMAGES THAT MAY OCCUR. IDENTIFYING THE LOCATION OF SOME UTILITIES AND/OR STRUCTURES MAY ONLY BE POSSIBLE WITH VACUUM OR OTHER EXCAVATION METHODS.
- 2) DATA FROM GEONICS, LTD. EM-61 MKII AND MALA GEOSCIENCE GROUND PENETRATING RADAR.
- 3) COORDINATES IN US STATE PLANE NAD 1983 DATUM.
- 4) PROJECT MICROSTATION BASEMAPS PROVIDED BY NCDOT.
- 5) **NO UNKNOWN UNDERGROUND STORAGE TANKS FOUND UNLESS NOTED IN DRAWING**

GEL Engineering of NC INC.
 An Affiliate of THE GEL GROUP, INC.
 problem solved

P.O. Box 14262
 RTP, NC 27709
 P: 919.544.1100
 F: 919.406.1807
 www.gel.com

PROJECT: NCDT00110			
Preliminary Site Assessment SR 1406 (Piney Green Rd) From NC 24 to US 17 Onslow County, North Carolina State Project U-3810, WBS# 35801.1.1		Site Map Showing Results Of Geophysical Survey Investigation Parcel 149	
March 11, 2010		DRAWN BY: DEA	APPRV. BY: CMS
		FIGURE 4	

APPENDIX I

SOIL BORING LITHOLOGIC LOGS

SOIL BORING LOG

Boring/Well No.: 512-1

Date Started: 3/22/10

Date Completed: 3/22/10

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0-4	-	0.0	Grass Mat, Dark Brn Organic Silty Sand, Brn Lt. Brown silty sand, Tan Sandy Clay, Moist	
* 2	4-8	-	0.5	Tan Clayey Sand, Sandy Clay Mottled Tan/Gray, Moist	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

- 1) 4-foot continuous cores using DPT..

34° 45.583 N

077° 20.243 W

SOIL BORING LOG

Boring/Well No.: 512-2.

Date Started: 3/22/10

Date Completed: 3/22/10

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0-4	-	0.0	Grass Mat, Tan Silty Sand. Damp Tan Clayey Sand Moist	
* 2	4-8	-	0.0	Orange Tan / Sandy Clay - Clayey Sand Moist - Wet	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

- 1) 4-foot continuous cores using DPT..

34° 45.592 N
77° 20.266 W

SOIL BORING LOG

Boring/Well No.: 512-3

Date Started: 3/22/10

Date Completed: 3/22/10

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0-4	-	0.0	Coars. DK. Brn organic silty sand, Tan silty sand, Moist	
2	4-8	-	0.0	" lt. Tan Clean Fine/med. Sand, Wet	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

14:50

Notes:

- 1) 4-foot continuous cores using DPT..

34° 45.595 N

77° 20.275 W

SOIL BORING LOG

Boring/Well No.: 512-4-

Date Started: 3/22/10

Date Completed: 3/22/10

1500

*

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0-4	-	0.0	Tan Silty Sands, Damp Orange Brown Sandy Silty Clay, Moist	
2	4-8	-	145	Orange Brn, Gray Mottled Silty Clay, Moist Gray/Reddish Brn Sandy Clay - Strong Odor	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

- 1) 4-foot continuous cores using DPT..

340 45.589 N

77° 20.240 W

SOIL BORING LOG

Boring/Well No.: 512-5

Date Started: 3/22/10

Date Completed: 3/22/10

1510

*

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0-4	-	0.0	Dk. Brn Organic Silty Sand, Damp Tan Brn Silty Sand, Moist Gray Tan Sandy Clay	
2	4-8	-	0.0	Gray Tan Sandy Clay, Moist-Wet	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

- 1) 4-foot continuous cores using DPT..

34° 45.576 N

77° 20.293 W

SOIL BORING LOG

Boring/Well No.: 512-C

Date Started: 3/22/10

Date Completed: 3/22/10

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0-4	-	0.0	Dk. Brn Organic Silty Sand, Orange Brn Clayey Sand, Tan Silty Sand, Moist	
1530 * 2	4-8	-	0.0	Orange tan Sandy Clay, Moist Gray tan Clayey Sand, Moist, wet	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

- 1) 4-foot continuous cores using DPT..

34° 45.578 N

77° 20.273 W

SOIL BORING LOG

Boring/Well No.: 512-7
 Date Started: 3/22/10
 Date Completed: 3/22/10

15:50

8

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0-4	-	0.0	ROC, Tan Gray Sandy Silt, DK. Brn - Black organic silt. Moist	
2	4-8	-	0.0	" " Gray. Brn Sandy Clay, Moist Grayish Tan Sand, Moist-Wet	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

- 1) 4-foot continuous cores using DPT..

34° 45.564 N

77° 20.296 W

SOIL BORING LOG

Boring/Well No.: 512-8
 Date Started: 3/22/10
 Date Completed: 5/22/10

8
 16:10

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0-4	-	0.0	ROC, DK. Brn Organic Silty Sand, Moist Gray Brn Clayey Sand, Wood Pieces, Moist	
2	4-8	-	0.0	" Gray Brn Sandy Clay, Moist	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

- 1) 4-foot continuous cores using DPT..

340 45.588 N
 77° 20.292 W

SOIL BORING LOG

Boring/Well No.: 512-9

Date Started: 3/22/10

Date Completed: 3/22/10

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0-4	-	0.0	Bru Tan, Silty Sand, Damp Tan, Bru Fine Sand Moist	
2	4-8	-	0.0	Lt. " " Grey Fine Sand, Wet - Sat.	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

1630

Notes:

- 1) 4-foot continuous cores using DPT..

34° 45.579 N

77° 20.312 W

SOIL BORING LOG

Boring/Well No.: S12-10
 Date Started: 3/22/10
 Date Completed: 3/22/10

16:50

*

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0-4	-	0.0	ROC, DK. Brn / Gray Silty Sand, Damp DK. Brn Organic Silty Sand, Moist	
2	4-8	-	0.0	Gray Brn Sandy Clay l, Gray Brown Silty Sand, Moist	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

- 1) 4-foot continuous cores using DPT..

34° 45. ~~55~~ 5N . 583 N

77° 20. ~~34~~ 2W . 322 W

SOIL BORING LOG

Boring/Well No.: 512-11
 Date Started: 3/22/10
 Date Completed: 3/22/10

0110*

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0-4	-		Asphalt, ROC Tan Gray Fine sand DK Brn Silty Sand, Organics Moist	
2	4-8	-		Brn Sandy Clay, Organics, Moist Gray Tan Sand, Wet-sat	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

- 1) 4-foot continuous cores using DPT..

340 45.586 N
 770 20.323 W

SOIL BORING LOG

Boring/Well No.: S 12-12

Date Started: 3/22/10

Date Completed: 3/22/10

17:30 *

No.	Depth Interval	Blow Counts	PID (ppm)	Soil Description	Soil Type
1	0-4	-	0.0	Grass Mat, Dk. Brn Silty Sand, Asphalt(1") Gray, Brn Silty Clayey Sand Moist-Wet	
2	4-8	-	0.0	Gray " Silty Sand, Wet-Sat.	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Notes:

- 1) 4-foot continuous cores using DPT..

340 45,580 N
770 20,327 W

APPENDIX II

**CERTIFICATES OF ANALYSIS AND
CHAIN OF CUSTODY RECORD FOR SOIL SAMPLES**



Mr. Andrew Eyer
GEL Engineering of NC, Inc.
PO Box 14262
RTP NC 27709

Report Number: G341-617

Client Project: U-3810/NC DOT 001100

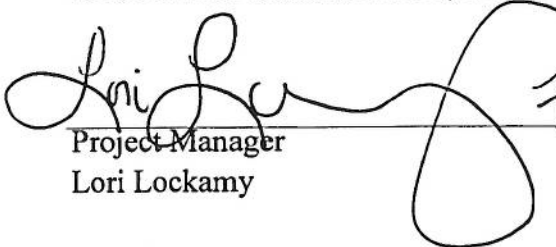
Dear Mr. Eyer:

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

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

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

Sincerely,
SGS Environmental Services, Inc.


Project Manager
Lori Lockamy

7 April 2010
Date

SGS North America, Inc.
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

UJ = Target analytes with recoveries that are $10\% < \%R < LCL$; # of MEs are allowable and compounds are not detected in the sample.

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

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

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

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

% Rec = Percent Recovery

% Solids = Percent Solids

Special Notes:

- 1) Metals and mercury samples are digested with a hot block; see the standard operating procedure document for details.
- 2) Uncertainty for all reported data is less than or equal to 30 percent.

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

Client Sample ID: S12-1-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-1D
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: BAO
 Date Collected: 3/22/2010 14:30
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 84.77

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.43	mg/Kg	1	03/29/10 12:00

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	98.3	98.3		70-130

Comments:


Batch Information

Analytical Batch: VP032910
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: BAO

Prep Method: 5035
 Initial Wt/Vol: 6.52 g
 Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: 
 GRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-1-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-1G
 Lab Project ID: G341-617

Date Collected: 3/22/2010 14:30
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 84.77
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.24	mg/Kg	1	03/25/10 20:35
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	38.9	97.2

Comments:

Batch Information

Analytical Batch: EP032510
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 16275
 Prep Method: 3541
 Prep Date: 03/25/10
 Initial Prep Wt/Vol: 32.58 G
 Prep Final Vol: 10 mL

Analyst: Ed

NC Certification #481

Reviewed By: 
 DRO.XLS
 Page 124 of 177

SGS North America, Inc.

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

Client Sample ID: S12-1-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID G341-617-1B
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: CLP
 Date Collected: 03-22-2010 14:30
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 7.63 g
 %Solids: 84.8

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	38.6	1	4/5/2010
Benzene	BQL	3.86	1	4/5/2010
Bromobenzene	BQL	3.86	1	4/5/2010
Bromochloromethane	BQL	3.86	1	4/5/2010
Bromodichloromethane	BQL	3.86	1	4/5/2010
Bromoform	BQL	3.86	1	4/5/2010
Bromomethane	BQL	3.86	1	4/5/2010
2-Butanone	BQL	19.3	1	4/5/2010
n-Butylbenzene	BQL	3.86	1	4/5/2010
sec-Butylbenzene	BQL	3.86	1	4/5/2010
tert-Butylbenzene	BQL	3.86	1	4/5/2010
Carbon disulfide	BQL	3.86	1	4/5/2010
Carbon tetrachloride	BQL	3.86	1	4/5/2010
Chlorobenzene	BQL	3.86	1	4/5/2010
Chloroethane	BQL	3.86	1	4/5/2010
Chloroform	BQL	3.86	1	4/5/2010
Chloromethane	BQL	3.86	1	4/5/2010
2-Chlorotoluene	BQL	3.86	1	4/5/2010
4-Chlorotoluene	BQL	3.86	1	4/5/2010
Dibromochloromethane	BQL	3.86	1	4/5/2010
1,2-Dibromo-3-chloropropane	BQL	19.3	1	4/5/2010
Dibromomethane	BQL	3.86	1	4/5/2010
1,2-Dibromoethane (EDB)	BQL	3.86	1	4/5/2010
1,2-Dichlorobenzene	BQL	3.86	1	4/5/2010
1,3-Dichlorobenzene	BQL	3.86	1	4/5/2010
1,4-Dichlorobenzene	BQL	3.86	1	4/5/2010
trans-1,4-Dichloro-2-butene	BQL	19.3	1	4/5/2010
1,1-Dichloroethane	BQL	3.86	1	4/5/2010
1,1-Dichloroethene	BQL	3.86	1	4/5/2010
1,2-Dichloroethane	BQL	3.86	1	4/5/2010
cis-1,2-Dichloroethene	BQL	3.86	1	4/5/2010
trans-1,2-dichloroethene	BQL	3.86	1	4/5/2010
1,2-Dichloropropane	BQL	3.86	1	4/5/2010
1,3-Dichloropropane	BQL	3.86	1	4/5/2010
2,2-Dichloropropane	BQL	3.86	1	4/5/2010
1,1-Dichloropropene	BQL	3.86	1	4/5/2010
cis-1,3-Dichloropropene	BQL	3.86	1	4/5/2010
trans-1,3-Dichloropropene	BQL	3.86	1	4/5/2010
Dichlorodifluoromethane	BQL	3.86	1	4/5/2010
Diisopropyl ether (DIPE)	BQL	3.86	1	4/5/2010
Ethylbenzene	BQL	3.86	1	4/5/2010
Hexachlorobutadiene	BQL	3.86	1	4/5/2010
2-Hexanone	BQL	9.65	1	4/5/2010
Iodomethane	BQL	3.86	1	4/5/2010

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

Client Sample ID: S12-1-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID G341-617-1B
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: CLP
 Date Collected: 03-22-2010 14:30
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 7.63 g
 %Solids: 84.8

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	3.86	1	4/5/2010
4-Isopropyltoluene	BQL	3.86	1	4/5/2010
Methylene chloride	BQL	15.4	1	4/5/2010
4-Methyl-2-pentanone	BQL	9.65	1	4/5/2010
Methyl-tert-butyl ether (MTBE)	BQL	3.86	1	4/5/2010
Naphthalene	BQL	3.86	1	4/5/2010
n-Propyl benzene	BQL	3.86	1	4/5/2010
Styrene	BQL	3.86	1	4/5/2010
1,1,1,2-Tetrachloroethane	BQL	3.86	1	4/5/2010
1,1,2,2-Tetrachloroethane	BQL	3.86	1	4/5/2010
Tetrachloroethene	BQL	3.86	1	4/5/2010
Toluene	BQL	3.86	1	4/5/2010
1,2,3-Trichlorobenzene	BQL	3.86	1	4/5/2010
1,2,4-Trichlorobenzene	BQL	3.86	1	4/5/2010
Trichloroethene	BQL	3.86	1	4/5/2010
1,1,1-Trichloroethane	BQL	3.86	1	4/5/2010
1,1,2-Trichloroethane	BQL	3.86	1	4/5/2010
Trichlorofluoromethane	BQL	3.86	1	4/5/2010
1,2,3-Trichloropropane	BQL	3.86	1	4/5/2010
1,2,4-Trimethylbenzene	BQL	3.86	1	4/5/2010
1,3,5-Trimethylbenzene	BQL	3.86	1	4/5/2010
Vinyl chloride	BQL	3.86	1	4/5/2010
m-,p-Xylene	BQL	7.72	1	4/5/2010
o-Xylene	BQL	3.86	1	4/5/2010


	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	62.7	125
Toluene-d8	50	47.6	95
4-Bromofluorobenzene	50	43.6	87

Comments:

Flags:

BQL = Below Quantitation Limits.

Analyst: 

Reviewed By: 

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-1-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-1H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 32.56 g

Analyzed By: DCS
 Date Collected: 3/22/2010 14:30
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 84.77

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	362	1	3/26/2010
Acenaphthylene	BQL	362	1	3/26/2010
Anthracene	BQL	362	1	3/26/2010
Benzo[a]anthracene	BQL	362	1	3/26/2010
Benzo[a]pyrene	BQL	362	1	3/26/2010
Benzo[b]fluoranthene	BQL	362	1	3/26/2010
Benzo[g,h,i]perylene	BQL	362	1	3/26/2010
Benzo[k]fluoranthene	BQL	362	1	3/26/2010
Benzoic Acid	BQL	1810	1	3/26/2010
Bis(2-chloroethoxy)methane	BQL	362	1	3/26/2010
Bis(2-chloroethyl)ether	BQL	362	1	3/26/2010
Bis(2-chloroisopropyl)ether	BQL	362	1	3/26/2010
Bis(2-ethylhexyl)phthalate	BQL	362	1	3/26/2010
4-bromophenyl phenyl ether	BQL	362	1	3/26/2010
Butylbenzylphthalate	BQL	362	1	3/26/2010
2-Chloronaphthalene	BQL	362	1	3/26/2010
2-Chlorophenol	BQL	362	1	3/26/2010
4-Chloro-3-methylphenol	BQL	362	1	3/26/2010
4-Chloroaniline	BQL	1810	1	3/26/2010
4-Chlorophenyl phenyl ether	BQL	362	1	3/26/2010
Chrysene	BQL	362	1	3/26/2010
Dibenzo[a,h]anthracene	BQL	362	1	3/26/2010
Dibenzofuran	BQL	362	1	3/26/2010
Di-n-Butylphthalate	BQL	362	1	3/26/2010
1,2-Dichlorobenzene	BQL	362	1	3/26/2010
1,3-Dichlorobenzene	BQL	362	1	3/26/2010
1,4-Dichlorobenzene	BQL	362	1	3/26/2010
3,3'-Dichlorobenzidine	BQL	725	1	3/26/2010
2,4-Dichlorophenol	BQL	362	1	3/26/2010
Diethylphthalate	BQL	362	1	3/26/2010
Dimethylphthalate	BQL	362	1	3/26/2010
2,4-Dimethylphenol	BQL	362	1	3/26/2010
Di-n-octylphthalate	BQL	362	1	3/26/2010
4,6-Dinitro-2-methylphenol	BQL	1810	1	3/26/2010
2,4-Dinitrophenol	BQL	1810	1	3/26/2010
2,4-Dinitrotoluene	BQL	362	1	3/26/2010
2,6-Dinitrotoluene	BQL	362	1	3/26/2010
Diphenylamine *	BQL	362	1	3/26/2010
Fluoranthene	BQL	362	1	3/26/2010
Fluorene	BQL	362	1	3/26/2010
Hexachlorobenzene	BQL	362	1	3/26/2010
Hexachlorobutadiene	BQL	362	1	3/26/2010
Hexachlorocyclopentadiene	BQL	725	1	3/26/2010
Hexachloroethane	BQL	362	1	3/26/2010
Indeno(1,2,3-c,d)pyrene	BQL	362	1	3/26/2010
Isophorone	BQL	362	1	3/26/2010
2-Methylnaphthalene	BQL	362	1	3/26/2010

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-1-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-1H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 32.56 g

Analyzed By: DCS
 Date Collected: 3/22/2010 14:30
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 84.77

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	362	1	3/26/2010
3- & 4-Methylphenol	BQL	362	1	3/26/2010
Naphthalene	BQL	362	1	3/26/2010
2-Nitroaniline	BQL	362	1	3/26/2010
3-Nitroaniline	BQL	1810	1	3/26/2010
4-Nitroaniline	BQL	1810	1	3/26/2010
Nitrobenzene	BQL	362	1	3/26/2010
2-Nitrophenol	BQL	362	1	3/26/2010
4-Nitrophenol	BQL	1810	1	3/26/2010
N-Nitrosodi-n-propylamine	BQL	362	1	3/26/2010
Pentachlorophenol	BQL	1810	1	3/26/2010
Phenanthrene	BQL	362	1	3/26/2010
Phenol	BQL	362	1	3/26/2010
Pyrene	BQL	362	1	3/26/2010
1,2,4-Trichlorobenzene	BQL	362	1	3/26/2010
2,4,5-Trichlorophenol	BQL	362	1	3/26/2010
2,4,6-Trichlorophenol	BQL	362	1	3/26/2010

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.2	82
2-Fluorophenol	10	9	90
Nitrobenzene-d5	10	9.2	92
Phenol-d6	10	9	90
2,4,6-Tribromophenol	10	8.2	82
4-Terphenyl-d14	10	10.2	102

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-2-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-2D
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: BAO
 Date Collected: 3/22/2010 14:40
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 77.19

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.38	mg/Kg	1	03/29/10 12:27

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	95.5	95.5		70-130

Comments:

Batch Information

Analytical Batch: VP032910
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: BAO

Prep Method: 5035
 Initial Wt/Vol: 7.23 g
 Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: BAO
GRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-2-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-2G
 Lab Project ID: G341-617

Date Collected: 3/22/2010 14:40
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 77.19
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.85	mg/Kg	1	03/25/10 21:04
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	32.9	82.3

Comments:

Batch Information

Analytical Batch: EP032510
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 16275
 Prep Method: 3541
 Prep Date: 03/25/10
 Initial Prep Wt/Vol: 33.01 G
 Prep Final Vol: 10 mL

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

Client Sample ID: S12-2-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID G341-617-2A
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 14:40
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 6.78 g
 %Solids: 77.2

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	47.7	1	3/31/2010
Benzene	BQL	4.77	1	3/31/2010
Bromobenzene	BQL	4.77	1	3/31/2010
Bromochloromethane	BQL	4.77	1	3/31/2010
Bromodichloromethane	BQL	4.77	1	3/31/2010
Bromoform	BQL	4.77	1	3/31/2010
Bromomethane	BQL	4.77	1	3/31/2010
2-Butanone	BQL	23.8	1	3/31/2010
n-Butylbenzene	BQL	4.77	1	3/31/2010
sec-Butylbenzene	BQL	4.77	1	3/31/2010
tert-Butylbenzene	BQL	4.77	1	3/31/2010
Carbon disulfide	BQL	4.77	1	3/31/2010
Carbon tetrachloride	BQL	4.77	1	3/31/2010
Chlorobenzene	BQL	4.77	1	3/31/2010
Chloroethane	BQL	4.77	1	3/31/2010
Chloroform	BQL	4.77	1	3/31/2010
Chloromethane	BQL	4.77	1	3/31/2010
2-Chlorotoluene	BQL	4.77	1	3/31/2010
4-Chlorotoluene	BQL	4.77	1	3/31/2010
Dibromochloromethane	BQL	4.77	1	3/31/2010
1,2-Dibromo-3-chloropropane	BQL	23.8	1	3/31/2010
Dibromomethane	BQL	4.77	1	3/31/2010
1,2-Dibromoethane (EDB)	BQL	4.77	1	3/31/2010
1,2-Dichlorobenzene	BQL	4.77	1	3/31/2010
1,3-Dichlorobenzene	BQL	4.77	1	3/31/2010
1,4-Dichlorobenzene	BQL	4.77	1	3/31/2010
trans-1,4-Dichloro-2-butene	BQL	23.8	1	3/31/2010
1,1-Dichloroethane	BQL	4.77	1	3/31/2010
1,1-Dichloroethene	BQL	4.77	1	3/31/2010
1,2-Dichloroethane	BQL	4.77	1	3/31/2010
cis-1,2-Dichloroethene	BQL	4.77	1	3/31/2010
trans-1,2-dichloroethene	BQL	4.77	1	3/31/2010
1,2-Dichloropropane	BQL	4.77	1	3/31/2010
1,3-Dichloropropane	BQL	4.77	1	3/31/2010
2,2-Dichloropropane	BQL	4.77	1	3/31/2010
1,1-Dichloropropene	BQL	4.77	1	3/31/2010
cis-1,3-Dichloropropene	BQL	4.77	1	3/31/2010
trans-1,3-Dichloropropene	BQL	4.77	1	3/31/2010
Dichlorodifluoromethane	BQL	4.77	1	3/31/2010
Diisopropyl ether (DIPE)	BQL	4.77	1	3/31/2010
Ethylbenzene	BQL	4.77	1	3/31/2010
Hexachlorobutadiene	BQL	4.77	1	3/31/2010
2-Hexanone	BQL	11.9	1	3/31/2010
Iodomethane	BQL	4.77	1	3/31/2010

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

Client Sample ID: S12-2-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID G341-617-2A
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 14:40
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 6.78 g
 %Solids: 77.2

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	4.77	1	3/31/2010
4-Isopropyltoluene	BQL	4.77	1	3/31/2010
Methylene chloride	35.3	19.1	1	3/31/2010
4-Methyl-2-pentanone	BQL	11.9	1	3/31/2010
Methyl-tert-butyl ether (MTBE)	BQL	4.77	1	3/31/2010
Naphthalene	BQL	4.77	1	3/31/2010
n-Propyl benzene	BQL	4.77	1	3/31/2010
Styrene	BQL	4.77	1	3/31/2010
1,1,1,2-Tetrachloroethane	BQL	4.77	1	3/31/2010
1,1,2,2-Tetrachloroethane	BQL	4.77	1	3/31/2010
Tetrachloroethene	BQL	4.77	1	3/31/2010
Toluene	BQL	4.77	1	3/31/2010
1,2,3-Trichlorobenzene	BQL	4.77	1	3/31/2010
1,2,4-Trichlorobenzene	BQL	4.77	1	3/31/2010
Trichloroethene	BQL	4.77	1	3/31/2010
1,1,1-Trichloroethane	BQL	4.77	1	3/31/2010
1,1,2-Trichloroethane	BQL	4.77	1	3/31/2010
Trichlorofluoromethane	BQL	4.77	1	3/31/2010
1,2,3-Trichloropropane	BQL	4.77	1	3/31/2010
1,2,4-Trimethylbenzene	BQL	4.77	1	3/31/2010
1,3,5-Trimethylbenzene	BQL	4.77	1	3/31/2010
Vinyl chloride	BQL	4.77	1	3/31/2010
m-,p-Xylene	BQL	9.54	1	3/31/2010
o-Xylene	BQL	4.77	1	3/31/2010

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	74.9	150
Toluene-d8	50	50.8	102
4-Bromofluorobenzene	50	42.4	85

Comments:

Flags:

BQL = Below Quantitation Limits.

Analyst: *CK*

Reviewed By: *MDA*

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-2-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-2H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 33.11 g

Analyzed By: DCS
 Date Collected: 3/22/2010 14:40
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 77.19

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	391	1	3/26/2010
Acenaphthylene	BQL	391	1	3/26/2010
Anthracene	BQL	391	1	3/26/2010
Benzo[a]anthracene	BQL	391	1	3/26/2010
Benzo[a]pyrene	BQL	391	1	3/26/2010
Benzo[b]fluoranthene	BQL	391	1	3/26/2010
Benzo[g,h,i]perylene	BQL	391	1	3/26/2010
Benzo[k]fluoranthene	BQL	391	1	3/26/2010
Benzoic Acid	BQL	1960	1	3/26/2010
Bis(2-chloroethoxy)methane	BQL	391	1	3/26/2010
Bis(2-chloroethyl)ether	BQL	391	1	3/26/2010
Bis(2-chloroisopropyl)ether	BQL	391	1	3/26/2010
Bis(2-ethylhexyl)phthalate	BQL	391	1	3/26/2010
4-bromophenyl phenyl ether	BQL	391	1	3/26/2010
Butylbenzylphthalate	BQL	391	1	3/26/2010
2-Chloronaphthalene	BQL	391	1	3/26/2010
2-Chlorophenol	BQL	391	1	3/26/2010
4-Chloro-3-methylphenol	BQL	391	1	3/26/2010
4-Chloroaniline	BQL	1960	1	3/26/2010
4-Chlorophenyl phenyl ether	BQL	391	1	3/26/2010
Chrysene	BQL	391	1	3/26/2010
Dibenzo[a,h]anthracene	BQL	391	1	3/26/2010
Dibenzofuran	BQL	391	1	3/26/2010
Di-n-Butylphthalate	BQL	391	1	3/26/2010
1,2-Dichlorobenzene	BQL	391	1	3/26/2010
1,3-Dichlorobenzene	BQL	391	1	3/26/2010
1,4-Dichlorobenzene	BQL	391	1	3/26/2010
3,3'-Dichlorobenzidine	BQL	783	1	3/26/2010
2,4-Dichlorophenol	BQL	391	1	3/26/2010
Diethylphthalate	BQL	391	1	3/26/2010
Dimethylphthalate	BQL	391	1	3/26/2010
2,4-Dimethylphenol	BQL	391	1	3/26/2010
Di-n-octylphthalate	BQL	391	1	3/26/2010
4,6-Dinitro-2-methylphenol	BQL	1960	1	3/26/2010
2,4-Dinitrophenol	BQL	1960	1	3/26/2010
2,4-Dinitrotoluene	BQL	391	1	3/26/2010
2,6-Dinitrotoluene	BQL	391	1	3/26/2010
Diphenylamine *	BQL	391	1	3/26/2010
Fluoranthene	BQL	391	1	3/26/2010
Fluorene	BQL	391	1	3/26/2010
Hexachlorobenzene	BQL	391	1	3/26/2010
Hexachlorobutadiene	BQL	391	1	3/26/2010
Hexachlorocyclopentadiene	BQL	783	1	3/26/2010
Hexachloroethane	BQL	391	1	3/26/2010
Indeno(1,2,3-c,d)pyrene	BQL	391	1	3/26/2010
Isophorone	BQL	391	1	3/26/2010
2-Methylnaphthalene	BQL	391	1	3/26/2010

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-2-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-2H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 33.11 g

Analyzed By: DCS
 Date Collected: 3/22/2010 14:40
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 77.19

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	391	1	3/26/2010
3- & 4-Methylphenol	BQL	391	1	3/26/2010
Naphthalene	BQL	391	1	3/26/2010
2-Nitroaniline	BQL	391	1	3/26/2010
3-Nitroaniline	BQL	1960	1	3/26/2010
4-Nitroaniline	BQL	1960	1	3/26/2010
Nitrobenzene	BQL	391	1	3/26/2010
2-Nitrophenol	BQL	391	1	3/26/2010
4-Nitrophenol	BQL	1960	1	3/26/2010
N-Nitrosodi-n-propylamine	BQL	391	1	3/26/2010
Pentachlorophenol	BQL	1960	1	3/26/2010
Phenanthrene	BQL	391	1	3/26/2010
Phenol	BQL	391	1	3/26/2010
Pyrene	BQL	391	1	3/26/2010
1,2,4-Trichlorobenzene	BQL	391	1	3/26/2010
2,4,5-Trichlorophenol	BQL	391	1	3/26/2010
2,4,6-Trichlorophenol	BQL	391	1	3/26/2010

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.4	74
2-Fluorophenol	10	9.3	93
Nitrobenzene-d5	10	8.7	87
Phenol-d6	10	9.4	94
2,4,6-Tribromophenol	10	7.4	74
4-Terphenyl-d14	10	9.8	98

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-3-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-3D
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: BAO
 Date Collected: 3/22/2010 14:50
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 79.40

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.19	mg/Kg	1	03/29/10 12:54

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	96.6	96.6		70-130

Comments:

Batch Information

Analytical Batch: VP032910
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: BAO

Prep Method: 5035
 Initial Wt/Vol: 6.1 g
 Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: 
GRO.XLS

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

Client Sample ID: S12-3-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-3G
 Lab Project ID: G341-617

Date Collected: 3/22/2010 14:50
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 79.40
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.49	mg/Kg	1	03/25/10 21:32
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	35.4	88.6

Comments:

Batch Information

Analytical Batch: EP032510
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 16275
 Prep Method: 3541
 Prep Date: 03/25/10
 Initial Prep Wt/Vol: 33.63 G
 Prep Final Vol: 10 mL

Analyst: FD

NC Certification #481

Reviewed By: 
 DRO.XLS
 Page 126 of 177

SGS North America, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: S12-3-8
Client Project ID: U-3810/NCDOT 001100
Lab Sample ID G341-617-3A
Lab Project ID: G341-617
Report Basis: Dry Weight

Analyzed By: DVO
Date Collected: 03-22-2010 14:50
Date Received: 3/24/2010
Matrix: Soil
Sample Amount: 6.30 g
%Solids: 79.4

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	49.9	1	4/1/2010
Benzene	BQL	4.99	1	4/1/2010
Bromobenzene	BQL	4.99	1	4/1/2010
Bromochloromethane	BQL	4.99	1	4/1/2010
Bromodichloromethane	BQL	4.99	1	4/1/2010
Bromoform	BQL	4.99	1	4/1/2010
Bromomethane	BQL	4.99	1	4/1/2010
2-Butanone	BQL	24.9	1	4/1/2010
n-Butylbenzene	BQL	4.99	1	4/1/2010
sec-Butylbenzene	BQL	4.99	1	4/1/2010
tert-Butylbenzene	BQL	4.99	1	4/1/2010
Carbon disulfide	BQL	4.99	1	4/1/2010
Carbon tetrachloride	BQL	4.99	1	4/1/2010
Chlorobenzene	BQL	4.99	1	4/1/2010
Chloroethane	BQL	4.99	1	4/1/2010
Chloroform	BQL	4.99	1	4/1/2010
Chloromethane	BQL	4.99	1	4/1/2010
2-Chlorotoluene	BQL	4.99	1	4/1/2010
4-Chlorotoluene	BQL	4.99	1	4/1/2010
Dibromochloromethane	BQL	4.99	1	4/1/2010
1,2-Dibromo-3-chloropropane	BQL	24.9	1	4/1/2010
Dibromomethane	BQL	4.99	1	4/1/2010
1,2-Dibromoethane (EDB)	BQL	4.99	1	4/1/2010
1,2-Dichlorobenzene	BQL	4.99	1	4/1/2010
1,3-Dichlorobenzene	BQL	4.99	1	4/1/2010
1,4-Dichlorobenzene	BQL	4.99	1	4/1/2010
trans-1,4-Dichloro-2-butene	BQL	24.9	1	4/1/2010
1,1-Dichloroethane	BQL	4.99	1	4/1/2010
1,1-Dichloroethene	BQL	4.99	1	4/1/2010
1,2-Dichloroethane	BQL	4.99	1	4/1/2010
cis-1,2-Dichloroethene	BQL	4.99	1	4/1/2010
trans-1,2-dichloroethene	BQL	4.99	1	4/1/2010
1,2-Dichloropropane	BQL	4.99	1	4/1/2010
1,3-Dichloropropane	BQL	4.99	1	4/1/2010
2,2-Dichloropropane	BQL	4.99	1	4/1/2010
1,1-Dichloropropene	BQL	4.99	1	4/1/2010
cis-1,3-Dichloropropene	BQL	4.99	1	4/1/2010
trans-1,3-Dichloropropene	BQL	4.99	1	4/1/2010
Dichlorodifluoromethane	BQL	4.99	1	4/1/2010
Diisopropyl ether (DIPE)	BQL	4.99	1	4/1/2010
Ethylbenzene	BQL	4.99	1	4/1/2010
Hexachlorobutadiene	BQL	4.99	1	4/1/2010
2-Hexanone	BQL	12.5	1	4/1/2010
Iodomethane	BQL	4.99	1	4/1/2010

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

Client Sample ID: S12-3-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID G341-617-3A
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 14:50
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 6.30 g
 %Solids: 79.4

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	4.99	1	4/1/2010
4-Isopropyltoluene	BQL	4.99	1	4/1/2010
Methylene chloride	BQL	20.0	1	4/1/2010
4-Methyl-2-pentanone	BQL	12.5	1	4/1/2010
Methyl-tert-butyl ether (MTBE)	BQL	4.99	1	4/1/2010
Naphthalene	BQL	4.99	1	4/1/2010
n-Propyl benzene	BQL	4.99	1	4/1/2010
Styrene	BQL	4.99	1	4/1/2010
1,1,1,2-Tetrachloroethane	BQL	4.99	1	4/1/2010
1,1,2,2-Tetrachloroethane	BQL	4.99	1	4/1/2010
Tetrachloroethene	BQL	4.99	1	4/1/2010
Toluene	BQL	4.99	1	4/1/2010
1,2,3-Trichlorobenzene	BQL	4.99	1	4/1/2010
1,2,4-Trichlorobenzene	BQL	4.99	1	4/1/2010
Trichloroethene	BQL	4.99	1	4/1/2010
1,1,1-Trichloroethane	BQL	4.99	1	4/1/2010
1,1,2-Trichloroethane	BQL	4.99	1	4/1/2010
Trichlorofluoromethane	BQL	4.99	1	4/1/2010
1,2,3-Trichloropropane	BQL	4.99	1	4/1/2010
1,2,4-Trimethylbenzene	BQL	4.99	1	4/1/2010
1,3,5-Trimethylbenzene	BQL	4.99	1	4/1/2010
Vinyl chloride	BQL	4.99	1	4/1/2010
m-,p-Xylene	BQL	9.98	1	4/1/2010
o-Xylene	BQL	4.99	1	4/1/2010


	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	64.5	129
Toluene-d8	50	51.9	104
4-Bromofluorobenzene	50	47.7	95

Comments:

Flags:

BQL = Below Quantitation Limits.

Analyst: 

Reviewed By: 

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-3-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-3H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 32.35 g

Analyzed By: DCS
 Date Collected: 3/22/2010 14:50
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 79.4

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	389	1	3/26/2010
Acenaphthylene	BQL	389	1	3/26/2010
Anthracene	BQL	389	1	3/26/2010
Benzo[a]anthracene	BQL	389	1	3/26/2010
Benzo[a]pyrene	BQL	389	1	3/26/2010
Benzo[b]fluoranthene	BQL	389	1	3/26/2010
Benzo[g,h,i]perylene	BQL	389	1	3/26/2010
Benzo[k]fluoranthene	BQL	389	1	3/26/2010
Benzoic Acid	BQL	1950	1	3/26/2010
Bis(2-chloroethoxy)methane	BQL	389	1	3/26/2010
Bis(2-chloroethyl)ether	BQL	389	1	3/26/2010
Bis(2-chloroisopropyl)ether	BQL	389	1	3/26/2010
Bis(2-ethylhexyl)phthalate	BQL	389	1	3/26/2010
4-bromophenyl phenyl ether	BQL	389	1	3/26/2010
Butylbenzylphthalate	BQL	389	1	3/26/2010
2-Chloronaphthalene	BQL	389	1	3/26/2010
2-Chlorophenol	BQL	389	1	3/26/2010
4-Chloro-3-methylphenol	BQL	389	1	3/26/2010
4-Chloroaniline	BQL	1950	1	3/26/2010
4-Chlorophenyl phenyl ether	BQL	389	1	3/26/2010
Chrysene	BQL	389	1	3/26/2010
Dibenzo[a,h]anthracene	BQL	389	1	3/26/2010
Dibenzofuran	BQL	389	1	3/26/2010
Di-n-Butylphthalate	BQL	389	1	3/26/2010
1,2-Dichlorobenzene	BQL	389	1	3/26/2010
1,3-Dichlorobenzene	BQL	389	1	3/26/2010
1,4-Dichlorobenzene	BQL	389	1	3/26/2010
3,3'-Dichlorobenzidine	BQL	779	1	3/26/2010
2,4-Dichlorophenol	BQL	389	1	3/26/2010
Diethylphthalate	BQL	389	1	3/26/2010
Dimethylphthalate	BQL	389	1	3/26/2010
2,4-Dimethylphenol	BQL	389	1	3/26/2010
Di-n-octylphthalate	BQL	389	1	3/26/2010
4,6-Dinitro-2-methylphenol	BQL	1950	1	3/26/2010
2,4-Dinitrophenol	BQL	1950	1	3/26/2010
2,4-Dinitrotoluene	BQL	389	1	3/26/2010
2,6-Dinitrotoluene	BQL	389	1	3/26/2010
Diphenylamine *	BQL	389	1	3/26/2010
Fluoranthene	BQL	389	1	3/26/2010
Fluorene	BQL	389	1	3/26/2010
Hexachlorobenzene	BQL	389	1	3/26/2010
Hexachlorobutadiene	BQL	389	1	3/26/2010
Hexachlorocyclopentadiene	BQL	779	1	3/26/2010
Hexachloroethane	BQL	389	1	3/26/2010
Indeno(1,2,3-c,d)pyrene	BQL	389	1	3/26/2010
Isophorone	BQL	389	1	3/26/2010
2-Methylnaphthalene	BQL	389	1	3/26/2010

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-3-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-3H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 32.35 g

Analyzed By: DCS
 Date Collected: 3/22/2010 14:50
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 79.4

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	389	1	3/26/2010
3- & 4-Methylphenol	BQL	389	1	3/26/2010
Naphthalene	BQL	389	1	3/26/2010
2-Nitroaniline	BQL	389	1	3/26/2010
3-Nitroaniline	BQL	1950	1	3/26/2010
4-Nitroaniline	BQL	1950	1	3/26/2010
Nitrobenzene	BQL	389	1	3/26/2010
2-Nitrophenol	BQL	389	1	3/26/2010
4-Nitrophenol	BQL	1950	1	3/26/2010
N-Nitrosodi-n-propylamine	BQL	389	1	3/26/2010
Pentachlorophenol	BQL	1950	1	3/26/2010
Phenanthrene	BQL	389	1	3/26/2010
Phenol	BQL	389	1	3/26/2010
Pyrene	BQL	389	1	3/26/2010
1,2,4-Trichlorobenzene	BQL	389	1	3/26/2010
2,4,5-Trichlorophenol	BQL	389	1	3/26/2010
2,4,6-Trichlorophenol	BQL	389	1	3/26/2010


	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8	80
2-Fluorophenol	10	9.2	92
Nitrobenzene-d5	10	9.2	92
Phenol-d6	10	9.2	92
2,4,6-Tribromophenol	10	7.7	77
4-Terphenyl-d14	10	9	90

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-4-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-4A
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: BAO
 Date Collected: 3/22/2010 15:00
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 81.65

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	81.6	5.05	mg/Kg	5	03/29/10 22:24

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	98.6	98.6		70-130

Comments:

Batch Information

Analytical Batch: VP032910
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: BAO

Prep Method: 5035
 Initial Wt/Vol: 7.27 g
 Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: 
GRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-4-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-4D
 Lab Project ID: G341-617

Date Collected: 3/22/2010 15:00
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 81.65
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	3280	151	mg/Kg	20	03/26/10 17:16
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	NA	NA

Comments:
 NA : Surrogates diluted out

Batch Information

Analytical Batch: EP032610
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 16275
 Prep Method: 3541
 Prep Date: 03/25/10
 Initial Prep Wt/Vol: 32.34 G
 Prep Final Vol: 10 mL

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-5-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-5D
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: BAO
 Date Collected: 3/22/2010 15:10
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 79.13

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.25	mg/Kg	1	03/29/10 13:49

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	99.8	99.8		70-130

Comments:

Batch Information

Analytical Batch: VP032910
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: BAO

Prep Method: 5035
 Initial Wt/Vol: 6.07 g
 Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: BAO
GRO.XLS

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

Client Sample ID: S12-5-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-5G
 Lab Project ID: G341-617

Date Collected: 3/22/2010 15:10
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 79.13
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.86	mg/Kg	1	03/25/10 22:29
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	34.3	85.8

Comments:

Batch Information

Analytical Batch: EP032510
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 16275
 Prep Method: 3541
 Prep Date: 03/25/10
 Initial Prep Wt/Vol: 32.17 G
 Prep Final Vol: 10 mL

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

Client Sample ID: S12-5-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID G341-617-5B
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 15:10
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 7.17 g
 %Solids: 79.1

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	44.0	1	4/2/2010
Benzene	BQL	4.40	1	4/2/2010
Bromobenzene	BQL	4.40	1	4/2/2010
Bromochloromethane	BQL	4.40	1	4/2/2010
Bromodichloromethane	BQL	4.40	1	4/2/2010
Bromoform	BQL	4.40	1	4/2/2010
Bromomethane	BQL	4.40	1	4/2/2010
2-Butanone	BQL	22.0	1	4/2/2010
n-Butylbenzene	BQL	4.40	1	4/2/2010
sec-Butylbenzene	BQL	4.40	1	4/2/2010
tert-Butylbenzene	BQL	4.40	1	4/2/2010
Carbon disulfide	BQL	4.40	1	4/2/2010
Carbon tetrachloride	BQL	4.40	1	4/2/2010
Chlorobenzene	BQL	4.40	1	4/2/2010
Chloroethane	BQL	4.40	1	4/2/2010
Chloroform	BQL	4.40	1	4/2/2010
Chloromethane	BQL	4.40	1	4/2/2010
2-Chlorotoluene	BQL	4.40	1	4/2/2010
4-Chlorotoluene	BQL	4.40	1	4/2/2010
Dibromochloromethane	BQL	4.40	1	4/2/2010
1,2-Dibromo-3-chloropropane	BQL	22.0	1	4/2/2010
Dibromomethane	BQL	4.40	1	4/2/2010
1,2-Dibromoethane (EDB)	BQL	4.40	1	4/2/2010
1,2-Dichlorobenzene	BQL	4.40	1	4/2/2010
1,3-Dichlorobenzene	BQL	4.40	1	4/2/2010
1,4-Dichlorobenzene	BQL	4.40	1	4/2/2010
trans-1,4-Dichloro-2-butene	BQL	22.0	1	4/2/2010
1,1-Dichloroethane	BQL	4.40	1	4/2/2010
1,1-Dichloroethene	BQL	4.40	1	4/2/2010
1,2-Dichloroethane	BQL	4.40	1	4/2/2010
cis-1,2-Dichloroethene	BQL	4.40	1	4/2/2010
trans-1,2-dichloroethene	BQL	4.40	1	4/2/2010
1,2-Dichloropropane	BQL	4.40	1	4/2/2010
1,3-Dichloropropane	BQL	4.40	1	4/2/2010
2,2-Dichloropropane	BQL	4.40	1	4/2/2010
1,1-Dichloropropene	BQL	4.40	1	4/2/2010
cis-1,3-Dichloropropene	BQL	4.40	1	4/2/2010
trans-1,3-Dichloropropene	BQL	4.40	1	4/2/2010
Dichlorodifluoromethane	BQL	4.40	1	4/2/2010
Diisopropyl ether (DIPE)	BQL	4.40	1	4/2/2010
Ethylbenzene	BQL	4.40	1	4/2/2010
Hexachlorobutadiene	BQL	4.40	1	4/2/2010
2-Hexanone	BQL	11.0	1	4/2/2010
Iodomethane	BQL	4.40	1	4/2/2010

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-5-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-5H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 34.4 g

Analyzed By: DCS
 Date Collected: 3/22/2010 15:10
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 79.13

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	367	1	3/26/2010
Acenaphthylene	BQL	367	1	3/26/2010
Anthracene	BQL	367	1	3/26/2010
Benzo[a]anthracene	BQL	367	1	3/26/2010
Benzo[a]pyrene	BQL	367	1	3/26/2010
Benzo[b]fluoranthene	BQL	367	1	3/26/2010
Benzo[g,h,i]perylene	BQL	367	1	3/26/2010
Benzo[k]fluoranthene	BQL	367	1	3/26/2010
Benzoic Acid	BQL	1840	1	3/26/2010
Bis(2-chloroethoxy)methane	BQL	367	1	3/26/2010
Bis(2-chloroethyl)ether	BQL	367	1	3/26/2010
Bis(2-chloroisopropyl)ether	BQL	367	1	3/26/2010
Bis(2-ethylhexyl)phthalate	BQL	367	1	3/26/2010
4-bromophenyl phenyl ether	BQL	367	1	3/26/2010
Butylbenzylphthalate	BQL	367	1	3/26/2010
2-Chloronaphthalene	BQL	367	1	3/26/2010
2-Chlorophenol	BQL	367	1	3/26/2010
4-Chloro-3-methylphenol	BQL	367	1	3/26/2010
4-Chloroaniline	BQL	1840	1	3/26/2010
4-Chlorophenyl phenyl ether	BQL	367	1	3/26/2010
Chrysene	BQL	367	1	3/26/2010
Dibenzo[a,h]anthracene	BQL	367	1	3/26/2010
Dibenzofuran	BQL	367	1	3/26/2010
Di-n-Butylphthalate	BQL	367	1	3/26/2010
1,2-Dichlorobenzene	BQL	367	1	3/26/2010
1,3-Dichlorobenzene	BQL	367	1	3/26/2010
1,4-Dichlorobenzene	BQL	367	1	3/26/2010
3,3'-Dichlorobenzidine	BQL	735	1	3/26/2010
2,4-Dichlorophenol	BQL	367	1	3/26/2010
Diethylphthalate	BQL	367	1	3/26/2010
Dimethylphthalate	BQL	367	1	3/26/2010
2,4-Dimethylphenol	BQL	367	1	3/26/2010
Di-n-octylphthalate	BQL	367	1	3/26/2010
4,6-Dinitro-2-methylphenol	BQL	1840	1	3/26/2010
2,4-Dinitrophenol	BQL	1840	1	3/26/2010
2,4-Dinitrotoluene	BQL	367	1	3/26/2010
2,6-Dinitrotoluene	BQL	367	1	3/26/2010
Diphenylamine *	BQL	367	1	3/26/2010
Fluoranthene	BQL	367	1	3/26/2010
Fluorene	BQL	367	1	3/26/2010
Hexachlorobenzene	BQL	367	1	3/26/2010
Hexachlorobutadiene	BQL	367	1	3/26/2010
Hexachlorocyclopentadiene	BQL	735	1	3/26/2010
Hexachloroethane	BQL	367	1	3/26/2010
Indeno(1,2,3-c,d)pyrene	BQL	367	1	3/26/2010
Isophorone	BQL	367	1	3/26/2010
2-Methylnaphthalene	BQL	367	1	3/26/2010

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-5-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-5H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 34.4 g

Analyzed By: DCS
 Date Collected: 3/22/2010 15:10
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 79.13

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	367	1	3/26/2010
3- & 4-Methylphenol	BQL	367	1	3/26/2010
Naphthalene	BQL	367	1	3/26/2010
2-Nitroaniline	BQL	367	1	3/26/2010
3-Nitroaniline	BQL	1840	1	3/26/2010
4-Nitroaniline	BQL	1840	1	3/26/2010
Nitrobenzene	BQL	367	1	3/26/2010
2-Nitrophenol	BQL	367	1	3/26/2010
4-Nitrophenol	BQL	1840	1	3/26/2010
N-Nitrosodi-n-propylamine	BQL	367	1	3/26/2010
Pentachlorophenol	BQL	1840	1	3/26/2010
Phenanthrene	BQL	367	1	3/26/2010
Phenol	BQL	367	1	3/26/2010
Pyrene	BQL	367	1	3/26/2010
1,2,4-Trichlorobenzene	BQL	367	1	3/26/2010
2,4,5-Trichlorophenol	BQL	367	1	3/26/2010
2,4,6-Trichlorophenol	BQL	367	1	3/26/2010

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6	60
2-Fluorophenol	10	8.3	83
Nitrobenzene-d5	10	7.7	77
Phenol-d6	10	8.4	84
2,4,6-Tribromophenol	10	6.6	66
4-Terphenyl-d14	10	8.1	81

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-6-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-6D
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: BAO
 Date Collected: 3/22/2010 15:30
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 83.02

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.63	mg/Kg	1	03/29/10 14:16

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	96.4	96.4		70-130

Comments:

Batch Information

Analytical Batch: VP032910
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: BAO

Prep Method: 5035
 Initial Wt/Vol: 6.42 g
 Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: 
GRO.XLS

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

Client Sample ID: S12-6-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-6G
 Lab Project ID: G341-617

Date Collected: 3/22/2010 15:30
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 83.02
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.12	mg/Kg	1	03/25/10 22:57
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	37.2	93.1

Comments:

Batch Information

Analytical Batch: EP032510
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 16275
 Prep Method: 3541
 Prep Date: 03/25/10
 Initial Prep Wt/Vol: 33.84 G
 Prep Final Vol: 10 mL

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

Client Sample ID: S12-6-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID G341-617-6A
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 15:30
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 3.99 g
 %Solids: 83.0

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	75.5	1	4/1/2010
Benzene	BQL	7.55	1	4/1/2010
Bromobenzene	BQL	7.55	1	4/1/2010
Bromochloromethane	BQL	7.55	1	4/1/2010
Bromodichloromethane	BQL	7.55	1	4/1/2010
Bromoform	BQL	7.55	1	4/1/2010
Bromomethane	BQL	7.55	1	4/1/2010
2-Butanone	BQL	37.7	1	4/1/2010
n-Butylbenzene	BQL	7.55	1	4/1/2010
sec-Butylbenzene	BQL	7.55	1	4/1/2010
tert-Butylbenzene	BQL	7.55	1	4/1/2010
Carbon disulfide	BQL	7.55	1	4/1/2010
Carbon tetrachloride	BQL	7.55	1	4/1/2010
Chlorobenzene	BQL	7.55	1	4/1/2010
Chloroethane	BQL	7.55	1	4/1/2010
Chloroform	BQL	7.55	1	4/1/2010
Chloromethane	BQL	7.55	1	4/1/2010
2-Chlorotoluene	BQL	7.55	1	4/1/2010
4-Chlorotoluene	BQL	7.55	1	4/1/2010
Dibromochloromethane	BQL	7.55	1	4/1/2010
1,2-Dibromo-3-chloropropane	BQL	37.7	1	4/1/2010
Dibromomethane	BQL	7.55	1	4/1/2010
1,2-Dibromoethane (EDB)	BQL	7.55	1	4/1/2010
1,2-Dichlorobenzene	BQL	7.55	1	4/1/2010
1,3-Dichlorobenzene	BQL	7.55	1	4/1/2010
1,4-Dichlorobenzene	BQL	7.55	1	4/1/2010
trans-1,4-Dichloro-2-butene	BQL	37.7	1	4/1/2010
1,1-Dichloroethane	BQL	7.55	1	4/1/2010
1,1-Dichloroethene	BQL	7.55	1	4/1/2010
1,2-Dichloroethane	BQL	7.55	1	4/1/2010
cis-1,2-Dichloroethene	BQL	7.55	1	4/1/2010
trans-1,2-dichloroethene	BQL	7.55	1	4/1/2010
1,2-Dichloropropane	BQL	7.55	1	4/1/2010
1,3-Dichloropropane	BQL	7.55	1	4/1/2010
2,2-Dichloropropane	BQL	7.55	1	4/1/2010
1,1-Dichloropropene	BQL	7.55	1	4/1/2010
cis-1,3-Dichloropropene	BQL	7.55	1	4/1/2010
trans-1,3-Dichloropropene	BQL	7.55	1	4/1/2010
Dichlorodifluoromethane	BQL	7.55	1	4/1/2010
Diisopropyl ether (DIPE)	BQL	7.55	1	4/1/2010
Ethylbenzene	BQL	7.55	1	4/1/2010
Hexachlorobutadiene	BQL	7.55	1	4/1/2010
2-Hexanone	BQL	18.9	1	4/1/2010
Iodomethane	BQL	7.55	1	4/1/2010

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

Client Sample ID: S12-6-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID G341-617-6A
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 15:30
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 3.99 g
 %Solids: 83.0

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	7.55	1	4/1/2010
4-Isopropyltoluene	BQL	7.55	1	4/1/2010
Methylene chloride	BQL	30.2	1	4/1/2010
4-Methyl-2-pentanone	BQL	18.9	1	4/1/2010
Methyl-tert-butyl ether (MTBE)	BQL	7.55	1	4/1/2010
Naphthalene	BQL	7.55	1	4/1/2010
n-Propyl benzene	BQL	7.55	1	4/1/2010
Styrene	BQL	7.55	1	4/1/2010
1,1,1,2-Tetrachloroethane	BQL	7.55	1	4/1/2010
1,1,2,2-Tetrachloroethane	BQL	7.55	1	4/1/2010
Tetrachloroethene	BQL	7.55	1	4/1/2010
Toluene	BQL	7.55	1	4/1/2010
1,2,3-Trichlorobenzene	BQL	7.55	1	4/1/2010
1,2,4-Trichlorobenzene	BQL	7.55	1	4/1/2010
Trichloroethene	BQL	7.55	1	4/1/2010
1,1,1-Trichloroethane	BQL	7.55	1	4/1/2010
1,1,2-Trichloroethane	BQL	7.55	1	4/1/2010
Trichlorofluoromethane	BQL	7.55	1	4/1/2010
1,2,3-Trichloropropane	BQL	7.55	1	4/1/2010
1,2,4-Trimethylbenzene	BQL	7.55	1	4/1/2010
1,3,5-Trimethylbenzene	BQL	7.55	1	4/1/2010
Vinyl chloride	BQL	7.55	1	4/1/2010
m-,p-Xylene	BQL	15.1	1	4/1/2010
o-Xylene	BQL	7.55	1	4/1/2010

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	67.4	135
Toluene-d8	50	51.7	103
4-Bromofluorobenzene	50	47.3	95

Comments:

Flags:

BQL = Below Quantitation Limits.

Analyst: CK

Reviewed By: DA

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-6-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-6H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 32.54 g

Analyzed By: DCS
 Date Collected: 3/22/2010 15:30
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 83.02

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	370	1	3/26/2010
Acenaphthylene	BQL	370	1	3/26/2010
Anthracene	BQL	370	1	3/26/2010
Benzo[a]anthracene	BQL	370	1	3/26/2010
Benzo[a]pyrene	BQL	370	1	3/26/2010
Benzo[b]fluoranthene	BQL	370	1	3/26/2010
Benzo[g,h,i]perylene	BQL	370	1	3/26/2010
Benzo[k]fluoranthene	BQL	370	1	3/26/2010
Benzoic Acid	BQL	1850	1	3/26/2010
Bis(2-chloroethoxy)methane	BQL	370	1	3/26/2010
Bis(2-chloroethyl)ether	BQL	370	1	3/26/2010
Bis(2-chloroisopropyl)ether	BQL	370	1	3/26/2010
Bis(2-ethylhexyl)phthalate	BQL	370	1	3/26/2010
4-bromophenyl phenyl ether	BQL	370	1	3/26/2010
Butylbenzylphthalate	BQL	370	1	3/26/2010
2-Chloronaphthalene	BQL	370	1	3/26/2010
2-Chlorophenol	BQL	370	1	3/26/2010
4-Chloro-3-methylphenol	BQL	370	1	3/26/2010
4-Chloroaniline	BQL	1850	1	3/26/2010
4-Chlorophenyl phenyl ether	BQL	370	1	3/26/2010
Chrysene	BQL	370	1	3/26/2010
Dibenzo[a,h]anthracene	BQL	370	1	3/26/2010
Dibenzofuran	BQL	370	1	3/26/2010
Di-n-Butylphthalate	BQL	370	1	3/26/2010
1,2-Dichlorobenzene	BQL	370	1	3/26/2010
1,3-Dichlorobenzene	BQL	370	1	3/26/2010
1,4-Dichlorobenzene	BQL	370	1	3/26/2010
3,3'-Dichlorobenzidine	BQL	740	1	3/26/2010
2,4-Dichlorophenol	BQL	370	1	3/26/2010
Diethylphthalate	BQL	370	1	3/26/2010
Dimethylphthalate	BQL	370	1	3/26/2010
2,4-Dimethylphenol	BQL	370	1	3/26/2010
Di-n-octylphthalate	BQL	370	1	3/26/2010
4,6-Dinitro-2-methylphenol	BQL	1850	1	3/26/2010
2,4-Dinitrophenol	BQL	1850	1	3/26/2010
2,4-Dinitrotoluene	BQL	370	1	3/26/2010
2,6-Dinitrotoluene	BQL	370	1	3/26/2010
Diphenylamine *	BQL	370	1	3/26/2010
Fluoranthene	BQL	370	1	3/26/2010
Fluorene	BQL	370	1	3/26/2010
Hexachlorobenzene	BQL	370	1	3/26/2010
Hexachlorobutadiene	BQL	370	1	3/26/2010
Hexachlorocyclopentadiene	BQL	740	1	3/26/2010
Hexachloroethane	BQL	370	1	3/26/2010
Indeno(1,2,3-c,d)pyrene	BQL	370	1	3/26/2010
Isophorone	BQL	370	1	3/26/2010
2-Methylnaphthalene	BQL	370	1	3/26/2010

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-6-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-6H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 32.54 g

Analyzed By: DCS
 Date Collected: 3/22/2010 15:30
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 83.02

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	370	1	3/26/2010
3- & 4-Methylphenol	BQL	370	1	3/26/2010
Naphthalene	BQL	370	1	3/26/2010
2-Nitroaniline	BQL	370	1	3/26/2010
3-Nitroaniline	BQL	1850	1	3/26/2010
4-Nitroaniline	BQL	1850	1	3/26/2010
Nitrobenzene	BQL	370	1	3/26/2010
2-Nitrophenol	BQL	370	1	3/26/2010
4-Nitrophenol	BQL	1850	1	3/26/2010
N-Nitrosodi-n-propylamine	BQL	370	1	3/26/2010
Pentachlorophenol	BQL	1850	1	3/26/2010
Phenanthrene	BQL	370	1	3/26/2010
Phenol	BQL	370	1	3/26/2010
Pyrene	BQL	370	1	3/26/2010
1,2,4-Trichlorobenzene	BQL	370	1	3/26/2010
2,4,5-Trichlorophenol	BQL	370	1	3/26/2010
2,4,6-Trichlorophenol	BQL	370	1	3/26/2010
		Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl		10	8.3	83
2-Fluorophenol		10	9.3	93
Nitrobenzene-d5		10	9.5	95
Phenol-d6		10	9.4	94
2,4,6-Tribromophenol		10	8	80
4-Terphenyl-d14		10	9.9	99

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: MDA

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-7-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-7D
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: BAO
 Date Collected: 3/22/2010 15:50
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 82.34

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.37	mg/Kg	1	03/29/10 14:43

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	98.7	98.7		70-130

Comments:


Batch Information

Analytical Batch: VP032910
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: BAO

Prep Method: 5035
 Initial Wt/Vol: 6.79 g
 Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: 
 GRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-7-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-7G
 Lab Project ID: G341-617

Date Collected: 3/22/2010 15:50
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 82.34
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.35	mg/Kg	1	03/25/10 23:25
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	34.9	87.2

Comments:

Batch Information

Analytical Batch: EP032510
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 16275
 Prep Method: 3541
 Prep Date: 03/25/10
 Initial Prep Wt/Vol: 33.04 G
 Prep Final Vol: 10 mL

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

Client Sample ID: S12-7-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID G341-617-7A
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 15:50
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 4.71 g
 %Solids: 82.3

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	64.3	1	4/1/2010
Benzene	BQL	6.43	1	4/1/2010
Bromobenzene	BQL	6.43	1	4/1/2010
Bromochloromethane	BQL	6.43	1	4/1/2010
Bromodichloromethane	BQL	6.43	1	4/1/2010
Bromoform	BQL	6.43	1	4/1/2010
Bromomethane	BQL	6.43	1	4/1/2010
2-Butanone	BQL	32.2	1	4/1/2010
n-Butylbenzene	BQL	6.43	1	4/1/2010
sec-Butylbenzene	BQL	6.43	1	4/1/2010
tert-Butylbenzene	BQL	6.43	1	4/1/2010
Carbon disulfide	BQL	6.43	1	4/1/2010
Carbon tetrachloride	BQL	6.43	1	4/1/2010
Chlorobenzene	BQL	6.43	1	4/1/2010
Chloroethane	BQL	6.43	1	4/1/2010
Chloroform	BQL	6.43	1	4/1/2010
Chloromethane	BQL	6.43	1	4/1/2010
2-Chlorotoluene	BQL	6.43	1	4/1/2010
4-Chlorotoluene	BQL	6.43	1	4/1/2010
Dibromochloromethane	BQL	6.43	1	4/1/2010
1,2-Dibromo-3-chloropropane	BQL	32.2	1	4/1/2010
Dibromomethane	BQL	6.43	1	4/1/2010
1,2-Dibromoethane (EDB)	BQL	6.43	1	4/1/2010
1,2-Dichlorobenzene	BQL	6.43	1	4/1/2010
1,3-Dichlorobenzene	BQL	6.43	1	4/1/2010
1,4-Dichlorobenzene	BQL	6.43	1	4/1/2010
trans-1,4-Dichloro-2-butene	BQL	32.2	1	4/1/2010
1,1-Dichloroethane	BQL	6.43	1	4/1/2010
1,1-Dichloroethene	BQL	6.43	1	4/1/2010
1,2-Dichloroethane	BQL	6.43	1	4/1/2010
cis-1,2-Dichloroethene	BQL	6.43	1	4/1/2010
trans-1,2-dichloroethene	BQL	6.43	1	4/1/2010
1,2-Dichloropropane	BQL	6.43	1	4/1/2010
1,3-Dichloropropane	BQL	6.43	1	4/1/2010
2,2-Dichloropropane	BQL	6.43	1	4/1/2010
1,1-Dichloropropene	BQL	6.43	1	4/1/2010
cis-1,3-Dichloropropene	BQL	6.43	1	4/1/2010
trans-1,3-Dichloropropene	BQL	6.43	1	4/1/2010
Dichlorodifluoromethane	BQL	6.43	1	4/1/2010
Diisopropyl ether (DIPE)	BQL	6.43	1	4/1/2010
Ethylbenzene	BQL	6.43	1	4/1/2010
Hexachlorobutadiene	BQL	6.43	1	4/1/2010
2-Hexanone	BQL	16.1	1	4/1/2010
Iodomethane	BQL	6.43	1	4/1/2010

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

Client Sample ID: S12-7-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID G341-617-7A
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 15:50
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 4.71 g
 %Solids: 82.3

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	6.43	1	4/1/2010
4-Isopropyltoluene	BQL	6.43	1	4/1/2010
Methylene chloride	BQL	25.7	1	4/1/2010
4-Methyl-2-pentanone	BQL	16.1	1	4/1/2010
Methyl-tert-butyl ether (MTBE)	BQL	6.43	1	4/1/2010
Naphthalene	BQL	6.43	1	4/1/2010
n-Propyl benzene	BQL	6.43	1	4/1/2010
Styrene	BQL	6.43	1	4/1/2010
1,1,1,2-Tetrachloroethane	BQL	6.43	1	4/1/2010
1,1,2,2-Tetrachloroethane	BQL	6.43	1	4/1/2010
Tetrachloroethene	BQL	6.43	1	4/1/2010
Toluene	BQL	6.43	1	4/1/2010
1,2,3-Trichlorobenzene	BQL	6.43	1	4/1/2010
1,2,4-Trichlorobenzene	BQL	6.43	1	4/1/2010
Trichloroethene	BQL	6.43	1	4/1/2010
1,1,1-Trichloroethane	BQL	6.43	1	4/1/2010
1,1,2-Trichloroethane	BQL	6.43	1	4/1/2010
Trichlorofluoromethane	BQL	6.43	1	4/1/2010
1,2,3-Trichloropropane	BQL	6.43	1	4/1/2010
1,2,4-Trimethylbenzene	BQL	6.43	1	4/1/2010
1,3,5-Trimethylbenzene	BQL	6.43	1	4/1/2010
Vinyl chloride	BQL	6.43	1	4/1/2010
m-,p-Xylene	BQL	12.9	1	4/1/2010
o-Xylene	BQL	6.43	1	4/1/2010

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	66.1	132
Toluene-d8	50	51.8	104
4-Bromofluorobenzene	50	48	96

Comments:

Flags:

BQL = Below Quantitation Limits.

Analyst:

Reviewed By:

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-7-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-7H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 34.18 g

Analyzed By: DCS
 Date Collected: 3/22/2010 15:50
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 82.34

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	355	1	3/26/2010
Acenaphthylene	BQL	355	1	3/26/2010
Anthracene	BQL	355	1	3/26/2010
Benzo[a]anthracene	BQL	355	1	3/26/2010
Benzo[a]pyrene	BQL	355	1	3/26/2010
Benzo[b]fluoranthene	BQL	355	1	3/26/2010
Benzo[g,h,i]perylene	BQL	355	1	3/26/2010
Benzo[k]fluoranthene	BQL	355	1	3/26/2010
Benzoic Acid	BQL	1780	1	3/26/2010
Bis(2-chloroethoxy)methane	BQL	355	1	3/26/2010
Bis(2-chloroethyl)ether	BQL	355	1	3/26/2010
Bis(2-chloroisopropyl)ether	BQL	355	1	3/26/2010
Bis(2-ethylhexyl)phthalate	BQL	355	1	3/26/2010
4-bromophenyl phenyl ether	BQL	355	1	3/26/2010
Butylbenzylphthalate	BQL	355	1	3/26/2010
2-Chloronaphthalene	BQL	355	1	3/26/2010
2-Chlorophenol	BQL	355	1	3/26/2010
4-Chloro-3-methylphenol	BQL	355	1	3/26/2010
4-Chloroaniline	BQL	1780	1	3/26/2010
4-Chlorophenyl phenyl ether	BQL	355	1	3/26/2010
Chrysene	BQL	355	1	3/26/2010
Dibenzof[a,h]anthracene	BQL	355	1	3/26/2010
Dibenzofuran	BQL	355	1	3/26/2010
Di-n-Butylphthalate	BQL	355	1	3/26/2010
1,2-Dichlorobenzene	BQL	355	1	3/26/2010
1,3-Dichlorobenzene	BQL	355	1	3/26/2010
1,4-Dichlorobenzene	BQL	355	1	3/26/2010
3,3'-Dichlorobenzidine	BQL	711	1	3/26/2010
2,4-Dichlorophenol	BQL	355	1	3/26/2010
Diethylphthalate	BQL	355	1	3/26/2010
Dimethylphthalate	BQL	355	1	3/26/2010
2,4-Dimethylphenol	BQL	355	1	3/26/2010
Di-n-octylphthalate	BQL	355	1	3/26/2010
4,6-Dinitro-2-methylphenol	BQL	1780	1	3/26/2010
2,4-Dinitrophenol	BQL	1780	1	3/26/2010
2,4-Dinitrotoluene	BQL	355	1	3/26/2010
2,6-Dinitrotoluene	BQL	355	1	3/26/2010
Diphenylamine *	BQL	355	1	3/26/2010
Fluoranthene	BQL	355	1	3/26/2010
Fluorene	BQL	355	1	3/26/2010
Hexachlorobenzene	BQL	355	1	3/26/2010
Hexachlorobutadiene	BQL	355	1	3/26/2010
Hexachlorocyclopentadiene	BQL	711	1	3/26/2010
Hexachloroethane	BQL	355	1	3/26/2010
Indeno(1,2,3-c,d)pyrene	BQL	355	1	3/26/2010
Isophorone	BQL	355	1	3/26/2010
2-Methylnaphthalene	BQL	355	1	3/26/2010

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-7-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-7H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 34.18 g

Analyzed By: DCS
 Date Collected: 3/22/2010 15:50
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 82.34

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	355	1	3/26/2010
3- & 4-Methylphenol	BQL	355	1	3/26/2010
Naphthalene	BQL	355	1	3/26/2010
2-Nitroaniline	BQL	355	1	3/26/2010
3-Nitroaniline	BQL	1780	1	3/26/2010
4-Nitroaniline	BQL	1780	1	3/26/2010
Nitrobenzene	BQL	355	1	3/26/2010
2-Nitrophenol	BQL	355	1	3/26/2010
4-Nitrophenol	BQL	1780	1	3/26/2010
N-Nitrosodi-n-propylamine	BQL	355	1	3/26/2010
Pentachlorophenol	BQL	1780	1	3/26/2010
Phenanthrene	BQL	355	1	3/26/2010
Phenol	BQL	355	1	3/26/2010
Pyrene	BQL	355	1	3/26/2010
1,2,4-Trichlorobenzene	BQL	355	1	3/26/2010
2,4,5-Trichlorophenol	BQL	355	1	3/26/2010
2,4,6-Trichlorophenol	BQL	355	1	3/26/2010

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.6	66
2-Fluorophenol	10	9	90
Nitrobenzene-d5	10	8.3	83
Phenol-d6	10	9.2	92
2,4,6-Tribromophenol	10	6.5	65
4-Terphenyl-d14	10	7.8	78

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-8-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-8D
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: BAO
 Date Collected: 3/22/2010 16:10
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 83.46

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.21	mg/Kg	1	03/29/10 15:10

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	99.2	99.2		70-130

Comments:


Batch Information

Analytical Batch: VP032910
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: BAO

Prep Method: 5035
 Initial Wt/Vol: 5.79 g
 Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: 
GRO.XLS

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

Client Sample ID: S12-8-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-8G
 Lab Project ID: G341-617

Date Collected: 3/22/2010 16:10
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 83.46
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.13	mg/Kg	1	03/25/10 23:53
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	36.4	90.9

Comments:

Batch Information

Analytical Batch: EP032510
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 16275
 Prep Method: 3541
 Prep Date: 03/25/10
 Initial Prep Wt/Vol: 33.63 G
 Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

NC Certification #481

Reviewed By: MR

DRO.XLS

Page 131 of 177

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

Client Sample ID: S12-8-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID G341-617-8B
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 16:10
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 7.96 g
 %Solids: 83.5

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	37.6	1	4/2/2010
Benzene	BQL	3.76	1	4/2/2010
Bromobenzene	BQL	3.76	1	4/2/2010
Bromochloromethane	BQL	3.76	1	4/2/2010
Bromodichloromethane	BQL	3.76	1	4/2/2010
Bromoform	BQL	3.76	1	4/2/2010
Bromomethane	BQL	3.76	1	4/2/2010
2-Butanone	BQL	18.8	1	4/2/2010
n-Butylbenzene	BQL	3.76	1	4/2/2010
sec-Butylbenzene	BQL	3.76	1	4/2/2010
tert-Butylbenzene	BQL	3.76	1	4/2/2010
Carbon disulfide	BQL	3.76	1	4/2/2010
Carbon tetrachloride	BQL	3.76	1	4/2/2010
Chlorobenzene	BQL	3.76	1	4/2/2010
Chloroethane	BQL	3.76	1	4/2/2010
Chloroform	BQL	3.76	1	4/2/2010
Chloromethane	BQL	3.76	1	4/2/2010
2-Chlorotoluene	BQL	3.76	1	4/2/2010
4-Chlorotoluene	BQL	3.76	1	4/2/2010
Dibromochloromethane	BQL	3.76	1	4/2/2010
1,2-Dibromo-3-chloropropane	BQL	18.8	1	4/2/2010
Dibromomethane	BQL	3.76	1	4/2/2010
1,2-Dibromoethane (EDB)	BQL	3.76	1	4/2/2010
1,2-Dichlorobenzene	BQL	3.76	1	4/2/2010
1,3-Dichlorobenzene	BQL	3.76	1	4/2/2010
1,4-Dichlorobenzene	BQL	3.76	1	4/2/2010
trans-1,4-Dichloro-2-butene	BQL	18.8	1	4/2/2010
1,1-Dichloroethane	BQL	3.76	1	4/2/2010
1,1-Dichloroethene	BQL	3.76	1	4/2/2010
1,2-Dichloroethane	BQL	3.76	1	4/2/2010
cis-1,2-Dichloroethene	BQL	3.76	1	4/2/2010
trans-1,2-dichloroethene	BQL	3.76	1	4/2/2010
1,2-Dichloropropane	BQL	3.76	1	4/2/2010
1,3-Dichloropropane	BQL	3.76	1	4/2/2010
2,2-Dichloropropane	BQL	3.76	1	4/2/2010
1,1-Dichloropropene	BQL	3.76	1	4/2/2010
cis-1,3-Dichloropropene	BQL	3.76	1	4/2/2010
trans-1,3-Dichloropropene	BQL	3.76	1	4/2/2010
Dichlorodifluoromethane	BQL	3.76	1	4/2/2010
Diisopropyl ether (DIPE)	BQL	3.76	1	4/2/2010
Ethylbenzene	BQL	3.76	1	4/2/2010
Hexachlorobutadiene	BQL	3.76	1	4/2/2010
2-Hexanone	BQL	9.40	1	4/2/2010
Iodomethane	BQL	3.76	1	4/2/2010

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

Client Sample ID: S12-8-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID G341-617-8B
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 16:10
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 7.96 g
 %Solids: 83.5

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	3.76	1	4/2/2010
4-Isopropyltoluene	BQL	3.76	1	4/2/2010
Methylene chloride	BQL	15.0	1	4/2/2010
4-Methyl-2-pentanone	BQL	9.40	1	4/2/2010
Methyl-tert-butyl ether (MTBE)	BQL	3.76	1	4/2/2010
Naphthalene	BQL	3.76	1	4/2/2010
n-Propyl benzene	BQL	3.76	1	4/2/2010
Styrene	BQL	3.76	1	4/2/2010
1,1,1,2-Tetrachloroethane	BQL	3.76	1	4/2/2010
1,1,2,2-Tetrachloroethane	BQL	3.76	1	4/2/2010
Tetrachloroethene	BQL	3.76	1	4/2/2010
Toluene	BQL	3.76	1	4/2/2010
1,2,3-Trichlorobenzene	BQL	3.76	1	4/2/2010
1,2,4-Trichlorobenzene	BQL	3.76	1	4/2/2010
Trichloroethene	BQL	3.76	1	4/2/2010
1,1,1-Trichloroethane	BQL	3.76	1	4/2/2010
1,1,2-Trichloroethane	BQL	3.76	1	4/2/2010
Trichlorofluoromethane	BQL	3.76	1	4/2/2010
1,2,3-Trichloropropane	BQL	3.76	1	4/2/2010
1,2,4-Trimethylbenzene	BQL	3.76	1	4/2/2010
1,3,5-Trimethylbenzene	BQL	3.76	1	4/2/2010
Vinyl chloride	BQL	3.76	1	4/2/2010
m-,p-Xylene	BQL	7.52	1	4/2/2010
o-Xylene	BQL	3.76	1	4/2/2010

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	65	130
Toluene-d8	50	52.4	105
4-Bromofluorobenzene	50	45.6	91

Comments:

Flags:

BQL = Below Quantitation Limits.

Analyst: *CS*

Reviewed By: *DA*

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-8-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-8H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 33.85 g

Analyzed By: DCS
 Date Collected: 3/22/2010 16:10
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 83.46

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	354	1	3/26/2010
Acenaphthylene	BQL	354	1	3/26/2010
Anthracene	BQL	354	1	3/26/2010
Benzo[a]anthracene	BQL	354	1	3/26/2010
Benzo[a]pyrene	BQL	354	1	3/26/2010
Benzo[b]fluoranthene	BQL	354	1	3/26/2010
Benzo[g,h,i]perylene	BQL	354	1	3/26/2010
Benzo[k]fluoranthene	BQL	354	1	3/26/2010
Benzoic Acid	BQL	1770	1	3/26/2010
Bis(2-chloroethoxy)methane	BQL	354	1	3/26/2010
Bis(2-chloroethyl)ether	BQL	354	1	3/26/2010
Bis(2-chloroisopropyl)ether	BQL	354	1	3/26/2010
Bis(2-ethylhexyl)phthalate	BQL	354	1	3/26/2010
4-bromophenyl phenyl ether	BQL	354	1	3/26/2010
Butylbenzylphthalate	BQL	354	1	3/26/2010
2-Chloronaphthalene	BQL	354	1	3/26/2010
2-Chlorophenol	BQL	354	1	3/26/2010
4-Chloro-3-methylphenol	BQL	354	1	3/26/2010
4-Chloroaniline	BQL	1770	1	3/26/2010
4-Chlorophenyl phenyl ether	BQL	354	1	3/26/2010
Chrysene	BQL	354	1	3/26/2010
Dibenzo[a,h]anthracene	BQL	354	1	3/26/2010
Dibenzofuran	BQL	354	1	3/26/2010
Di-n-Butylphthalate	BQL	354	1	3/26/2010
1,2-Dichlorobenzene	BQL	354	1	3/26/2010
1,3-Dichlorobenzene	BQL	354	1	3/26/2010
1,4-Dichlorobenzene	BQL	354	1	3/26/2010
3,3'-Dichlorobenzidine	BQL	708	1	3/26/2010
2,4-Dichlorophenol	BQL	354	1	3/26/2010
Diethylphthalate	BQL	354	1	3/26/2010
Dimethylphthalate	BQL	354	1	3/26/2010
2,4-Dimethylphenol	BQL	354	1	3/26/2010
Di-n-octylphthalate	BQL	354	1	3/26/2010
4,6-Dinitro-2-methylphenol	BQL	1770	1	3/26/2010
2,4-Dinitrophenol	BQL	1770	1	3/26/2010
2,4-Dinitrotoluene	BQL	354	1	3/26/2010
2,6-Dinitrotoluene	BQL	354	1	3/26/2010
Diphenylamine *	BQL	354	1	3/26/2010
Fluoranthene	BQL	354	1	3/26/2010
Fluorene	BQL	354	1	3/26/2010
Hexachlorobenzene	BQL	354	1	3/26/2010
Hexachlorobutadiene	BQL	354	1	3/26/2010
Hexachlorocyclopentadiene	BQL	708	1	3/26/2010
Hexachloroethane	BQL	354	1	3/26/2010
Indeno(1,2,3-c,d)pyrene	BQL	354	1	3/26/2010
Isophorone	BQL	354	1	3/26/2010
2-Methylnaphthalene	BQL	354	1	3/26/2010

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-8-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-8H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 33.85 g

Analyzed By: DCS
 Date Collected: 3/22/2010 16:10
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 83.46

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	354	1	3/26/2010
3- & 4-Methylphenol	BQL	354	1	3/26/2010
Naphthalene	BQL	354	1	3/26/2010
2-Nitroaniline	BQL	354	1	3/26/2010
3-Nitroaniline	BQL	1770	1	3/26/2010
4-Nitroaniline	BQL	1770	1	3/26/2010
Nitrobenzene	BQL	354	1	3/26/2010
2-Nitrophenol	BQL	354	1	3/26/2010
4-Nitrophenol	BQL	1770	1	3/26/2010
N-Nitrosodi-n-propylamine	BQL	354	1	3/26/2010
Pentachlorophenol	BQL	1770	1	3/26/2010
Phenanthrene	BQL	354	1	3/26/2010
Phenol	BQL	354	1	3/26/2010
Pyrene	BQL	354	1	3/26/2010
1,2,4-Trichlorobenzene	BQL	354	1	3/26/2010
2,4,5-Trichlorophenol	BQL	354	1	3/26/2010
2,4,6-Trichlorophenol	BQL	354	1	3/26/2010

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.2	62
2-Fluorophenol	10	7.2	72
Nitrobenzene-d5	10	7.2	72
Phenol-d6	10	7.2	72
2,4,6-Tribromophenol	10	6.2	62
4-Terphenyl-d14	10	7.6	76

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-9-4
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-9D
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: BAO
 Date Collected: 3/22/2010 16:30
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 84.28

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.60	mg/Kg	1	03/29/10 15:37

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	96.5	96.5		70-130

Comments:

Batch Information

Analytical Batch: VP032910
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: BAO

Prep Method: 5035
 Initial Wt/Vol: 6.36 g
 Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: BAO
GRO.XLS

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

Client Sample ID: S12-9-4
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-9G
 Lab Project ID: G341-617

Date Collected: 3/22/2010 16:30
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 84.28
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.83	mg/Kg	1	03/26/10 00:21
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	28.7	71.7

Comments:

Batch Information

Analytical Batch: EP032510
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 16275
 Prep Method: 3541
 Prep Date: 03/25/10
 Initial Prep Wt/Vol: 34.73 G
 Prep Final Vol: 10 mL

Analyst: FA

NC Certification #481

Reviewed By: 
 DRO.XLS
 Page 132 of 177

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

Client Sample ID: S12-9-4
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID G341-617-9A
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 16:30
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 6.28 g
 %Solids: 84.3

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	47.2	1	4/1/2010
Benzene	BQL	4.72	1	4/1/2010
Bromobenzene	BQL	4.72	1	4/1/2010
Bromochloromethane	BQL	4.72	1	4/1/2010
Bromodichloromethane	BQL	4.72	1	4/1/2010
Bromoform	BQL	4.72	1	4/1/2010
Bromomethane	BQL	4.72	1	4/1/2010
2-Butanone	BQL	23.6	1	4/1/2010
n-Butylbenzene	BQL	4.72	1	4/1/2010
sec-Butylbenzene	BQL	4.72	1	4/1/2010
tert-Butylbenzene	BQL	4.72	1	4/1/2010
Carbon disulfide	BQL	4.72	1	4/1/2010
Carbon tetrachloride	BQL	4.72	1	4/1/2010
Chlorobenzene	BQL	4.72	1	4/1/2010
Chloroethane	BQL	4.72	1	4/1/2010
Chloroform	BQL	4.72	1	4/1/2010
Chloromethane	BQL	4.72	1	4/1/2010
2-Chlorotoluene	BQL	4.72	1	4/1/2010
4-Chlorotoluene	BQL	4.72	1	4/1/2010
Dibromochloromethane	BQL	4.72	1	4/1/2010
1,2-Dibromo-3-chloropropane	BQL	23.6	1	4/1/2010
Dibromomethane	BQL	4.72	1	4/1/2010
1,2-Dibromoethane (EDB)	BQL	4.72	1	4/1/2010
1,2-Dichlorobenzene	BQL	4.72	1	4/1/2010
1,3-Dichlorobenzene	BQL	4.72	1	4/1/2010
1,4-Dichlorobenzene	BQL	4.72	1	4/1/2010
trans-1,4-Dichloro-2-butene	BQL	23.6	1	4/1/2010
1,1-Dichloroethane	BQL	4.72	1	4/1/2010
1,1-Dichloroethene	BQL	4.72	1	4/1/2010
1,2-Dichloroethane	BQL	4.72	1	4/1/2010
cis-1,2-Dichloroethene	BQL	4.72	1	4/1/2010
trans-1,2-dichloroethene	BQL	4.72	1	4/1/2010
1,2-Dichloropropane	BQL	4.72	1	4/1/2010
1,3-Dichloropropane	BQL	4.72	1	4/1/2010
2,2-Dichloropropane	BQL	4.72	1	4/1/2010
1,1-Dichloropropene	BQL	4.72	1	4/1/2010
cis-1,3-Dichloropropene	BQL	4.72	1	4/1/2010
trans-1,3-Dichloropropene	BQL	4.72	1	4/1/2010
Dichlorodifluoromethane	BQL	4.72	1	4/1/2010
Diisopropyl ether (DIPE)	BQL	4.72	1	4/1/2010
Ethylbenzene	BQL	4.72	1	4/1/2010
Hexachlorobutadiene	BQL	4.72	1	4/1/2010
2-Hexanone	BQL	11.8	1	4/1/2010
Iodomethane	BQL	4.72	1	4/1/2010

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

Client Sample ID: S12-9-4
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID G341-617-9A
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 16:30
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 6.28 g
 %Solids: 84.3

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	4.72	1	4/1/2010
4-Isopropyltoluene	BQL	4.72	1	4/1/2010
Methylene chloride	BQL	18.9	1	4/1/2010
4-Methyl-2-pentanone	BQL	11.8	1	4/1/2010
Methyl-tert-butyl ether (MTBE)	BQL	4.72	1	4/1/2010
Naphthalene	BQL	4.72	1	4/1/2010
n-Propyl benzene	BQL	4.72	1	4/1/2010
Styrene	BQL	4.72	1	4/1/2010
1,1,1,2-Tetrachloroethane	BQL	4.72	1	4/1/2010
1,1,2,2-Tetrachloroethane	BQL	4.72	1	4/1/2010
Tetrachloroethene	BQL	4.72	1	4/1/2010
Toluene	BQL	4.72	1	4/1/2010
1,2,3-Trichlorobenzene	BQL	4.72	1	4/1/2010
1,2,4-Trichlorobenzene	BQL	4.72	1	4/1/2010
Trichloroethene	BQL	4.72	1	4/1/2010
1,1,1-Trichloroethane	BQL	4.72	1	4/1/2010
1,1,2-Trichloroethane	BQL	4.72	1	4/1/2010
Trichlorofluoromethane	BQL	4.72	1	4/1/2010
1,2,3-Trichloropropane	BQL	4.72	1	4/1/2010
1,2,4-Trimethylbenzene	BQL	4.72	1	4/1/2010
1,3,5-Trimethylbenzene	BQL	4.72	1	4/1/2010
Vinyl chloride	BQL	4.72	1	4/1/2010
m-,p-Xylene	BQL	9.45	1	4/1/2010
o-Xylene	BQL	4.72	1	4/1/2010

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	64.2	128
Toluene-d8	50	52	104
4-Bromofluorobenzene	50	47.6	95

Comments:

Flags:

BQL = Below Quantitation Limits.

Analyst:

Reviewed By:

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-9-4
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-9H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 32.76 g

Analyzed By: DCS
 Date Collected: 3/22/2010 16:30
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 84.28

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	362	1	3/26/2010
Acenaphthylene	BQL	362	1	3/26/2010
Anthracene	BQL	362	1	3/26/2010
Benzo[a]anthracene	BQL	362	1	3/26/2010
Benzo[a]pyrene	BQL	362	1	3/26/2010
Benzo[b]fluoranthene	BQL	362	1	3/26/2010
Benzo[g,h,i]perylene	BQL	362	1	3/26/2010
Benzo[k]fluoranthene	BQL	362	1	3/26/2010
Benzoic Acid	BQL	1810	1	3/26/2010
Bis(2-chloroethoxy)methane	BQL	362	1	3/26/2010
Bis(2-chloroethyl)ether	BQL	362	1	3/26/2010
Bis(2-chloroisopropyl)ether	BQL	362	1	3/26/2010
Bis(2-ethylhexyl)phthalate	BQL	362	1	3/26/2010
4-bromophenyl phenyl ether	BQL	362	1	3/26/2010
Butylbenzylphthalate	BQL	362	1	3/26/2010
2-Chloronaphthalene	BQL	362	1	3/26/2010
2-Chlorophenol	BQL	362	1	3/26/2010
4-Chloro-3-methylphenol	BQL	362	1	3/26/2010
4-Chloroaniline	BQL	1810	1	3/26/2010
4-Chlorophenyl phenyl ether	BQL	362	1	3/26/2010
Chrysene	BQL	362	1	3/26/2010
Dibenzo[a,h]anthracene	BQL	362	1	3/26/2010
Dibenzofuran	BQL	362	1	3/26/2010
Di-n-Butylphthalate	BQL	362	1	3/26/2010
1,2-Dichlorobenzene	BQL	362	1	3/26/2010
1,3-Dichlorobenzene	BQL	362	1	3/26/2010
1,4-Dichlorobenzene	BQL	362	1	3/26/2010
3,3'-Dichlorobenzidine	BQL	724	1	3/26/2010
2,4-Dichlorophenol	BQL	362	1	3/26/2010
Diethylphthalate	BQL	362	1	3/26/2010
Dimethylphthalate	BQL	362	1	3/26/2010
2,4-Dimethylphenol	BQL	362	1	3/26/2010
Di-n-octylphthalate	BQL	362	1	3/26/2010
4,6-Dinitro-2-methylphenol	BQL	1810	1	3/26/2010
2,4-Dinitrophenol	BQL	1810	1	3/26/2010
2,4-Dinitrotoluene	BQL	362	1	3/26/2010
2,6-Dinitrotoluene	BQL	362	1	3/26/2010
Diphenylamine *	BQL	362	1	3/26/2010
Fluoranthene	BQL	362	1	3/26/2010
Fluorene	BQL	362	1	3/26/2010
Hexachlorobenzene	BQL	362	1	3/26/2010
Hexachlorobutadiene	BQL	362	1	3/26/2010
Hexachlorocyclopentadiene	BQL	724	1	3/26/2010
Hexachloroethane	BQL	362	1	3/26/2010
Indeno(1,2,3-c,d)pyrene	BQL	362	1	3/26/2010
Isophorone	BQL	362	1	3/26/2010
2-Methylnaphthalene	BQL	362	1	3/26/2010

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-9-4
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-9H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 32.76 g

Analyzed By: DCS
 Date Collected: 3/22/2010 16:30
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 84.28

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	362	1	3/26/2010
3- & 4-Methylphenol	BQL	362	1	3/26/2010
Naphthalene	BQL	362	1	3/26/2010
2-Nitroaniline	BQL	362	1	3/26/2010
3-Nitroaniline	BQL	1810	1	3/26/2010
4-Nitroaniline	BQL	1810	1	3/26/2010
Nitrobenzene	BQL	362	1	3/26/2010
2-Nitrophenol	BQL	362	1	3/26/2010
4-Nitrophenol	BQL	1810	1	3/26/2010
N-Nitrosodi-n-propylamine	BQL	362	1	3/26/2010
Pentachlorophenol	BQL	1810	1	3/26/2010
Phenanthrene	BQL	362	1	3/26/2010
Phenol	BQL	362	1	3/26/2010
Pyrene	BQL	362	1	3/26/2010
1,2,4-Trichlorobenzene	BQL	362	1	3/26/2010
2,4,5-Trichlorophenol	BQL	362	1	3/26/2010
2,4,6-Trichlorophenol	BQL	362	1	3/26/2010

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.9	79
2-Fluorophenol	10	9.2	92
Nitrobenzene-d5	10	9	90
Phenol-d6	10	9.2	92
2,4,6-Tribromophenol	10	8.7	87
4-Terphenyl-d14	10	9.3	93

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-10-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-10D
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: BAO
 Date Collected: 3/22/2010 16:50
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 85.22

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.04	mg/Kg	1	03/29/10 16:04

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	97.3	97.3		70-130

Comments:

Batch Information

Analytical Batch: VP032910
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: BAO

Prep Method: 5035
 Initial Wt/Vol: 6.99 g
 Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: 
GRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-10-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-10G
 Lab Project ID: G341-617

Date Collected: 3/22/2010 16:50
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 85.22
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.86	mg/Kg	1	03/26/10 00:49
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	36.7	91.8

Comments:

Batch Information

Analytical Batch: EP032510
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 16275
 Prep Method: 3541
 Prep Date: 03/25/10
 Initial Prep Wt/Vol: 34.23 G
 Prep Final Vol: 10 mL

Analyst: FA

NC Certification #481

NC Certification #481

Reviewed By: MA
 DRO.XLS
 Page 133 of 177

SGS North America, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: S12-10-8
Client Project ID: U-3810/NCDOT 001100
Lab Sample ID G341-617-10A
Lab Project ID: G341-617
Report Basis: Dry Weight

Analyzed By: DVO
Date Collected: 03-22-2010 16:50
Date Received: 3/24/2010
Matrix: Soil
Sample Amount: 7.40 g
%Solids: 85.2

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	39.6	1	4/1/2010
Benzene	BQL	3.96	1	4/1/2010
Bromobenzene	BQL	3.96	1	4/1/2010
Bromochloromethane	BQL	3.96	1	4/1/2010
Bromodichloromethane	BQL	3.96	1	4/1/2010
Bromoform	BQL	3.96	1	4/1/2010
Bromomethane	BQL	3.96	1	4/1/2010
2-Butanone	BQL	19.8	1	4/1/2010
n-Butylbenzene	BQL	3.96	1	4/1/2010
sec-Butylbenzene	BQL	3.96	1	4/1/2010
tert-Butylbenzene	BQL	3.96	1	4/1/2010
Carbon disulfide	BQL	3.96	1	4/1/2010
Carbon tetrachloride	BQL	3.96	1	4/1/2010
Chlorobenzene	BQL	3.96	1	4/1/2010
Chloroethane	BQL	3.96	1	4/1/2010
Chloroform	BQL	3.96	1	4/1/2010
Chloromethane	BQL	3.96	1	4/1/2010
2-Chlorotoluene	BQL	3.96	1	4/1/2010
4-Chlorotoluene	BQL	3.96	1	4/1/2010
Dibromochloromethane	BQL	3.96	1	4/1/2010
1,2-Dibromo-3-chloropropane	BQL	19.8	1	4/1/2010
Dibromomethane	BQL	3.96	1	4/1/2010
1,2-Dibromoethane (EDB)	BQL	3.96	1	4/1/2010
1,2-Dichlorobenzene	BQL	3.96	1	4/1/2010
1,3-Dichlorobenzene	BQL	3.96	1	4/1/2010
1,4-Dichlorobenzene	BQL	3.96	1	4/1/2010
trans-1,4-Dichloro-2-butene	BQL	19.8	1	4/1/2010
1,1-Dichloroethane	BQL	3.96	1	4/1/2010
1,1-Dichloroethene	BQL	3.96	1	4/1/2010
1,2-Dichloroethane	BQL	3.96	1	4/1/2010
cis-1,2-Dichloroethene	BQL	3.96	1	4/1/2010
trans-1,2-dichloroethene	BQL	3.96	1	4/1/2010
1,2-Dichloropropane	BQL	3.96	1	4/1/2010
1,3-Dichloropropane	BQL	3.96	1	4/1/2010
2,2-Dichloropropane	BQL	3.96	1	4/1/2010
1,1-Dichloropropene	BQL	3.96	1	4/1/2010
cis-1,3-Dichloropropene	BQL	3.96	1	4/1/2010
trans-1,3-Dichloropropene	BQL	3.96	1	4/1/2010
Dichlorodifluoromethane	BQL	3.96	1	4/1/2010
Diisopropyl ether (DIPE)	BQL	3.96	1	4/1/2010
Ethylbenzene	BQL	3.96	1	4/1/2010
Hexachlorobutadiene	BQL	3.96	1	4/1/2010
2-Hexanone	BQL	9.90	1	4/1/2010
Iodomethane	BQL	3.96	1	4/1/2010

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

Client Sample ID: S12-10-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID G341-617-10A
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 16:50
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 7.40 g
 %Solids: 85.2

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	3.96	1	4/1/2010
4-Isopropyltoluene	BQL	3.96	1	4/1/2010
Methylene chloride	BQL	15.8	1	4/1/2010
4-Methyl-2-pentanone	BQL	9.90	1	4/1/2010
Methyl-tert-butyl ether (MTBE)	BQL	3.96	1	4/1/2010
Naphthalene	BQL	3.96	1	4/1/2010
n-Propyl benzene	BQL	3.96	1	4/1/2010
Styrene	BQL	3.96	1	4/1/2010
1,1,1,2-Tetrachloroethane	BQL	3.96	1	4/1/2010
1,1,2,2-Tetrachloroethane	BQL	3.96	1	4/1/2010
Tetrachloroethene	BQL	3.96	1	4/1/2010
Toluene	BQL	3.96	1	4/1/2010
1,2,3-Trichlorobenzene	BQL	3.96	1	4/1/2010
1,2,4-Trichlorobenzene	BQL	3.96	1	4/1/2010
Trichloroethene	BQL	3.96	1	4/1/2010
1,1,1-Trichloroethane	BQL	3.96	1	4/1/2010
1,1,2-Trichloroethane	BQL	3.96	1	4/1/2010
Trichlorofluoromethane	BQL	3.96	1	4/1/2010
1,2,3-Trichloropropane	BQL	3.96	1	4/1/2010
1,2,4-Trimethylbenzene	BQL	3.96	1	4/1/2010
1,3,5-Trimethylbenzene	BQL	3.96	1	4/1/2010
Vinyl chloride	BQL	3.96	1	4/1/2010
m-,p-Xylene	BQL	7.92	1	4/1/2010
o-Xylene	BQL	3.96	1	4/1/2010

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	64.8	130
Toluene-d8	50	52.2	104
4-Bromofluorobenzene	50	47.9	96

Comments:

Flags:

BQL = Below Quantitation Limits.

Analyst:

Reviewed By:

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-10-8
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-10H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 34.67 g

Analyzed By: DCS
 Date Collected: 3/22/2010 16:50
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 85.22

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	338	1	3/26/2010
Acenaphthylene	BQL	338	1	3/26/2010
Anthracene	BQL	338	1	3/26/2010
Benzo[a]anthracene	BQL	338	1	3/26/2010
Benzo[a]pyrene	BQL	338	1	3/26/2010
Benzo[b]fluoranthene	BQL	338	1	3/26/2010
Benzo[g,h,i]perylene	BQL	338	1	3/26/2010
Benzo[k]fluoranthene	BQL	338	1	3/26/2010
Benzoic Acid	BQL	1690	1	3/26/2010
Bis(2-chloroethoxy)methane	BQL	338	1	3/26/2010
Bis(2-chloroethyl)ether	BQL	338	1	3/26/2010
Bis(2-chloroisopropyl)ether	BQL	338	1	3/26/2010
Bis(2-ethylhexyl)phthalate	BQL	338	1	3/26/2010
4-bromophenyl phenyl ether	BQL	338	1	3/26/2010
Butylbenzylphthalate	BQL	338	1	3/26/2010
2-Chloronaphthalene	BQL	338	1	3/26/2010
2-Chlorophenol	BQL	338	1	3/26/2010
4-Chloro-3-methylphenol	BQL	338	1	3/26/2010
4-Chloroaniline	BQL	1690	1	3/26/2010
4-Chlorophenyl phenyl ether	BQL	338	1	3/26/2010
Chrysene	BQL	338	1	3/26/2010
Dibenzo[a,h]anthracene	BQL	338	1	3/26/2010
Dibenzofuran	BQL	338	1	3/26/2010
Di-n-Butylphthalate	BQL	338	1	3/26/2010
1,2-Dichlorobenzene	BQL	338	1	3/26/2010
1,3-Dichlorobenzene	BQL	338	1	3/26/2010
1,4-Dichlorobenzene	BQL	338	1	3/26/2010
3,3'-Dichlorobenzidine	BQL	677	1	3/26/2010
2,4-Dichlorophenol	BQL	338	1	3/26/2010
Diethylphthalate	BQL	338	1	3/26/2010
Dimethylphthalate	BQL	338	1	3/26/2010
2,4-Dimethylphenol	BQL	338	1	3/26/2010
Di-n-octylphthalate	BQL	338	1	3/26/2010
4,6-Dinitro-2-methylphenol	BQL	1690	1	3/26/2010
2,4-Dinitrophenol	BQL	1690	1	3/26/2010
2,4-Dinitrotoluene	BQL	338	1	3/26/2010
2,6-Dinitrotoluene	BQL	338	1	3/26/2010
Diphenylamine *	BQL	338	1	3/26/2010
Fluoranthene	BQL	338	1	3/26/2010
Fluorene	BQL	338	1	3/26/2010
Hexachlorobenzene	BQL	338	1	3/26/2010
Hexachlorobutadiene	BQL	338	1	3/26/2010
Hexachlorocyclopentadiene	BQL	677	1	3/26/2010
Hexachloroethane	BQL	338	1	3/26/2010
Indeno(1,2,3-c,d)pyrene	BQL	338	1	3/26/2010
Isophorone	BQL	338	1	3/26/2010
2-Methylnaphthalene	BQL	338	1	3/26/2010

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-10-8
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-10H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 34.67 g

Analyzed By: DCS
 Date Collected: 3/22/2010 16:50
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 85.22

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	338	1	3/26/2010
3- & 4-Methylphenol	BQL	338	1	3/26/2010
Naphthalene	BQL	338	1	3/26/2010
2-Nitroaniline	BQL	338	1	3/26/2010
3-Nitroaniline	BQL	1690	1	3/26/2010
4-Nitroaniline	BQL	1690	1	3/26/2010
Nitrobenzene	BQL	338	1	3/26/2010
2-Nitrophenol	BQL	338	1	3/26/2010
4-Nitrophenol	BQL	1690	1	3/26/2010
N-Nitrosodi-n-propylamine	BQL	338	1	3/26/2010
Pentachlorophenol	BQL	1690	1	3/26/2010
Phenanthrene	BQL	338	1	3/26/2010
Phenol	BQL	338	1	3/26/2010
Pyrene	BQL	338	1	3/26/2010
1,2,4-Trichlorobenzene	BQL	338	1	3/26/2010
2,4,5-Trichlorophenol	BQL	338	1	3/26/2010
2,4,6-Trichlorophenol	BQL	338	1	3/26/2010

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.9	79
2-Fluorophenol	10	8.9	89
Nitrobenzene-d5	10	8.9	89
Phenol-d6	10	8.9	88
2,4,6-Tribromophenol	10	7.6	76
4-Terphenyl-d14	10	9.5	95

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-11-4
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-11D
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: BAO
 Date Collected: 3/22/2010 17:10
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 82.47

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	6.61	6.54	mg/Kg	1	03/29/10 16:31

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	98.2	98.2		70-130

Comments:


Batch Information

Analytical Batch: VP032910
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: BAO

Prep Method: 5035
 Initial Wt/Vol: 5.56 g
 Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: 
 GRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-11-4
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-11G
 Lab Project ID: G341-617

Date Collected: 3/22/2010 17:10
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 82.47
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	119	7.27	mg/Kg	1	03/26/10 02:14
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	35.7	89.3

Comments:

Batch Information

Analytical Batch: EP032510
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 16275
 Prep Method: 3541
 Prep Date: 03/25/10
 Initial Prep Wt/Vol: 33.36 G
 Prep Final Vol: 10 mL

Analyst: FR

NC Certification #481

NC Certification #481

Reviewed By: [Signature]

SGS North America, Inc.

Results for Volatiles
by GCMS 8260/5035

Client Sample ID: S12-11-4
Client Project ID: U-3810/NCDOT 001100
Lab Sample ID: G341-617-11E
Lab Project ID: G341-617
Report Basis: Dry Weight

Analyzed By: DVO
Date Collected: 3/22/2010 17:10
Date Received: 3/24/2010
Matrix: Soil
Sample Amount: 5.96 g
%Solids: 82.5

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	1270	50	4/2/2010
Benzene	BQL	50.9	50	4/2/2010
Bromobenzene	BQL	50.9	50	4/2/2010
Bromochloromethane	BQL	50.9	50	4/2/2010
Bromodichloromethane	BQL	50.9	50	4/2/2010
Bromoform	BQL	50.9	50	4/2/2010
Bromomethane	BQL	1270	50	4/2/2010
2-Butanone	BQL	50.9	50	4/2/2010
n-Butylbenzene	BQL	50.9	50	4/2/2010
sec-Butylbenzene	BQL	50.9	50	4/2/2010
tert-Butylbenzene	BQL	50.9	50	4/2/2010
Carbon disulfide	BQL	50.9	50	4/2/2010
Carbon tetrachloride	BQL	50.9	50	4/2/2010
Chlorobenzene	BQL	50.9	50	4/2/2010
Chloroethane	BQL	50.9	50	4/2/2010
Chloroform	BQL	50.9	50	4/2/2010
Chloromethane	BQL	50.9	50	4/2/2010
2-Chlorotoluene	BQL	50.9	50	4/2/2010
4-Chlorotoluene	BQL	50.9	50	4/2/2010
Dibromochloromethane	BQL	50.9	50	4/2/2010
1,2-Dibromo-3-chloropropane	BQL	254	50	4/2/2010
Dibromomethane	BQL	50.9	50	4/2/2010
1,2-Dibromoethane (EDB)	BQL	50.9	50	4/2/2010
1,2-Dichlorobenzene	BQL	50.9	50	4/2/2010
1,3-Dichlorobenzene	BQL	50.9	50	4/2/2010
1,4-Dichlorobenzene	BQL	50.9	50	4/2/2010
trans-1,4-Dichloro-2-butene	BQL	254	50	4/2/2010
1,1-Dichloroethane	BQL	50.9	50	4/2/2010
1,1-Dichloroethene	BQL	50.9	50	4/2/2010
1,2-Dichloroethane	BQL	50.9	50	4/2/2010
cis-1,2-Dichloroethene	BQL	50.9	50	4/2/2010
trans-1,2-dichloroethene	BQL	50.9	50	4/2/2010
1,2-Dichloropropane	BQL	50.9	50	4/2/2010
1,3-Dichloropropane	BQL	50.9	50	4/2/2010
2,2-Dichloropropane	BQL	50.9	50	4/2/2010
1,1-Dichloropropene	BQL	50.9	50	4/2/2010
cis-1,3-Dichloropropene	BQL	50.9	50	4/2/2010
trans-1,3-Dichloropropene	BQL	50.9	50	4/2/2010
Dichlorodifluoromethane	BQL	254	50	4/2/2010
Diisopropyl ether (DIPE)	BQL	50.9	50	4/2/2010
Ethylbenzene	BQL	50.9	50	4/2/2010
Hexachlorobutadiene	BQL	50.9	50	4/2/2010
2-Hexanone	BQL	254	50	4/2/2010
Iodomethane	BQL	50.9	50	4/2/2010
Isopropylbenzene	BQL	50.9	50	4/2/2010

Results for Volatiles
by GCMS 8260/5035

Client Sample ID: S12-11-4
Client Project ID: U-3810/NCDOT 001100
Lab Sample ID: G341-617-11E
Lab Project ID: G341-617
Report Basis: Dry Weight

Analyzed By: DVO
Date Collected: 3/22/2010 17:10
Date Received: 3/24/2010
Matrix: Soil
Sample Amount: 5.96 g
%Solids: 82.5

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
4-Isopropyltoluene	227	50.9	50	4/2/2010
Methylene chloride	BQL	254	50	4/2/2010
4-Methyl-2-pentanone	BQL	254	50	4/2/2010
Methyl-tert-butyl ether (MTBE)	BQL	50.9	50	4/2/2010
Naphthalene	BQL	50.9	50	4/2/2010
n-Propyl benzene	BQL	50.9	50	4/2/2010
Styrene	BQL	50.9	50	4/2/2010
1,1,1,2-Tetrachloroethane	BQL	50.9	50	4/2/2010
1,1,2,2-Tetrachloroethane	BQL	50.9	50	4/2/2010
Tetrachloroethene	BQL	50.9	50	4/2/2010
Toluene	188	50.9	50	4/2/2010
1,2,3-Trichlorobenzene	BQL	50.9	50	4/2/2010
1,2,4-Trichlorobenzene	BQL	50.9	50	4/2/2010
Trichloroethene	BQL	50.9	50	4/2/2010
1,1,1-Trichloroethane	BQL	50.9	50	4/2/2010
1,1,2-Trichloroethane	BQL	50.9	50	4/2/2010
Trichlorofluoromethane	BQL	50.9	50	4/2/2010
1,2,3-Trichloropropane	BQL	50.9	50	4/2/2010
1,2,4-Trimethylbenzene	BQL	50.9	50	4/2/2010
1,3,5-Trimethylbenzene	BQL	50.9	50	4/2/2010
Vinyl chloride	BQL	50.9	50	4/2/2010
m-,p-Xylene	BQL	102	50	4/2/2010
o-Xylene	BQL	50.9	50	4/2/2010

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	10	9.93	99
Toluene-d8	10	10	100
4-Bromofluorobenzene	10	10.7	107

Comments:

Flags:

BQL = Below Quantitation Limits.

Analyst: *CK*

Reviewed By: *MS*

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-11-4
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-11H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 32.34 g

Analyzed By: DCS
 Date Collected: 3/22/2010 17:10
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 82.47

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	375	1	3/26/2010
Acenaphthylene	BQL	375	1	3/26/2010
Anthracene	BQL	375	1	3/26/2010
Benzo[a]anthracene	BQL	375	1	3/26/2010
Benzo[a]pyrene	BQL	375	1	3/26/2010
Benzo[b]fluoranthene	BQL	375	1	3/26/2010
Benzo[g,h,i]perylene	BQL	375	1	3/26/2010
Benzo[k]fluoranthene	BQL	375	1	3/26/2010
Benzoic Acid	BQL	1870	1	3/26/2010
Bis(2-chloroethoxy)methane	BQL	375	1	3/26/2010
Bis(2-chloroethyl)ether	BQL	375	1	3/26/2010
Bis(2-chloroisopropyl)ether	BQL	375	1	3/26/2010
Bis(2-ethylhexyl)phthalate	BQL	375	1	3/26/2010
4-bromophenyl phenyl ether	BQL	375	1	3/26/2010
Butylbenzylphthalate	BQL	375	1	3/26/2010
2-Chloronaphthalene	BQL	375	1	3/26/2010
2-Chlorophenol	BQL	375	1	3/26/2010
4-Chloro-3-methylphenol	BQL	375	1	3/26/2010
4-Chloroaniline	BQL	1870	1	3/26/2010
4-Chlorophenyl phenyl ether	BQL	375	1	3/26/2010
Chrysene	BQL	375	1	3/26/2010
Dibenzo[a,h]anthracene	BQL	375	1	3/26/2010
Dibenzofuran	BQL	375	1	3/26/2010
Di-n-Butylphthalate	BQL	375	1	3/26/2010
1,2-Dichlorobenzene	BQL	375	1	3/26/2010
1,3-Dichlorobenzene	BQL	375	1	3/26/2010
1,4-Dichlorobenzene	BQL	375	1	3/26/2010
3,3'-Dichlorobenzidine	BQL	750	1	3/26/2010
2,4-Dichlorophenol	BQL	375	1	3/26/2010
Diethylphthalate	BQL	375	1	3/26/2010
Dimethylphthalate	BQL	375	1	3/26/2010
2,4-Dimethylphenol	BQL	375	1	3/26/2010
Di-n-octylphthalate	BQL	375	1	3/26/2010
4,6-Dinitro-2-methylphenol	BQL	1870	1	3/26/2010
2,4-Dinitrophenol	BQL	1870	1	3/26/2010
2,4-Dinitrotoluene	BQL	375	1	3/26/2010
2,6-Dinitrotoluene	BQL	375	1	3/26/2010
Diphenylamine *	BQL	375	1	3/26/2010
Fluoranthene	BQL	375	1	3/26/2010
Fluorene	BQL	375	1	3/26/2010
Hexachlorobenzene	BQL	375	1	3/26/2010
Hexachlorobutadiene	BQL	375	1	3/26/2010
Hexachlorocyclopentadiene	BQL	750	1	3/26/2010
Hexachloroethane	BQL	375	1	3/26/2010
Indeno(1,2,3-c,d)pyrene	BQL	375	1	3/26/2010
Isophorone	BQL	375	1	3/26/2010
2-Methylnaphthalene	BQL	375	1	3/26/2010

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-11-4
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-11H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 32.34 g

Analyzed By: DCS
 Date Collected: 3/22/2010 17:10
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 82.47

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	375	1	3/26/2010
3- & 4-Methylphenol	BQL	375	1	3/26/2010
Naphthalene	BQL	375	1	3/26/2010
2-Nitroaniline	BQL	375	1	3/26/2010
3-Nitroaniline	BQL	1870	1	3/26/2010
4-Nitroaniline	BQL	1870	1	3/26/2010
Nitrobenzene	BQL	375	1	3/26/2010
2-Nitrophenol	BQL	375	1	3/26/2010
4-Nitrophenol	BQL	1870	1	3/26/2010
N-Nitrosodi-n-propylamine	BQL	375	1	3/26/2010
Pentachlorophenol	BQL	1870	1	3/26/2010
Phenanthrene	BQL	375	1	3/26/2010
Phenol	BQL	375	1	3/26/2010
Pyrene	BQL	375	1	3/26/2010
1,2,4-Trichlorobenzene	BQL	375	1	3/26/2010
2,4,5-Trichlorophenol	BQL	375	1	3/26/2010
2,4,6-Trichlorophenol	BQL	375	1	3/26/2010

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.3	83
2-Fluorophenol	10	9.7	97
Nitrobenzene-d5	10	10.1	101
Phenol-d6	10	9.7	97
2,4,6-Tribromophenol	10	8.6	86
4-Terphenyl-d14	10	9.3	93

Comments:

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

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-12-4
 Client Project ID: U-3810/NC DOT 001100
 Lab Sample ID: G341-617-12D
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: BAO
 Date Collected: 3/22/2010 17:30
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 81.20

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.21	mg/Kg	1	03/29/10 16:58

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	98.8	98.8		70-130

Comments:

Batch Information

Analytical Batch: VP032910
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: BAO

Prep Method: 5035
 Initial Wt/Vol: 5.95 g
 Final Volume: 5 mL

Analyst: BAO

NC Certification #481

Reviewed By: BAO
GRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: S12-12-4
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-12G
 Lab Project ID: G341-617

Date Collected: 3/22/2010 17:30
 Date Received: 3/24/2010
 Matrix: Soil
 Solids 81.20
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	7.42	mg/Kg	1	03/26/10 02:42
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	28.5	71.2

Comments:

Batch Information

Analytical Batch: EP032510
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 16275
 Prep Method: 3541
 Prep Date: 03/25/10
 Initial Prep Wt/Vol: 33.18 G
 Prep Final Vol: 10 mL

Analyst: FX

NC Certification #481

NC Certification #481

Reviewed By: 
 DRO.XLS
 Page 135 of 177

SGS North America, Inc.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: S12-12-4
Client Project ID: U-3810/NCDOT 001100
Lab Sample ID G341-617-12A
Lab Project ID: G341-617
Report Basis: Dry Weight

Analyzed By: DVO
Date Collected: 03-22-2010 17:30
Date Received: 3/24/2010
Matrix: Soil
Sample Amount: 5.36 g
%Solids: 81.2

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	57.3	1	4/1/2010
Benzene	BQL	5.73	1	4/1/2010
Bromobenzene	BQL	5.73	1	4/1/2010
Bromochloromethane	BQL	5.73	1	4/1/2010
Bromodichloromethane	BQL	5.73	1	4/1/2010
Bromoform	BQL	5.73	1	4/1/2010
Bromomethane	BQL	5.73	1	4/1/2010
2-Butanone	BQL	28.7	1	4/1/2010
n-Butylbenzene	BQL	5.73	1	4/1/2010
sec-Butylbenzene	BQL	5.73	1	4/1/2010
tert-Butylbenzene	BQL	5.73	1	4/1/2010
Carbon disulfide	BQL	5.73	1	4/1/2010
Carbon tetrachloride	BQL	5.73	1	4/1/2010
Chlorobenzene	BQL	5.73	1	4/1/2010
Chloroethane	BQL	5.73	1	4/1/2010
Chloroform	BQL	5.73	1	4/1/2010
Chloromethane	BQL	5.73	1	4/1/2010
2-Chlorotoluene	BQL	5.73	1	4/1/2010
4-Chlorotoluene	BQL	5.73	1	4/1/2010
Dibromochloromethane	BQL	5.73	1	4/1/2010
1,2-Dibromo-3-chloropropane	BQL	28.7	1	4/1/2010
Dibromomethane	BQL	5.73	1	4/1/2010
1,2-Dibromoethane (EDB)	BQL	5.73	1	4/1/2010
1,2-Dichlorobenzene	BQL	5.73	1	4/1/2010
1,3-Dichlorobenzene	BQL	5.73	1	4/1/2010
1,4-Dichlorobenzene	BQL	5.73	1	4/1/2010
trans-1,4-Dichloro-2-butene	BQL	28.7	1	4/1/2010
1,1-Dichloroethane	BQL	5.73	1	4/1/2010
1,1-Dichloroethene	BQL	5.73	1	4/1/2010
1,2-Dichloroethane	BQL	5.73	1	4/1/2010
cis-1,2-Dichloroethene	BQL	5.73	1	4/1/2010
trans-1,2-dichloroethene	BQL	5.73	1	4/1/2010
1,2-Dichloropropane	BQL	5.73	1	4/1/2010
1,3-Dichloropropane	BQL	5.73	1	4/1/2010
2,2-Dichloropropane	BQL	5.73	1	4/1/2010
1,1-Dichloropropene	BQL	5.73	1	4/1/2010
cis-1,3-Dichloropropene	BQL	5.73	1	4/1/2010
trans-1,3-Dichloropropene	BQL	5.73	1	4/1/2010
Dichlorodifluoromethane	BQL	5.73	1	4/1/2010
Diisopropyl ether (DIPE)	BQL	5.73	1	4/1/2010
Ethylbenzene	BQL	5.73	1	4/1/2010
Hexachlorobutadiene	BQL	5.73	1	4/1/2010
2-Hexanone	BQL	14.3	1	4/1/2010
Iodomethane	BQL	5.73	1	4/1/2010

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

Client Sample ID: S12-12-4
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID G341-617-12A
 Lab Project ID: G341-617
 Report Basis: Dry Weight

Analyzed By: DVO
 Date Collected: 03-22-2010 17:30
 Date Received: 3/24/2010
 Matrix: Soil
 Sample Amount: 5.36 g
 %Solids: 81.2

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Isopropylbenzene	BQL	5.73	1	4/1/2010
4-Isopropyltoluene	BQL	5.73	1	4/1/2010
Methylene chloride	BQL	22.9	1	4/1/2010
4-Methyl-2-pentanone	BQL	14.3	1	4/1/2010
Methyl-tert-butyl ether (MTBE)	BQL	5.73	1	4/1/2010
Naphthalene	BQL	5.73	1	4/1/2010
n-Propyl benzene	BQL	5.73	1	4/1/2010
Styrene	BQL	5.73	1	4/1/2010
1,1,1,2-Tetrachloroethane	BQL	5.73	1	4/1/2010
1,1,2,2-Tetrachloroethane	BQL	5.73	1	4/1/2010
Tetrachloroethene	BQL	5.73	1	4/1/2010
Toluene	BQL	5.73	1	4/1/2010
1,2,3-Trichlorobenzene	BQL	5.73	1	4/1/2010
1,2,4-Trichlorobenzene	BQL	5.73	1	4/1/2010
Trichloroethene	BQL	5.73	1	4/1/2010
1,1,1-Trichloroethane	BQL	5.73	1	4/1/2010
1,1,2-Trichloroethane	BQL	5.73	1	4/1/2010
Trichlorofluoromethane	BQL	5.73	1	4/1/2010
1,2,3-Trichloropropane	BQL	5.73	1	4/1/2010
1,2,4-Trimethylbenzene	BQL	5.73	1	4/1/2010
1,3,5-Trimethylbenzene	BQL	5.73	1	4/1/2010
Vinyl chloride	BQL	5.73	1	4/1/2010
m-,p-Xylene	BQL	11.5	1	4/1/2010
o-Xylene	BQL	5.73	1	4/1/2010

	Spike Added	Spike Result	Percent Recovered
1,2-Dichloroethane-d4	50	70.4	141
Toluene-d8	50	50.1	100
4-Bromofluorobenzene	50	49.3	99

Comments:

Flags:

BQL = Below Quantitation Limits.

Analyst:

Reviewed By:

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-12-4
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-12H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 32.37 g

Analyzed By: DCS
 Date Collected: 3/22/2010 17:30
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 81.2

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	380	1	3/26/2010
Acenaphthylene	BQL	380	1	3/26/2010
Anthracene	BQL	380	1	3/26/2010
Benzo[a]anthracene	BQL	380	1	3/26/2010
Benzo[a]pyrene	BQL	380	1	3/26/2010
Benzo[b]fluoranthene	BQL	380	1	3/26/2010
Benzo[g,h,i]perylene	BQL	380	1	3/26/2010
Benzo[k]fluoranthene	BQL	380	1	3/26/2010
Benzoic Acid	BQL	1900	1	3/26/2010
Bis(2-chloroethoxy)methane	BQL	380	1	3/26/2010
Bis(2-chloroethyl)ether	BQL	380	1	3/26/2010
Bis(2-chloroisopropyl)ether	BQL	380	1	3/26/2010
Bis(2-ethylhexyl)phthalate	BQL	380	1	3/26/2010
4-bromophenyl phenyl ether	BQL	380	1	3/26/2010
Butylbenzylphthalate	BQL	380	1	3/26/2010
2-Chloronaphthalene	BQL	380	1	3/26/2010
2-Chlorophenol	BQL	380	1	3/26/2010
4-Chloro-3-methylphenol	BQL	380	1	3/26/2010
4-Chloroaniline	BQL	1900	1	3/26/2010
4-Chlorophenyl phenyl ether	BQL	380	1	3/26/2010
Chrysene	BQL	380	1	3/26/2010
Dibenzo[a,h]anthracene	BQL	380	1	3/26/2010
Dibenzofuran	BQL	380	1	3/26/2010
Di-n-Butylphthalate	BQL	380	1	3/26/2010
1,2-Dichlorobenzene	BQL	380	1	3/26/2010
1,3-Dichlorobenzene	BQL	380	1	3/26/2010
1,4-Dichlorobenzene	BQL	380	1	3/26/2010
3,3'-Dichlorobenzidine	BQL	761	1	3/26/2010
2,4-Dichlorophenol	BQL	380	1	3/26/2010
Diethylphthalate	BQL	380	1	3/26/2010
Dimethylphthalate	BQL	380	1	3/26/2010
2,4-Dimethylphenol	BQL	380	1	3/26/2010
Di-n-octylphthalate	BQL	380	1	3/26/2010
4,6-Dinitro-2-methylphenol	BQL	1900	1	3/26/2010
2,4-Dinitrophenol	BQL	1900	1	3/26/2010
2,4-Dinitrotoluene	BQL	380	1	3/26/2010
2,6-Dinitrotoluene	BQL	380	1	3/26/2010
Diphenylamine *	BQL	380	1	3/26/2010
Fluoranthene	BQL	380	1	3/26/2010
Fluorene	BQL	380	1	3/26/2010
Hexachlorobenzene	BQL	380	1	3/26/2010
Hexachlorobutadiene	BQL	380	1	3/26/2010
Hexachlorocyclopentadiene	BQL	761	1	3/26/2010
Hexachloroethane	BQL	380	1	3/26/2010
Indeno(1,2,3-c,d)pyrene	BQL	380	1	3/26/2010
Isophorone	BQL	380	1	3/26/2010
2-Methylnaphthalene	BQL	380	1	3/26/2010

**Results for Semivolatiles
by GCMS 8270**

Client Sample ID: S12-12-4
 Client Project ID: U-3810/NCDOT 001100
 Lab Sample ID: G341-617-12H
 Lab Project ID: G341-617
 Report Basis: Dry weight
 Initial Weight: 32.37 g

Analyzed By: DCS
 Date Collected: 3/22/2010 17:30
 Date Received: 3/24/2010
 Date Extracted: 3/26/2010
 Matrix: Soil
 % Solids: 81.2

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
2-Methylphenol	BQL	380	1	3/26/2010
3- & 4-Methylphenol	BQL	380	1	3/26/2010
Naphthalene	BQL	380	1	3/26/2010
2-Nitroaniline	BQL	380	1	3/26/2010
3-Nitroaniline	BQL	1900	1	3/26/2010
4-Nitroaniline	BQL	1900	1	3/26/2010
Nitrobenzene	BQL	380	1	3/26/2010
2-Nitrophenol	BQL	380	1	3/26/2010
4-Nitrophenol	BQL	1900	1	3/26/2010
N-Nitrosodi-n-propylamine	BQL	380	1	3/26/2010
Pentachlorophenol	BQL	1900	1	3/26/2010
Phenanthrene	BQL	380	1	3/26/2010
Phenol	BQL	380	1	3/26/2010
Pyrene	BQL	380	1	3/26/2010
1,2,4-Trichlorobenzene	BQL	380	1	3/26/2010
2,4,5-Trichlorophenol	BQL	380	1	3/26/2010
2,4,6-Trichlorophenol	BQL	380	1	3/26/2010

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.2	62
2-Fluorophenol	10	9.2	92
Nitrobenzene-d5	10	8	80
Phenol-d6	10	9.3	93
2,4,6-Tribromophenol	10	6.5	65
4-Terphenyl-d14	10	7.2	72

Comments:

* N-Nitrosodi-n-propylamine is reported as the breakdown product Diphenylamine.

Flags:

BQL = Below Quantitation Limits.

Reviewed By: 



SGS Environmental Services Inc.
CHAIN OF CUSTODY RECORD

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

www.us.sgs.com

1 CLIENT: GEL Engineering of NC, Inc
 CONTACT: Andrew Eyer PHONE NO: 919-323-8828
 PROJECT: U-3410/NC0700110 SITE/PWSID#: Duslow Co.
 REPORTS TO: Andrew Eyer EMAIL: ade@gel.com
 INVOICE TO: NC DOT QUOTE #:
 WBS # 35801.1.1 P.O. #:

SGS Reference #: 6341-617 page 2 of 5

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/MATRIX CODE	# CONTAINERS	SAMPLE TYPE C= COMP G= GRAB M= Multi Incremental Samples	Preservatives Used	Analysis Required	Mg	OH	Mg/Cl	REMARKS/LOC ID
	S12-11-4	3/22/10	17:10	50	6	G			X	X	X	
	S12-12-4	3/22/10	17:30	50	6	G			X	X	X	
	S13-1-4	3/23/10	08:50	50	6	G			X	X	X	
	S13-2-8	3/23/10	09:10	50	6	G			X	X	X	
	S13-3-8		09:30	50	6	G			X	X	X	
	S13-4-4		09:45	50	6	G			X	X	X	
	S13-5-4		09:55	50	6	G			X	X	X	
	S13-6-4		10:20	50	6	G			X	X	X	
	S13-7-8		10:30	50	6	G			X	X	X	
	S14-1-8		11:35	50	3	G			X	X	X	

2

Collected/Relinquished By: (1)	Date	Time	Received By:
<u>Andrew Eyer</u>	3/24/10	12:40	<u>Andrew Eyer</u>
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received For Laboratory By:

3

4

DOD Project? YES NO
Cooler ID _____
Requested Turnaround Time and/or Special Instructions:

5

SGS North America, Inc.

Chain of Custody Seal: (Circle) YES NO
 Samples Received Cold? (YES) NO
 Cooler TB
 Temperature C: 3.2 y. 2.0
 INTACT BROKEN ABSENT

APPENDIX III

PHOTOGRAPHS SHOWING SOIL BORING LOCATIONS



PINEY GREEN TIRE
1381 PINEY GREEN ROAD
PARCEL 149

- S12-1
- S12-2
- S12-3
- S12-4
- S12-5
- S12-6
- S12-7
- S12-8
- S12-9
- S12-10
- S12-11
- S12-12

PINEY GREEN ROAD

TONI DRIVE



