PRELIMINARY SITE ASSESSMENT

PARCEL 044, EDWARD B. SEIFERT
500 BRAGG BLVD.
FAYETTEVILLE, CUMBERLAND COUNTY, NORTH CAROLINA
STATE PROJECT: B-4490
WBS ELEMENT: 33727.1.1
MARCH 14, 2014

Report prepared for:

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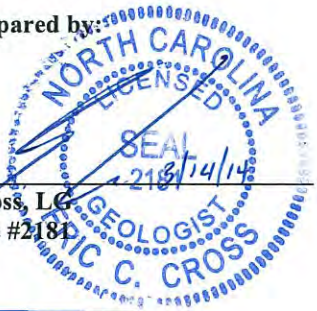

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C-257 –Geology
C-1251 - Engineering

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

FIGURES

TABLES

APPENDICES

PRELIMINARY SITE ASSESSMENT
PARCEL 044, EDWARD B. SEIFERT
500 BRAGG BLVD.
FAYETTEVILLE, CUMBERLAND COUNTY, NORTH CAROLINA

EXECUTIVE SUMMARY OF RESULTS

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this Preliminary Site Assessment (PSA) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for Parcel 044, Edward B. Seifert. The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils at the subject property in anticipation of a total take (State Project B-4490). The PSA was conducted with particular attention to the areas to be cut as indicated by slope stake lines and cross sections or to be excavated for the installation of drainage features. This preliminary site assessment was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid's December 20, 2013, technical proposal.

The following statements summarize the results of the PSA:

- **Site History:** A review of the North Carolina Department of Environment and Natural Resources (DENR) registered UST database and incident database indicated no environmental incidents were on file for the Edward B. Seifert property (Parcel 044). On January 23, 2014, Pyramid emailed the Cumberland County B-4490 parcel addresses to Mr. James Brown, the Fayetteville Regional Incident Manager for the DENR UST Section, with a request to investigate any environmental incidents associated with the parcels. On January 24, 2014, Mr. Brown responded to the email and stated that site address 500 Bragg Blvd. (Parcel 044) does not have any environmental incidents in the DENR database.

  On January 20, 2014, Pyramid Project Manager Eric Cross performed a site visit at the property. The property contained an active car wash facility and asphalt parking space. A creek was observed on the east side of the parcel. Mr. Cross interviewed the owner of the property, Mr. Edward Seifert. Mr. Seifert indicate that he had owned the property for at least 30 years, and that it had always operated as a car wash facility, including prior to his ownership. He was not aware of any USTs at the property, and no evidence of USTs was observed during the site visit. He was not aware of any environmental incidents associated with the property.

- **Geophysical Survey:** The geophysical investigation provided no evidence of metallic USTs at the property.

- **Limited Soil Assessment:** A total of five borings were performed across the property. The DENR action levels for both TPH-GRO and TPH-DRO are 10 milligrams per kilogram (mg/kg). The QED results for the soil samples at the locations of borings 44-4 and 44-5 to the north of the building did not detect TPH-GRO or TPH-DRO concentrations above 10 mg/kg. However, the QED results for the soil samples at the remaining three boring locations (44-1, 44-2, and 44-3) on the south side of the parcel all recorded DRO concentrations above 10 mg/kg. DRO concentrations ranging from 23.6 mg/kg to 70.4 mg/kg were recorded at these locations.

  Three soil samples [44-1(4-6), 44-3(5-6) and 44-5(4-6)] were sent to the laboratory for analysis of soils using EPA Methods 8260/8270 for volatile and semi-volatile organic compounds based on the site use as a car wash facility. The laboratory results did not detect any volatile or semi-volatile organic compounds above detection limits for samples 44-1(4-6) and 44-5(4-6). Minor concentrations of Fluoranthene, Phenanthrene, and Pyrene were detected in sample 44-3(5-6), however, the concentrations were significantly below the Maximum Soil Contaminant Concentration (MSCC) levels for both residential and soil-to-groundwater standards.

- **Limited Groundwater Assessment:** Soil boring 44-1 was converted into a 1-inch diameter temporary monitoring well to a total depth of 12 feet below land surface (BLS). The depth-to-groundwater was measured at 5.65 feet BLS. The laboratory analysis did not detect concentrations of any compounds above detection limits.

  Review of the NCDOT engineering plans indicates that the NCDOT may encounter groundwater at the property during construction activities. However, no evidence of contamination was observed in the water samples collected during this investigation.

- **Contaminated Soil Volumes:** Pyramid's PSA investigation resulted in an estimated area of **12,475 square feet of impacted soil in the vicinity of borings 44-1, 44-2, and 44-3**. The deepest soil samples exhibiting contamination were between 4 and 6 feet. For this reason, a maximum depth of 6 feet will be used to approximate total volumes of contaminated soil. It should be noted that this is a gross estimate based on the data available. Using a total thickness of 6 feet of contaminated soil, Pyramid estimates approximately 74,850 cubic feet, or **2,772 cubic yards of impacted soils between 0 and 6 feet BLS** at the location of

borings 44-1, 44-2, and 44-3. The south and east/west boundaries of this area of contamination are approximate due to limited soil data.

It should be noted that, if impacted soil is encountered during road construction outside the area analyzed by this investigation, the impacted soil should be managed according to NC DENR Division of Waste Management (DWM) UST Section Guidelines and disposed of at a permitted facility.

1.0 Introduction

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this Preliminary Site Assessment (PSA) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for Parcel 044, Edward B. Seifert. The Edward B. Seifert property currently contains an active car wash facility consisting of the main car wash building and a large carport area. The property is located at 500 Bragg Blvd., Fayetteville, NC. This preliminary site assessment was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid's December 20, 2013, technical proposal.

The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and the potential for impacted soils at the subject properties across the entire site in anticipation of a total take (State Project B-4490). The location of the subject site is shown on **Figure 1**.

1.1 Background Information

Based on the NCDOT's December 13, 2013, *Request for Technical and Cost Proposal*, the PSA was conducted across the entire site in anticipation of a total take, with emphasis on the areas to be cut as indicated by slope stake lines and cross sections or to be excavated for the installation of drainage features and/or other utilities, in accordance with the CADD files provided to Pyramid by the NCDOT. The PSA included the following:

- Research the properties for past uses and possible releases.
- Conduct a preliminary geophysical site assessment and limited soil assessment across the entire site in anticipation of a total take with emphasis on the areas to be cut as indicated by slope stake lines and cross sections or to be excavated for the installation of drainage features and/or other utilities.
- Should groundwater be encountered at a depth that might impact the NCDOT construction activities, report the depth to groundwater for that site and attempt to obtain one groundwater sample for laboratory analysis by installing a temporary monitoring well.

1.2 Project Information

Prior to field activities, a Health and Safety Plan was prepared. Prior to drilling activities, the public underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator, Northstate Utility Locating Incorporated of Colfax, North Carolina was used to mark the on-site private, buried utilities.

2.0 Site History

The NCDOT description of the parcel in the RFP provided to Pyramid on December 13, 2013, provided the following background information related to the site:

"Currently this site operates as a car wash and detail shop. The site is located on the northeast side of Bragg Blvd. approximately 370 feet south of the intersection with W. Rowan St. The architectural style of the building suggests the site operated as a gas station or repair shop. No known NCDENR's UST Section Facility Identification Numbers or Groundwater Incidents Identification Numbers associated with this property. An oil water separator was observed in front of the car wash approximately 25 feet from the edge of pavement of Bragg Blvd. No evidence of USTs was observed during a site visit on April 30, 2009. Investigate the entire parcel as a total take is anticipated."

Pyramid completed a records review of the parcel, interviewed DENR personnel, interviewed the property owner, and reviewed aerial photographs to assess past uses of the property. Pyramid reviewed historical aerial photographs dating back to 1960 available from the Cumberland County Soil and Water Conservation office in Fayetteville and on Google Earth for past uses. The 1960, 1966, 1972, 1993, 2003, 2009, 2010, and 2011 aerial photographs are included in **Appendix A**. The aerial photographs indicate the car wash building has been present at the property since at least 1960.

City directories dated 1937, 1951, 1957, 1963, 1968, 1973, 1980, 1985, 1990, 1995, to 2000 were reviewed at the Cumberland County Public Library in Fayetteville, North Carolina. The table below includes a list of the building or subject property occupants from 1937 to 2000 based on the city directory review. The directory information also indicates the property operated as a car wash beginning in the 1960's, and operated as a retail store selling paint and wallpaper from approximately 1957 to 1962.

Year	Occupant
1937	No Bragg Blvd. – No Listing
1951	No Listing
1957	Huggins Paint & Wallpaper
1963	No Listing (310 Bragg Blvd. – Minit Car Wash
1968	No Listing (310 Bragg Blvd. – Minit Car Wash
1973	Robo-Autobath Automatic Car Wash
1980	Robo-Autobath Automatic Car Wash
1985	Robo-Autobath Automatic Car Wash
1990	Tires to Top Auto Detail Shop
1995	Tires to Top Auto Detail Shop
2000	Tires to Top Auto Detail Shop

On January 23, 2014, Pyramid emailed the Cumberland County B-4490 parcel addresses to Mr. James Brown, the Fayetteville Regional Incident Manager for the DENR UST Section, with a request to investigate any environmental incidents associated with the parcels. On January 24, 2014, Mr. Brown responded to the email and stated that site address 500 Bragg Blvd. (Parcel 044) does not have any environmental incidents in the DENR database.

On January 20, 2014, Pyramid Project Manager Eric Cross performed a site visit at the property. The property contained an active car wash facility and asphalt parking space. A creek was observed on the east side of the parcel. Mr. Cross interviewed the owner of the property, Mr. Edward Seifert. Mr. Seifert indicate that he had owned the property for at least 30 years, and that since its commercial development it had always operated as a car wash facility, including prior to his ownership. He was not aware of any USTs at the property, and no evidence of USTs was observed during the site visit. He was not aware of any environmental incidents associated with the property.

3.0 Geophysical Investigation

Pyramid performed electromagnetic induction (EM61) and ground penetrating radar (GPR) surveys across the accessible portions of the Parcel. The majority of the EM features at the property were suspected to be associated with reinforced concrete, utilities, or visible cultural features. Reconnaissance GPR scans verified the presence of reinforced concrete on the south side of the structure. Limited access was available to the GPR underneath the carport areas north of the building. No subsurface structures were observed in the areas that were surveyed.

The geophysical investigation did not record evidence of any metallic USTs at the property.

The full details of the geophysical investigation are included in the Geophysical Investigation Report as **Appendix B**.

4.0 Soil Sampling Activities & Results

4.1 Soil Assessment Field Activities

On February 18, 2014, Pyramid mobilized to the site and drilled soil borings, installed one temporary monitoring well, and collected the proposed soil samples for the PSA. The soil borings and temporary well (TW) were completed using a track mounted Geoprobe® Direct-Push rig. Five (5) soil borings (44-1, 44-2, 44-3, 44-4, and 44-5) were advanced on the subject property. The selected locations were chosen to avoid public utilities along the adjacent roads and private utilities associated with the business while

remaining in the proposed right of way and/or easement. The soil borings were installed adjacent to proposed drainage piping, as indicated by the NCDOT engineering plans, or within the proposed ROW and/or easement to obtain additional information. The locations of the borings are shown on **Figure 2**.

Soil samples were continuously collected in four-foot long disposable sleeves from each boring for geologic description, and visual examination for signs of contamination. Soil recovered from each sleeve was screened in the field using a Photo-Ionization Detector (PID) approximately every 2 feet depending on the soil recovery of each sleeve. In general, the soil sample with the highest PID reading was selected from each boring for laboratory analysis. If field screening detected an elevated reading, then additional soil samples from each boring were selectively analyzed with the QED UVF HC-1 Analyzer. The soil boring logs with the soil descriptions, visual examination, and PID screening results are included in **Appendix C**. The PID field screening results are summarized in **Table 1**. To prevent cross contamination, new disposable nitrile gloves were worn by the sampling technician during the sampling activities, and were changed between samples. A slight to moderate petroleum odor was detected in soil boring 44-1 during the field screening.

The soil samples selected for Total Petroleum Hydrocarbon (TPH) analyses were analyzed utilizing the QED UVF HC-1 Analyzer system from QROS-US. The NCDOT has indicated that this instrument is an acceptable method to provide total petroleum hydrocarbon (TPH) results for soil analysis for the PSA projects. Pyramid's QED-certified technician performed the soil analyses. The soil samples selected for analysis using the QED Analyzer were analyzed for TPH as diesel range organics (DRO) and TPH as gasoline range organics (GRO). The soil samples selected for analysis using the QED were preserved in the field with methanol and were analyzed at the end of each day using the QED.

In addition to the QED analysis, select samples were collected for more comprehensive laboratory analysis using EPA Methods 8260 and 8270 for volatile and semi-volatile organic compounds. These additional analyses were performed based on the site history of the property, which suggested that other potential contaminants such as solvents associated with cleaning and auto repair may have been utilized in the past. In general, soils that exhibited the highest PID readings and were above the water table were selected for the additional laboratory analyses. Specifically, samples 44-1(4-6), 44-3(5-6) and 44-5(4-6) were placed in laboratory prepared containers and shipped to Pace Analytical in Huntersville, NC for analysis of volatile and semi-volatile organic compounds.

4.2 Soil Sample Analytical Results

QED Results

The DENR action levels for both TPH-GRO and TPH-DRO are 10 mg/kg. The QED results for the soil samples at the locations of borings 44-4 and 44-5 to the north of the

building did not detect TPH-GRO or TPH-DRO concentrations above 10 mg/kg. However, the QED results for the soil samples at the remaining three boring locations (44-1, 44-2, and 44-3) on the south side of the parcel all recorded DRO concentrations above 10 mg/kg. DRO concentrations ranging from 23.6 mg/kg to 70.4 mg/kg were recorded at these locations. The soil sample QED results are summarized in **Table 2**. A copy of the QED analysis report is included in **Appendix D**.

Laboratory Analysis for Methods 8260/8270

Three soil samples [44-1(4-6), 44-3(5-6) and 44-5(4-6)] were sent to the laboratory for analysis of soils using EPA Methods 8260/8270 for volatile and semi-volatile organic compounds based on the historical site use. The laboratory results did not detect any volatile or semi-volatile organic compounds above detection limits for samples 44-1(4-6) and 44-5(4-6). Minor concentrations of Fluoranthene, Phenanthrene, and Pyrene were detected in sample 44-3(5-6); however, the concentrations were significantly below the Maximum Soil Contaminant Concentration (MSCC) levels for both residential and soil-to-groundwater standards. The soil sample laboratory results are summarized in **Table 3**. A copy of the laboratory report and chain-of-custody is included in **Appendix E**.

4.3 Temporary Monitoring Well Installation

On February 18, 2014, Pyramid converted soil boring 44-1 into a 1-inch diameter temporary monitoring well (TW). Soil boring 44-1(TW) was completed to a total depth of 12 feet below land surface (BLS). The temporary well was constructed with 2 feet of 1-inch diameter of schedule 80 PVC casing and 10 feet of 1-inch diameter of schedule 80 PVC slotted screen. The temporary well was set in the boring with 10 feet of slotted screen at the bottom of the well.

On February 18, 2014, the temporary monitoring well 44-1(TW) was gauged using a properly decontaminated electric water level probe. The depth-to-groundwater was measured at 5.65 feet BLS. The temporary monitoring well was sampled using a new 0.5-inch diameter disposable bailer. Upon completion of the gauging and sampling, the temporary monitoring well was properly abandoned by removing the casing, and filling the borehole with bentonite chips and portland cement.

4.4 Groundwater Analytical Results

The groundwater sample 44-1(TW) was placed in laboratory prepared containers for analysis of volatile organic compounds (VOCs) using EPA Method 6200B and semi-volatile organic compounds (SVOCs) using EPA Method 625. The samples were shipped to Pace Analytical in Huntersville, NC. The laboratory analysis did not detect concentrations of any compounds above laboratory detection limits. The groundwater results for sample 44-1(TW) are summarized in **Table 4**. A copy of the laboratory report and chain-of-custody is included in **Appendix E**.

5.0 Conclusions and Recommendations

As requested by NCDOT, Pyramid has completed a PSA at the Edward B. Seifert property located 500 Bragg Blvd., Fayetteville, NC (Parcel 044). The following is a summary of the assessment activities and results. Personnel logs for all field work are included in **Appendix F.**

5.1 Geophysical Investigation

The geophysical investigation provided no evidence of metallic USTs at the property.

5.2 Limited Soil Assessment

The DENR action levels for both TPH-GRO and TPH-DRO are 10 mg/kg. The QED results for the soil samples at the locations of borings 44-4 and 44-5 to the north of the building did not detect TPH-GRO or TPH-DRO concentrations above 10 mg/kg. However, the QED results for the soil samples at the remaining three boring locations (44-1, 44-2, and 44-3) on the south side of the parcel all recorded DRO concentrations above 10 mg/kg. DRO concentrations ranging from 23.6 mg/kg to 70.4 mg/kg were recorded at these locations.

Three soil samples [44-1(4-6), 44-3(5-6) and 44-5(4-6)] were sent to the laboratory for analysis of soils using EPA Methods 8260/8270 for volatile and semi-volatile organic compounds based on the historical site use. The laboratory results did not detect any volatile or semi-volatile organic compounds above detection limits for samples 44-1(4-6) and 44-5(4-6). Minor concentrations of Fluoranthene, Phenanthrene, and Pyrene were detected in sample 44-3(5-6), however, the concentrations were significantly below the Maximum Soil Contaminant Concentration (MSCC) levels for both residential and soil-to-groundwater standards.

5.3 Limited Groundwater Assessment

Soil boring 44-1 was converted into a 1-inch diameter temporary monitoring well to a total depth of 12 feet BLS. The depth-to-groundwater was measured at 5.65 feet BLS. The laboratory analysis did not detect concentrations of any compounds above detection limits.

Review of the NCDOT engineering plans indicates that the NCDOT may encounter groundwater at the property during construction activities. However, no evidence of contamination was observed in the water samples collected during this investigation.

5.4 Recommendations

Petroleum-Impacted Soils

During road construction activities, it is possible the NCDOT may encounter petroleum impacted soil near soil borings 44-1, 44-2, and 44-3. The direct source of this petroleum

was not evident in the field. Additionally, the NCDOT may also encounter shallow groundwater during construction.

Soils with DRO above 10mg/kg were observed at the location of borings 44-1, 44-2, and 44-3. The NCDOT Microstation slope stake information does not indicate any cuts to be made in this area, however, there are potentially drainage features proposed to be constructed adjacent to the parcel that may require soil excavation.

Estimating the Area of Contamination

The estimated area of contamination is depicted on **Figure 2**. The boundaries of the area of contamination are generally estimated by applying a circular area of contamination around a boring exhibiting DRO/GRO levels above 10 mg/kg with a radius equal to half the distance between that boring and the nearest "clean" boring. In cases where this approach is not feasible, such as near property boundaries or where data does not exist to provide a definitive boundary, the area of contamination is terminated using the distance to the property boundary as a radius, or an educated approximation is applied. For this parcel, the distance between boring 44-1 and 44-4 was used to apply a radius of contamination around the contaminated borings on the south side of the property. The stream jurisdictional boundary was used as the east boundary of the contamination, and the south property line was used as the south boundary of contamination due to a lack of additional data.

Pyramid's PSA investigation resulted in an estimated area of **12,475 square feet of impacted soil in the vicinity of borings 44-1, 44-2, and 44-3**. The deepest soil samples exhibiting contamination were between 4 and 6 feet. For this reason, a maximum depth of 6 feet will be used to approximate total volumes of contaminated soil. It should be noted that this is a gross estimate based on the data available. Using a total thickness of 6 feet of contaminated soil, Pyramid estimates approximately 74,850 cubic feet, or **2,772 cubic yards of impacted soils between 0 and 6 feet BLS** at the location of borings 44-1, 44-2, and 44-3. The south and east/west boundaries of this area of contamination are approximate due to limited soil data.

It should be noted that, if impacted soil is encountered during road construction outside the area analyzed by this investigation, the impacted soil should be managed according to NC DENR Division of Waste Management (DWM) UST Section Guidelines and disposed of at a permitted facility.

6.0 Limitations

The results of this preliminary investigation are limited to the boring locations completed during this limited assessment and presented in this report. The laboratory results only reflect the current conditions at the locations sampled on the date this PSA was performed.

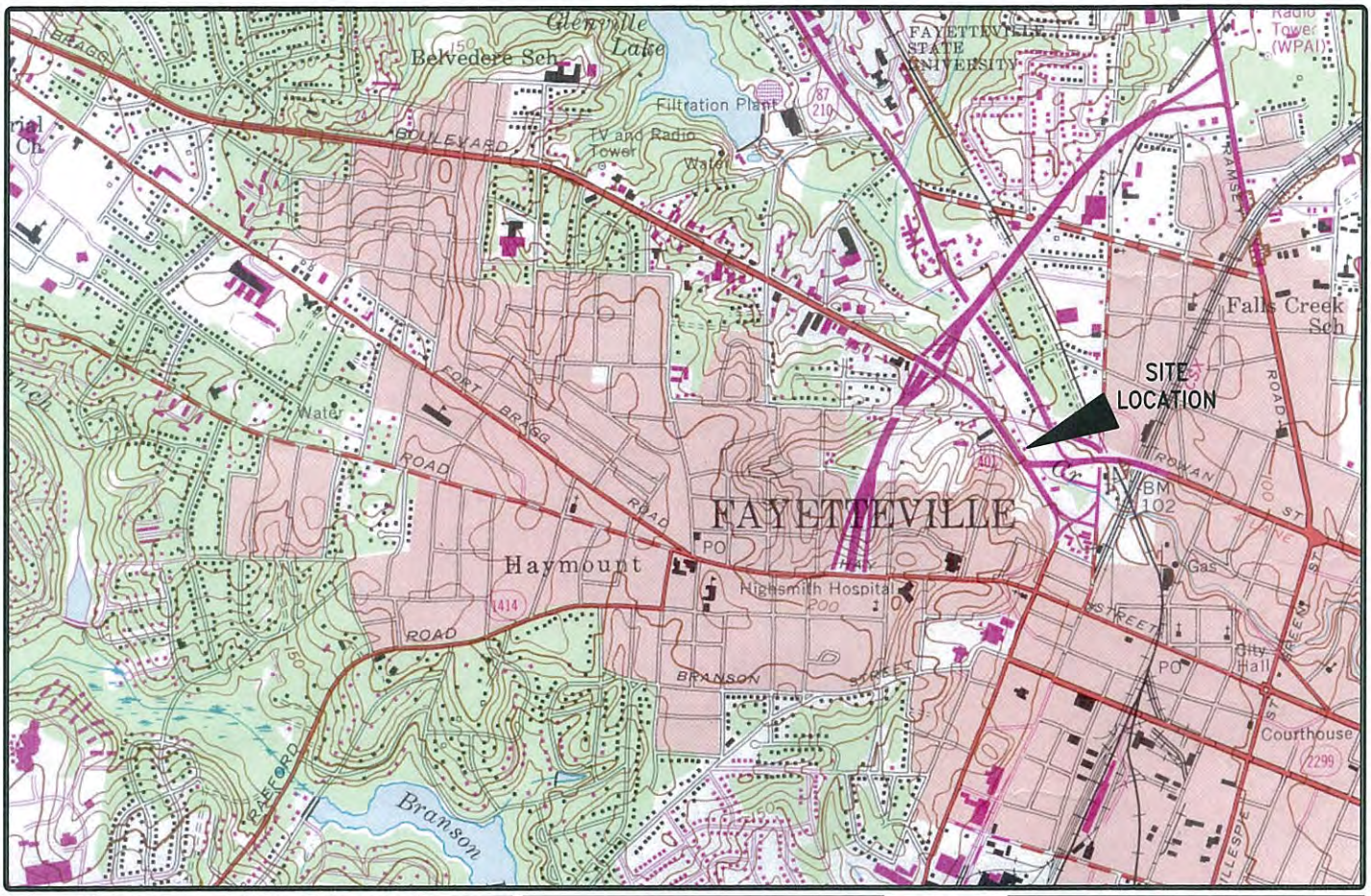
7.0 Closure

This report was prepared for, and is available solely for use by NCDOT and their designees. The contents thereof may not be used or relied upon by any other person without the express written consent and authorization of Pyramid Environmental & Engineering, P.C. (Pyramid). The observations, conclusions, and recommendations documented in this report are based on site conditions and information reviewed at the time of Pyramid's investigation. Pyramid appreciates the opportunity to provide this environmental service.

FIGURES

USGS TOPOGRAPHIC MAP

SITE: 500 BRAGG BLVD. LOCATION: FAYETTEVILLE, NORTH CAROLINA



USGS IDENTIFICATION

USGS 7.5 MINUTE MAP	FAYETTEVILLE, N.C.
ORIGINAL DATE:	1957
PHOTOREVISION DATE:	1987

	PRIMARY HIGHWAY, HARD SURFACE
	SECONDARY HIGHWAY, HARD SURFACE
	LIGHT-DUTY ROAD HARD OR IMPROVED SURFACE
	UNIMPROVED ROAD
	STATE ROAD
	U.S. ROUTE
	INTERSTATE ROUTE

SCALES

MILES: 1/2 0 1

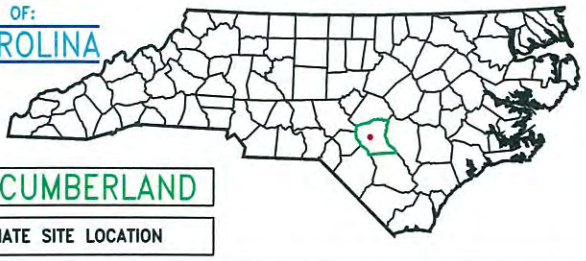
FEET: 1000 0 2000 4000 6000

1" = 2000'

NOTES: ▶ TOPOGRAPHICAL CONTOUR INTERVAL = 10 FEET
▶ PHOTOREVISIONS DENOTED IN PURPLE

MAGNETIC NORTH

COUNTY MAP OF: NORTH CAROLINA



COUNTY: CUMBERLAND

APPROXIMATE SITE LOCATION

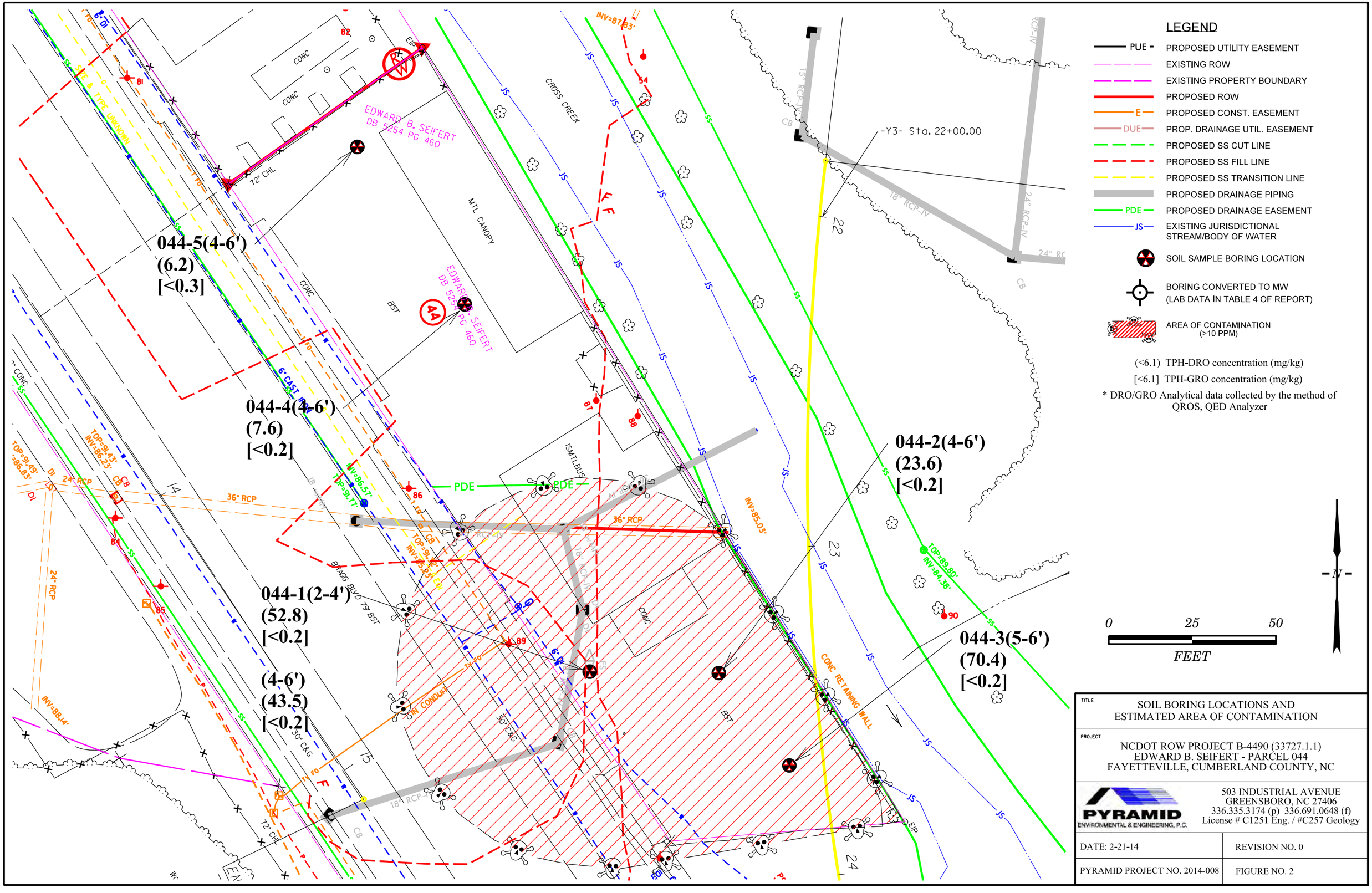
PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT: NC DOT B-4490		SCALE: 1"=2000'	DRAWN BY: KAM
PROPERTY NAME: PARCEL 044, EDWARD B. SEIFERT			CHECK BY: TDL
CITY: FAYETTEVILLE	STATE: NORTH CAROLINA	DATE: 2/5/14	JOB NO.: 2014-008
TITLE: TOPOGRAPHIC MAP		DRAWING NAME: USGSTOPO	TYPE: PSA
			FIGURE NUMBER: 1

NOTES

TOPOGRAPHIC MAP USED IN THIS GRAPHIC IS MAPPED, EDITED, AND PUBLISHED BY THE UNITED STATES GEOLOGIC SURVEY, DEPARTMENT OF THE INTERIOR, RESTON VIRGINIA.

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.



TITLE
SOIL BORING LOCATIONS AND
ESTIMATED AREA OF CONTAMINATION

PROJECT
NCDOT ROW PROJECT B-4490 (33727.1.1)
EDWARD B. SEIFERT - PARCEL 044
FAYETTEVILLE, CUMBERLAND COUNTY, NC

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DATE: 2-21-14	REVISION NO. 0
PYRAMID PROJECT NO. 2014-008	FIGURE NO. 2

TABLES

TABLE 1

Summary of Soil Field Screening Results

NCDOT Project B-4490
500 Bragg Blvd. - Parcel 044
Fayetteville, Cumberland County, North Carolina

SOIL BORING	SAMPLE ID	DEPTH (feet bgs)	PID READINGS (PPM)
44-1	44-1(1-2)	1 to 2	0
	44-1(2-4)	2 to 4	150.0
	44-1(4-6)	4 to 6	700.0
	44-1(6-8)	6 to 8	510.0
44-2	44-2(0.5-2)	0.5 to 2	0.0
	44-2(2-4)	2 to 4	15.0
	44-2(4-6)	4 to 6	520.0
	44-2(6-8)	6 to 8	380.0
44-3	44-3(0.5-2)	0.5 to 2	0.0
	44-3(2-4)	2 to 4	0.0
	44-3(5-6)	5 to 6	950.0
	44-3(6-8)	6 to 8	190.0
44-4	44-4(0.5-2)	0.5 to 2	0.0
	44-4(2-4)	2 to 4	0.0
	44-4(4-6)	4 to 6	590.0
	44-4(6-8)	6 to 8	680.0
44-5	44-5(2-4)	2 to 4	0.0
	44-5(4-6)	4 to 6	550.0
	44-5(6-8)	6 to 8	150.0

bgs= below ground surface
PID= photo-ionization detector
PPM= parts-per-million
= sampled for lab analysis &/or QROS-QED analysis
OVA= Organic Vapor Analyzer

TABLE 2

Summary of Soil Sample QED Analytical Results for GRO/DRO

NCDOT State Project B-4490
500 Bragg Blvd. - Parcel 044
Fayetteville, Cumberland County, North Carolina

				QROS - QED Analysis			Laboratory Analysis (Pace)	
SAMPLE ID	**DATE**	**DEPTH (feet)**	**PID (ppm)**	**GRO (mg/kg) (C5-C10)**	**DRO (mg/kg) (C10-C35)**	**TPH (mg/kg) (C5-C35)**	**EPA Method 3550 DRO (mg/kg)**	**EPA Method 5035 GRO (mg/kg)**
44-1(2-4)	2/17/2014	2 to 4	150.0	<0.2	52.8	52.8	------	------
44-1(4-6)	2/17/2014	4 to 6	700.0	<0.2	43.5	43.5	------	------
44-2(4-6)	2/17/2014	4 to 6	520.0	<0.2	23.6	23.6	------	------
44-3(5-6)	2/17/2014	5 to 6	950.0	<0.2	70.4	70.4	------	------
44-4(4-6)	2/17/2014	4 to 6	590	<0.2	7.6	7.6	------	------
44-5(4-6)	2/18/2014	4 to 6	550	<0.3	6.2	6.2	------	------
NC Initial Action Level - UST Section for 5035/5030-GRO; 3550-DRO				10	10	NA	10	10

PID= photo-ionizaton detector
PPM= parts-per-million
GRO= Gasoline Range Organics
DRO= Diesel Range Organics
mg/kg= milligrams-per-kilogram
TPH= Total Petroleum Hydrocarbons (GRO + DRO)
NA= Not Applicable
"------" = No Laboratory Analysis

* Bold values indicate concentrations above initial action levels

TABLE 3

Summary of Volatile/Semi-Volatile Laboratory Results of Soil Samples

Parcel 044 - Edward B. Seifert

500 Bragg Blvd., Cumberland County, NC

Analytical Parameter	Analytical Method	SAMPLE ID NUMBER			Residential MSCC (mg/kg)	Soil to Groundwater MSCC (mg/kg)
		44-1(4-6)	44-3(5-6)	44-5(4-6)		
	Sample Date:	2/18/2014	2/18/2014	2/18/2014		
	Depth (feet):	4 to 6	5 to 6	4 to 6		
	Location	SW building	south lot	north lot		
Acetone	8260	ND	ND	ND	14000	24
Benzene	8260	ND	ND	ND	18	0.0056
Bromobenzene	8260	ND	ND	ND	NMSCC	NMSCC
Bromoform	8260	ND	ND	ND	81	0.026
2-Butanone (MEK)	8260	ND	ND	ND	9385	16
n-Butylbenzene	8260	ND	ND	ND	626	4.3
sec-Butylbenzene	8260	ND	ND	ND	626	3.3
Styrene	8260	ND	ND	ND	3128	1.5
tert-Butylbenzene	8260	ND	ND	ND	626	3.4
4-Chlorotoluene	8260	ND	ND	ND	1000	0.1
Ethylbenzene	8260	ND	ND	ND	1560	4.9
1,2-Dichloroethane	8260	ND	ND	ND	7	0.0019
Isopropyl ether (IPE)	8260	ND	ND	ND	156	0.37
Isopropylbenzene	8260	ND	ND	ND	1564	1.7
P-Isopropyltoluene	8260	ND	ND	ND	NMSCC	NMSCC
Naphthalene	8260	ND	ND	ND	313	0.16
n-Propylbenzene	8260	ND	ND	ND	626	1.7
Toluene	8260	ND	ND	ND	1200	4.3
1,2,4-Trimethylbenzene	8260	ND	ND	ND	782	8.5
1,3,5-Trimethylbenzene	8260	ND	ND	ND	782	8.3
Total Xylenes	8260	ND	ND	ND	3129	4.6
MTBE	8260	ND	ND	ND	350	0.091
2-Hexanone	8260	ND	ND	ND	70	0.1
Methylene chloride	8260	ND	ND	ND	85	0.02
All Other 8260 Parameters	8260	ND	ND	ND	NA	NA
Acenaphthene	8270	ND	ND	ND	940	8.2
Fluoranthene	8270	ND	0.874	ND	620	290
bis(2-Ethylhexyl)phthalate	8270	ND	ND	ND	46	6.6
1-Methylnaphthalene	8270	ND	ND	ND	20	0.004
2-Methylnaphthalene	8270	ND	ND	ND	63	3.6
Naphthalene	8270	ND	ND	ND	313	0.16
Phenanthrene	8270	ND	0.643	ND	469	56
Pyrene	8270	ND	0.651	ND	469	270
All Other 8270 Parameters	8270	ND	ND	ND	NA	NA
PID Field Screening (ppm)	PID	700.0	950.0	550.0	NA	NA

mg/kg = parts per million (ppm).
BOLD values are above MSCC levels.
NS=Not Sampled for Parameter

MSCC = Maximum Soil Contaminant Concentrations
ND = Not Detected.
J= Estimated Concentration

NMSCC= No MSCC
NA Not Applicable
CI= Considered Immobile

TABLE 4

Summary of Groundwater Analytical Results

NCDOT State Project B-4490
500 Bragg Blvd. - Parcel 044
Fayetteville, Cumberland County, North Carolina

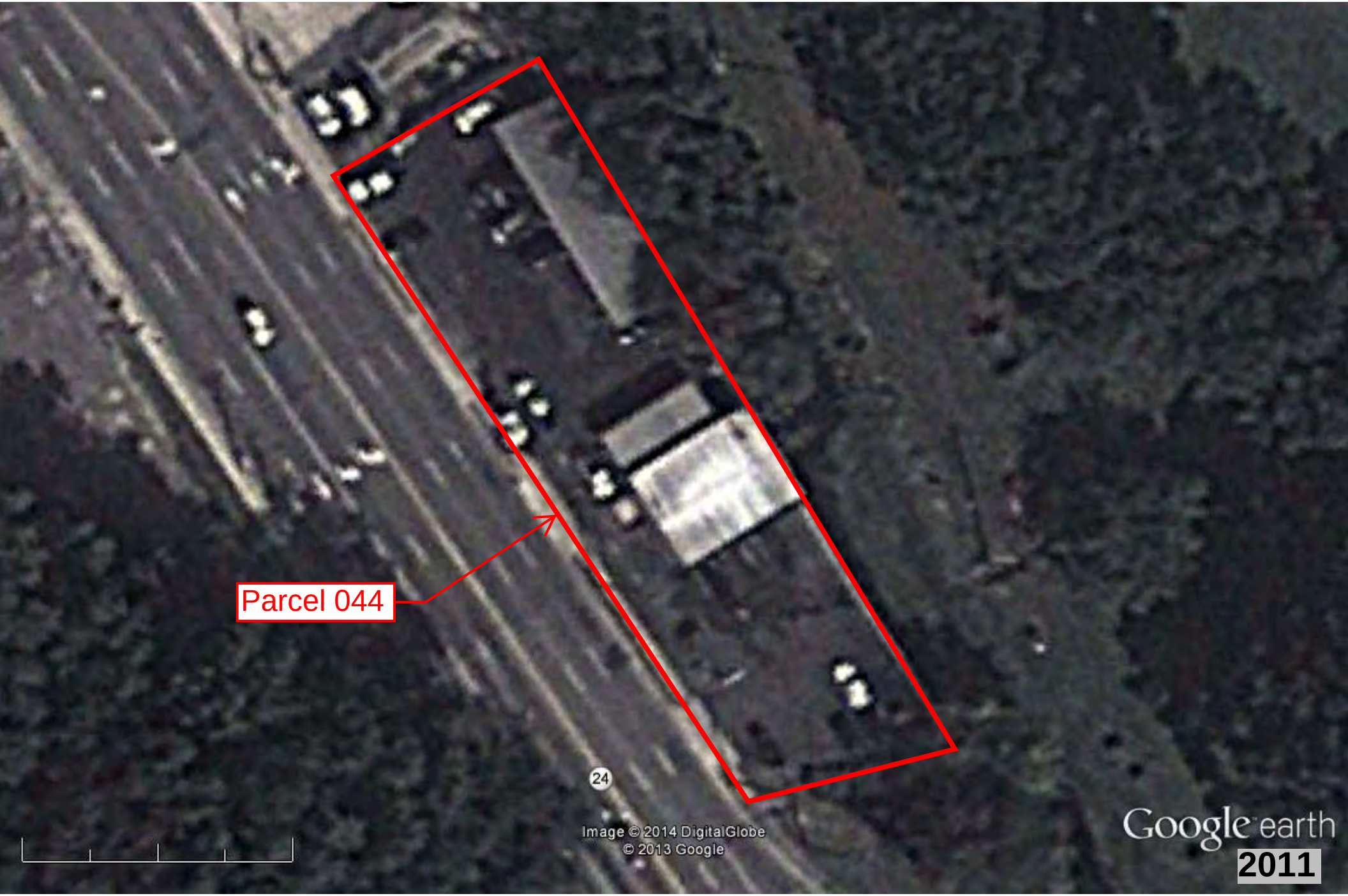
PARAMETER	UNITS	SAMPLE ID	NCAC 2L GROUNDWATER STANDARD
		44-1(TW)	
EPA Method 6200B VOCs; Sample Collection Date: 2/18/14			
Benzene	ug/L	ND	1
Chloroform	ug/L	ND	70
Diisopropyl Ether (IPE)	ug/L	ND	70
Ethyl Benzene	ug/L	ND	600
Isopropylbenzene (Cumene)	ug/L	ND	70
Naphthalene	ug/L	ND	6
Styrene	ug/L	ND	70
Toluene	ug/L	ND	600
Total Xylenes	ug/L	ND	500
n-Propylbenzene	ug/L	ND	70
sec-Butylbenzene	ug/L	ND	70
tert-Butyl methyl ether (MTBE)	ug/L	ND	20
tert-Butylbenzene	ug/L	ND	70
1,2,4-Trimethylbenzene	ug/L	ND	400
1,2-Dichloroethane	ug/L	ND	0.4
1,3,5-Trimethylbenzene	ug/L	ND	400
4-Isopropyltoluene	ug/L	ND	25
All Other Parameters	ug/L	ND	NA
EPA Method 625 Semi-Volatile Organic Compounds			
Acenaphthene	ug/L	ND	80
Diethylphthalate	ug/L	ND	6000
bis(2-Ethylhexyl)phthalate	ug/L	ND	3
Naphthalene	ug/L	ND	6
Phenanthrene	ug/L	ND	200
Phenol	ug/L	ND	30
Pyrene	ug/L	ND	200
All Other Parameters	ug/L	ND	NA

ug/L= micrograms-per-liter

ND= Not Detected at or above adjusted reporting limit.

NA= Not Applicable

APPENDIX A



Google earth

feet 200

meters 70

Google earth

feet 200

meters 70

Google earth

feet 200

meters 70

Google earth

feet 200

meters 70

Google earth

feet 200

meters 70


Parcel 044
1972


Parcel 044
1966


Parcel 044
1960

APPENDIX B

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

PYRAMID ENVIRONMENTAL & ENGINEERING
(PROJECT 2014-008)

GEOPHYSICAL SURVEY

PARCEL 044 –
EDWARD B. SEIFERT
500 BRAGG BLVD.
NCDOT PROJECT B-4490 (33727.1.1)

FAYETTEVILL, CUMBERLAND COUNTY, NC

FEBRUARY 12, 2014

Report prepared for: **Mr. Gordon Box**
GeoEnvironmental Project Manager
Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, NC 27610

Prepared by: _____
Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____
Douglas A. Canavello, P.G.
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C257: GEOLOGY C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 044, 500 Bragg Blvd.
Fayetteville, Cumberland County, North Carolina

Table of Contents

Figures

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT), at the Edward B. Seifert property, Parcel 044, 500 Bragg Blvd., Fayetteville, Cumberland County, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project B-4490). The geophysical survey boundaries at the project site were designed to include the portions of the property between the existing edge of pavement and the proposed ROW and easements, whichever distance was greater. The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys.

Geophysical Results: The majority of the EM features at the property were suspected to be associated with reinforced concrete, utilities, or visible cultural features. Reconnaissance GPR scans verified the presence of reinforced concrete on the south side of the structure. Limited access was available to the GPR underneath the carport areas north of the building. No subsurface structures were observed in the areas that were surveyed. The geophysical investigation did not record evidence of any metallic USTs at the property.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT), at the Edward B. Seifert property, Parcel 044, 500 Bragg Blvd., Fayetteville, Cumberland County, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project B-4490). The NCDOT indicated that the site was anticipated to be a total take, and the geophysical survey boundaries were designed to include all accessible portions of the parcel. The survey grid was approximately 70 feet wide (east to west) and 170 feet from north to south. Conducted on January 26 and February 4, 2014, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site was an active car wash facility containing one car wash building and an adjacent carport area used for detailing. The remaining area consisted of asphalt parking space. Aerial photographs showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 20-foot by 10-foot survey grid was established across the geophysical survey areas using measuring tapes and water-based marking paint. These grid marks were used as X-Y coordinates for location control when collecting the geophysical data and establishing base maps for the geophysical results.

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. The EM survey was performed on January 26, 2014, using a Geonics EM61 metal detection instrument. According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at approximately 0.8 foot intervals along north-south trending or east-west trending, parallel survey lines spaced five feet apart. The data were downloaded to a

computer and reviewed in the field and office using the Geonics DAT61 and Surfer for Windows Version 11.0 software programs.

GPR data were acquired in reconnaissance fashion on February 4, 2014, using a Geophysical Survey Systems, Inc. (GSSI) SIR-2000 unit equipped with a 400 MHz antenna. Data were collected generally from east to west and north to south across the property. The GPR data were viewed in real time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 8 feet, based on an estimated two-way travel time of 8 nanoseconds per foot.

DISCUSSION OF RESULTS

Contour plots of the EM61 bottom coil and differential results obtained across the survey area at the property are presented in **Figure 2**. The bottom coil results represent the most sensitive component of the EM61 instrument and detect metal objects regardless of size. The bottom coil response can be used to delineate metal conduits or utility lines; small, isolated metal objects, and areas containing insignificant metal debris. The differential results are obtained from the difference between the top and bottom coils of the EM61 instrument. The differential results focus on the larger metal objects such as drum and UST-size objects and ignore the smaller insignificant metal objects.

Discussion of EM Anomalies: The EM feature across the south boundary of the survey area was associated with a reinforced concrete curb. A metal guardrail was present across the entire east boundary of the survey area, resulting in an EM response at the east survey edge. The EM anomaly at X=30, Y=79 was the result of a store sign. The EM features on the south side of the car wash building were associated with reinforced concrete and a marked utility. The EM response immediately surrounding the building itself was due to suspected reinforcement in the foundation. The EM anomaly at X=25, Y=130 was due to a water meter. The EM response to the north of the water meter was due to a marked gas line and a visible storm drain pipe. The high amplitude EM response on the north side of the building was due to a metal carport. Similarly, the EM response across the northwest portion of the survey area was due to the metal detailing carport. These carports are delineated on **Figure 2** by black dashed lines. The EM

anomaly at X=30, Y=200 was the result of a cut metal post visible in the ground surface. The EM feature between X=20 and X=60 at Y=260 was a suspected utility that had been marked by the private locator. The EM anomaly at X=70, Y=275 was the result of an adjacent metal storage container.

Discussion of GPR Survey: Reconnaissance GPR transects were performed across the reinforced concrete on the south side of the car wash building and verified the reinforcement. No structures were observed to underlie the concrete. GPR scans were performed where possible underneath the carports on the north side of the building and along the northwest portion of the survey area. However, abundant vehicles were present at these locations and the ground was saturated from car wash runoff, limiting access. No significant structures were observed in the subsurface at the locations accessible to the GPR unit. All data was viewed in real time.

The geophysical investigation did not record any evidence of metallic USTs at the property within the survey area limits. However, access beneath the carports was limited.

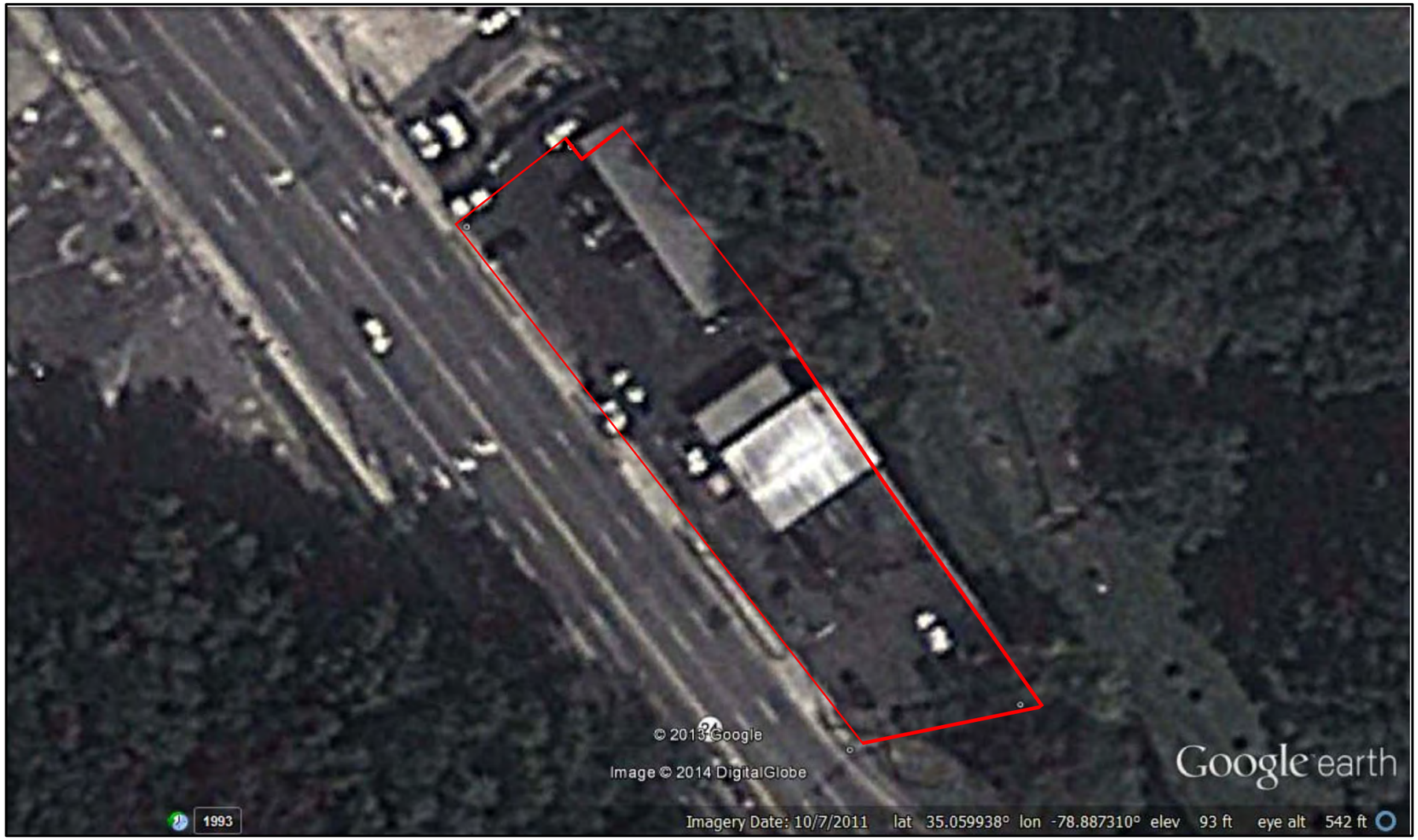
SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across Parcel 044 in Fayetteville, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- The majority of the EM features at the property were suspected to be associated with reinforced concrete, utilities, or visible cultural features.
- Reconnaissance GPR scans verified the presence of reinforced concrete on the south side of the structure. Limited access was available to the GPR underneath the carport areas north of the building. No subsurface structures were observed in the areas that were surveyed.
- The geophysical investigation did not record evidence of any metallic USTs at the property. Access for GPR scans beneath the metal carports was limited.

LIMITATIONS

Geophysical surveys have been performed and this report prepared for the NCDOT in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR surveys are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project have not conclusively determined the definitive presence or absence of metallic USTs, but that the evidence collected is sufficient to result in the conclusions made in this report. Additionally, it should be understood that areas containing extensive vegetation, reinforced concrete, or other restrictions to the accessibility of the geophysical instruments could not be fully investigated.



Approximate Boundaries of the Geophysical Survey Area

View of North Portion of Survey Area
(Facing Approximately South)

View of South Side of Survey Area
(Facing Approximately North)

TITLE	PARCEL 044: GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS
PROJECT	NCDOT PROJECT B-4490 (33727.1.1) FAYETTEVILLE, CUMBERLAND COUNTY, NC

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
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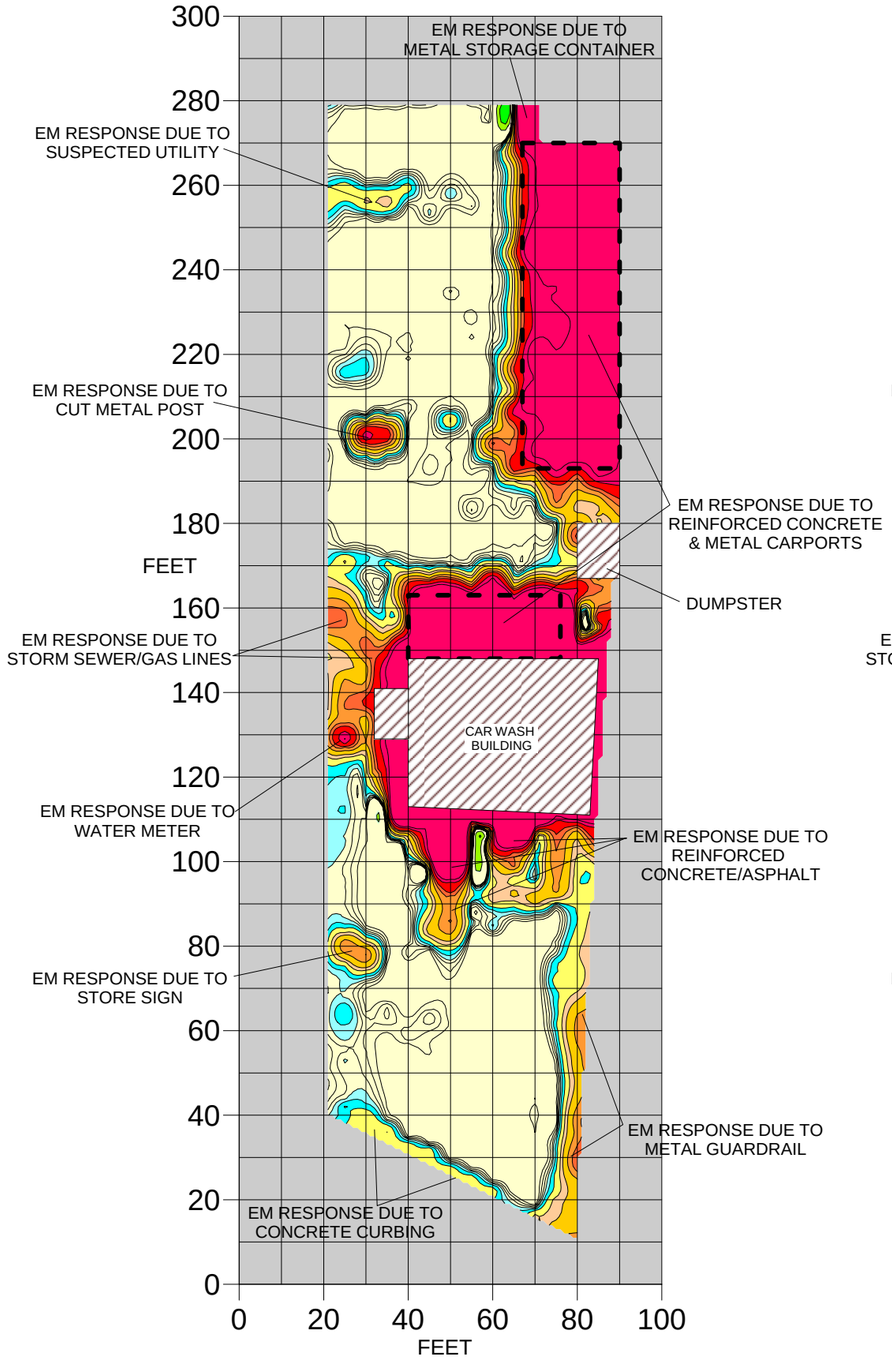
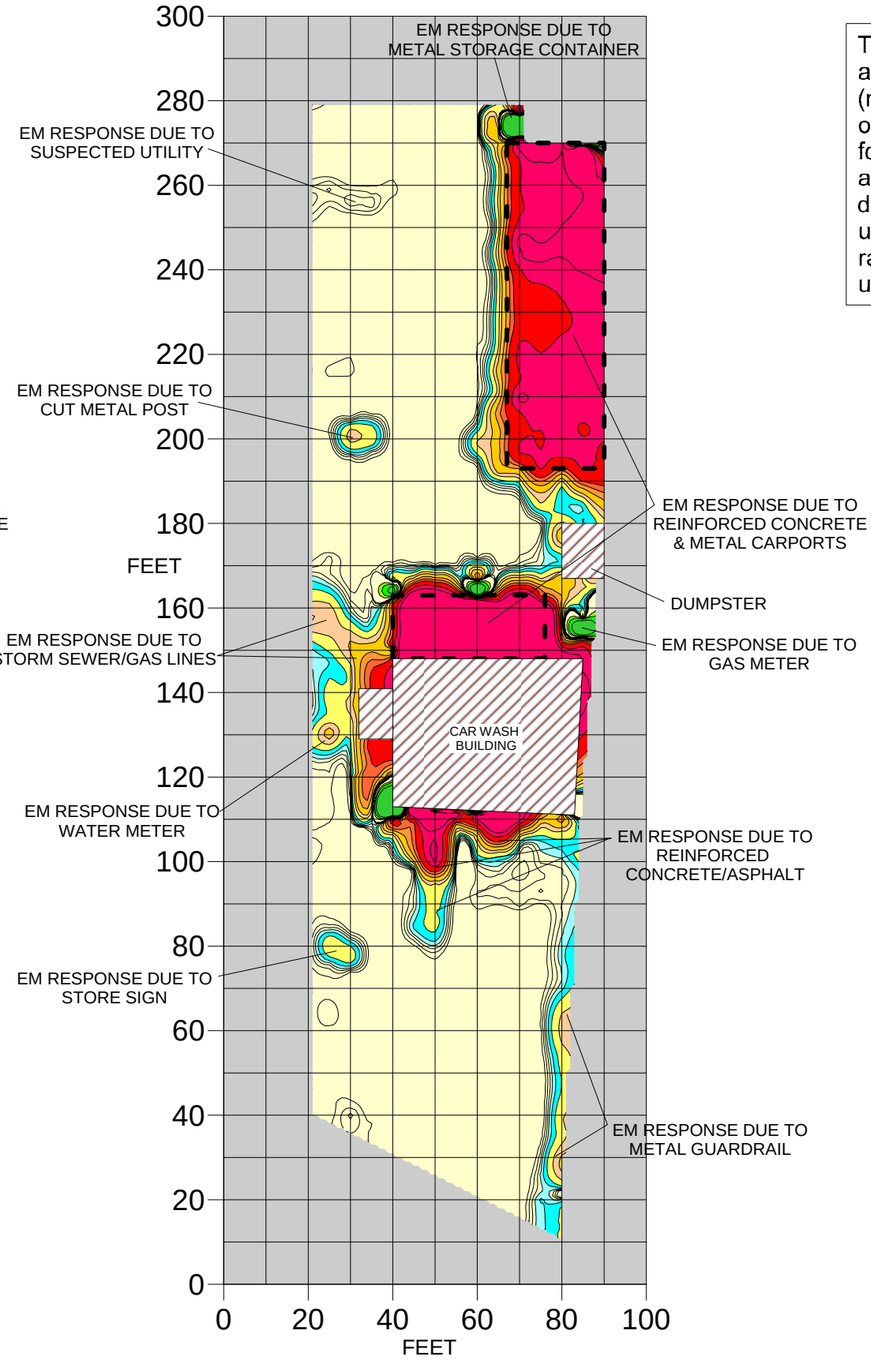
GREENSBORO, NC 27460
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

DATE	2/7/2014	CLIENT	NCDOT
PYRAMID PROJECT #:	2014-008		**FIGURE 1**

EM61 Bottom Coil Results



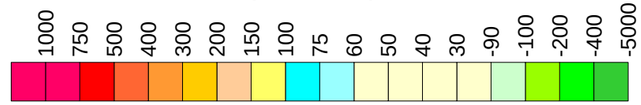
EM61 Differential Results



NO EVIDENCE OF METALLIC USTs OBSERVED

The contour plots show the bottom coil (most sensitive) and differential results of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller miscellaneous buried, metal debris.The EM61 data were collected on January 26, 2013 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were collected on February 4, 2014, using a GSSI SIR 2000 unit coupled to a 400 MHz antennae.

EM61 Metal Detection Response (millivolts)



TITLE: PARCEL 044: EM61 BOTTOM COIL & DIFFERENTIAL RESULTS CONTOUR MAPS

PROJECT: NCDOT PROJECT B-4490 (34437.1.1) FAYETTEVILLE, CUMBERLAND COUNTY, NC

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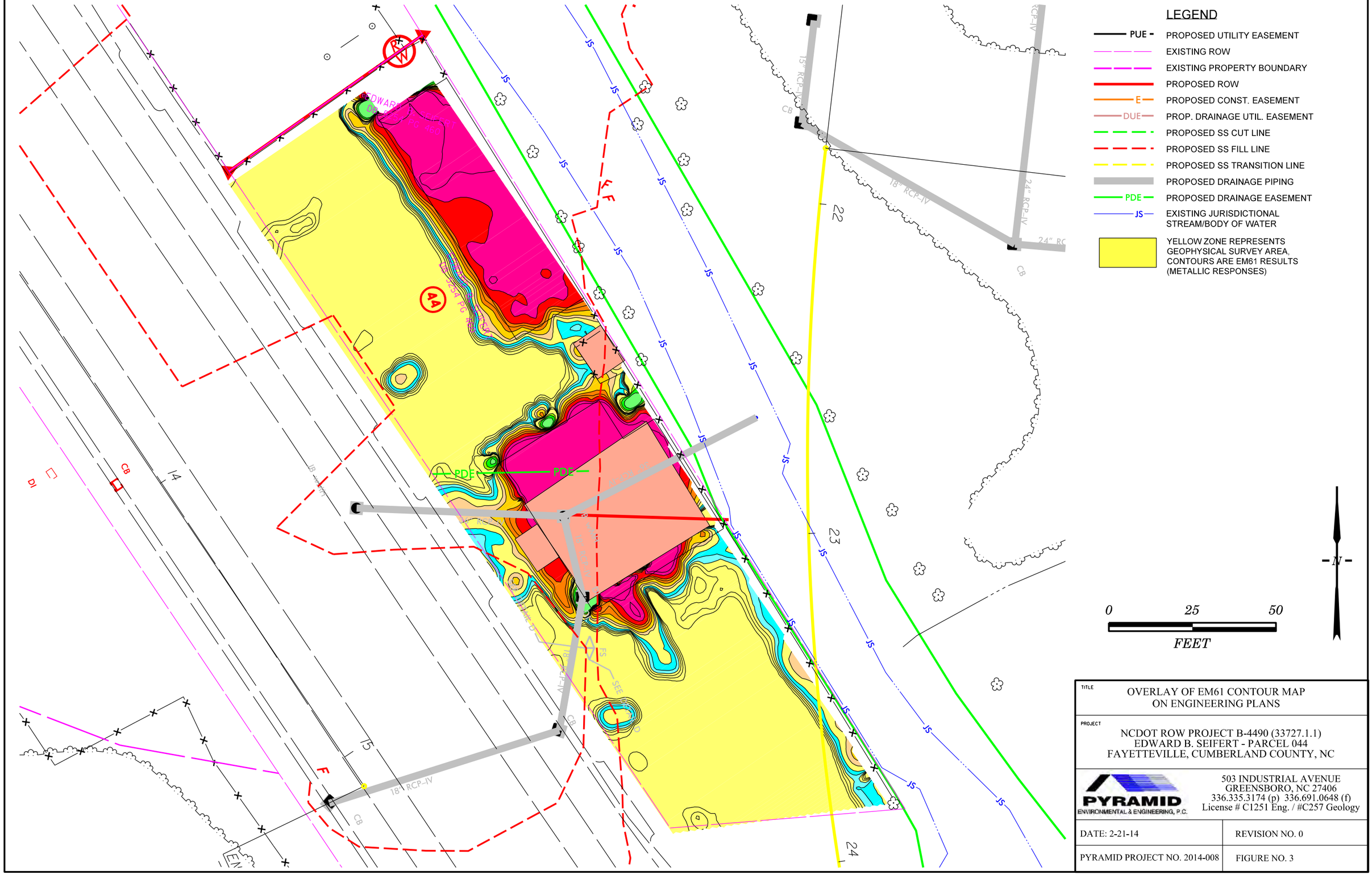
License # C1251 Eng. / License # C257 Geology

DATE: 2/7/2014

CLIENT: NCDOT

PYRAMID PROJECT #: 2014-008

FIGURE 2



TITLE
OVERLAY OF EM61 CONTOUR MAP
ON ENGINEERING PLANS

PROJECT
NCDOT ROW PROJECT B-4490 (33727.1.1)
EDWARD B. SEIFERT - PARCEL 044
FAYETTEVILLE, CUMBERLAND COUNTY, NC

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DATE: 2-21-14	REVISION NO. 0
PYRAMID PROJECT NO. 2014-008	FIGURE NO. 3

APPENDIX C

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: PROJECT NUMBER:	NC DOT B-4490, Parcel 44, Edward B. Seifert, Fayetteville, NC / 2014-008	**BORING/WELL NO:**	44-1(TW)
SITE LOCATION:	Cumberland County, NC	**BORING/WELL LOCATION:**	Parcel 44, Edward B. Seifert, SW corner of building
START DATE:	2/18/14	**COMPLETED:**	2/18/14
GEOLOGIST:	Eric Cross	**DRILLER:**	Solutions-IES
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	1-inch
TOTAL DEPTH:	12 feet	**CASING DEPTH:**	12 feet

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
		Core Sample Depths
1-2'	asphalt to sand (SP); brown, medium grained, no odor	OVA=44-1(1-2): 0 PPM
2-4'	sand (SP) and clayey sand (SC); brown, gray, and black, fine grained,	
	intermixed gravel, slight petroleum odor	OVA=44-1(2-4): 150 PPM
4-6'	sandy silt (ML); dark gray, fine grained, moderate petroleum odor	OVA=44-1(4-6): 700 PPM
6-8'	sandy silty (ML) and muck; dark gray and black, fine grained, no odor	OVA=44-1(6-8): 510 PPM
	Set 1-inch diameter temporary well at 12 feet due to refusal with bottom	
	10 feet of screen	
	Depth to groundwater = 5.65 feet below land surface	

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) 2 DEPTH (ft) 0-2 DIAMETER (in) ___ MATERIAL PVC.
SCREEN LENGTH (ft) 10 DEPTH (ft) 2-12 DIAMETER (in) 1 MATERIAL PVC.
DEPTH TO TOP OF SAND 2 BAGS OF SAND ___.
DEPTH TO TOP SEAL _____ BENTONITE USED .25 BAGS OF CEMENT USED 0.

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: PROJECT NUMBER:	NC DOT B-4490, Parcel 44, Edward B. Seifert, Fayetteville, NC / 2014-008	**BORING/WELL NO:**	44-2
SITE LOCATION:	Cumberland County, NC	**BORING/WELL LOCATION:**	Parcel 44, Edward B. Seifert, north side of south lot
START DATE:	2/18/14	**COMPLETED:**	2/18/14
GEOLOGIST:	Eric Cross	**DRILLER:**	Solutions-IES
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	N/A
TOTAL DEPTH:	8 feet	**CASING DEPTH:**	N/A

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
		Core Sample Depths
0.5-2'	asphalt to sand (SP) and clayey sand (SC); brown and gray, fine to	OVA=44-2(0.5-2): 0 PPM
	medium grained with pebbles, no odor	
2-4'	clayey sand (SC) to sandy clay (CL); gray, fine grained, no odor	OVA=44-2(2-4): 15 PPM
4-6'	clayey sand (SC) to sand (SP); gray to black, fine grained, no odor	OVA=44-2(4-6): 520 PPM
6-8'	silty sand (SM); black and gray, fine to medium grained, wet, no odor	OVA=44-2(6-8): 380 PPM

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
SCREEN LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
DEPTH TO TOP OF SAND _____ BAGS OF SAND ___.
DEPTH TO TOP SEAL _____ BENTONITE USED _____ BAGS OF CEMENT USED 0 .

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: PROJECT NUMBER:	NC DOT B-4490, Parcel 44, Edward B. Seifert, Fayetteville, NC / 2014-008	**BORING/WELL NO:**	44-3
SITE LOCATION:	Cumberland County, NC	**BORING/WELL LOCATION:**	Parcel 44, Edward B. Seifert, south side of south lot
START DATE:	2/18/14	**COMPLETED:**	2/18/14
GEOLOGIST:	Eric Cross	**DRILLER:**	Solutions-IES
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	N/A
TOTAL DEPTH:	8 feet	**CASING DEPTH:**	N/A

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
		Core Sample Depths
0.5-2'	asphalt to sand (SP) and clayey sand (SC); brown to grayish brown,	OVA=44-3(0.5-2): 0 PPM
	fine grained, some pebbles, no odor	
2-4'	clayey sand (SC) to sandy clay (CL); grayish brown, fine grained, no odor	OVA=44-3(2-4): 0 PPM
5-6'	sand (SP); gray, fine grained, pebbles, no odor	OVA=44-3(5-6): 950 PPM
6-8'	sand (SP); gray, fine grained, pebbles, organic debris, no odor, wet	OVA=44-3(6-8): 190 PPM

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
SCREEN LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
DEPTH TO TOP OF SAND _____ BAGS OF SAND ___.
DEPTH TO TOP SEAL _____ BENTONITE USED _____ BAGS OF CEMENT USED 0 .

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: PROJECT NUMBER:	NC DOT B-4490, Parcel 44, Edward B. Seifert, Fayetteville, NC / 2014-008	**BORING/WELL NO:**	44-4
SITE LOCATION:	Cumberland County, NC	**BORING/WELL LOCATION:**	Parcel 44, Edward B. Seifert, north side of building
START DATE:	2/18/14	**COMPLETED:**	2/18/14
GEOLOGIST:	Eric Cross	**DRILLER:**	Solutions-IES
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	N/A
TOTAL DEPTH:	8 feet	**CASING DEPTH:**	N/A

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
		Core Sample Depths
0.5-2'	asphalt to clayey sand (SC); orange brown, fine grained, pebbles,	OVA=44-4(0.5-2): 0 PPM
	no odor	
2-4'	sandy clay (CL) to sand (SP); orange brown to gray, fine grained, no odor	OVA=44-4(2-4): 0 PPM
4-6'	clayey sand (SC) and sand (CP); gray and brown, fine grained, no odor	OVA=44-4(4-6): 590 PPM
6-8'	sand (SP); gray, fine grained, no odor, wet	OVA=44-4(6-8): 680 PPM

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
SCREEN LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
DEPTH TO TOP OF SAND _____ BAGS OF SAND ___.
DEPTH TO TOP SEAL _____ BENTONITE USED _____ BAGS OF CEMENT USED 0.

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: PROJECT NUMBER:	NC DOT B-4490, Parcel 44, Edward B. Seifert, Fayetteville, NC / 2014-008	**BORING/WELL NO:**	44-5
SITE LOCATION:	Cumberland County, NC	**BORING/WELL LOCATION:**	Parcel 44, Edward B. Seifert, north portion of parcel
START DATE:	2/18/14	**COMPLETED:**	2/18/14
GEOLOGIST:	Eric Cross	**DRILLER:**	Solutions-IES
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	N/A
TOTAL DEPTH:	8 feet	**CASING DEPTH:**	N/A

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
		Core Sample Depths
2-4'	clayey sand (SC); brown, fine grained, no odor	OVA=44-5(2-4): 0 PPM
4-6'	sand (SP) to clayey sand (SC); gray and brown, fine grained, no odor	OVA=44-5(4-6): 550 PPM
6-8'	clayey sand (SC); gray, fine grained, wet, no odor	OVA=44-5(6-8): 150 PPM

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
SCREEN LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
DEPTH TO TOP OF SAND _____ BAGS OF SAND ___.
DEPTH TO TOP SEAL _____ BENTONITE USED _____ BAGS OF CEMENT USED 0.

APPENDIX D

Hydrocarbon Analysis Results

Client: NCDOT Cumberland County - Parcel 044
Address: 500 Bragg Blvd. - Parcel 044
Fayetteville, NC

Samples taken Six (6) Samples Taken
Samples extracted Six (6) Samples Extracted
Samples analysed Six (6) Samples Analysed

Contact:

Operator Ryan Kramer

Project: NCDOT Cumberland County B-4490

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	44-1(2-4)	24.0	<0.2	<0.2	52.8	52.8	49.9	2.8	0.31	16.9	38.9	44.2	V.Deg.PHC 47.3%
s	44-1(4-6)	23.0	<0.2	<0.2	43.5	43.5	39.7	2.3	0.027	35.3	50.3	14.4	V.Deg.PHC 93.1%
s	44-2(4-6)	24.0	<0.2	<0.2	23.6	23.6	17.6	0.88	<0.01	22.3	58.1	19.6	V.Deg.PHC 92.9%
s	44-3(5-6)	25.0	<0.2	<0.2	70.4	70.4	54.1	2.5	0.049	16.3	55.1	28.6	V.Deg.PHC 71.2%
s	44-4(4-6)	24.0	<0.2	<0.2	7.6	7.6	5.9	0.25	0.016	36.8	39.3	23.8	V.Deg.PHC 84.6%
s	44-5(4-6)	26.0	<0.3	<0.3	6.2	6.2	4.8	0.22	0.018	35	35.7	29.3	V.Deg.PHC 75.7%

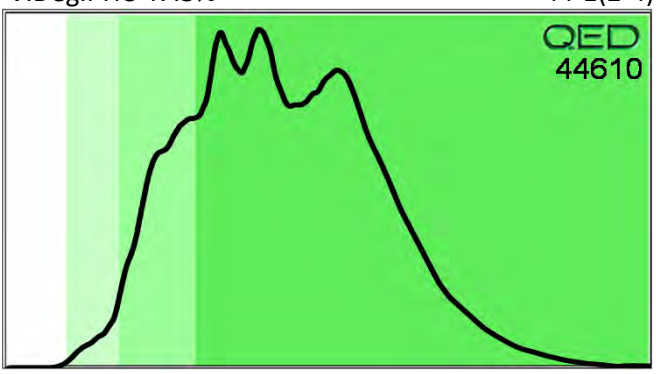
Initial Calibrator QC check OK

Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content

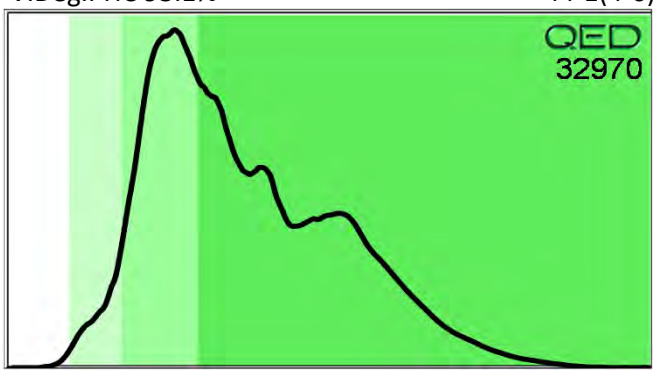
Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library

(SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present

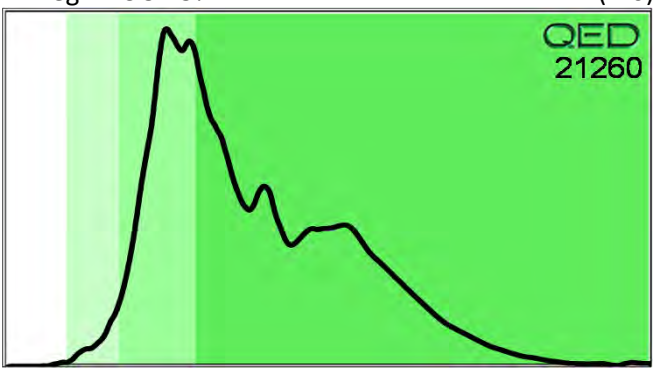
V.Deg.PHC 47.3% 44-1(2-4)



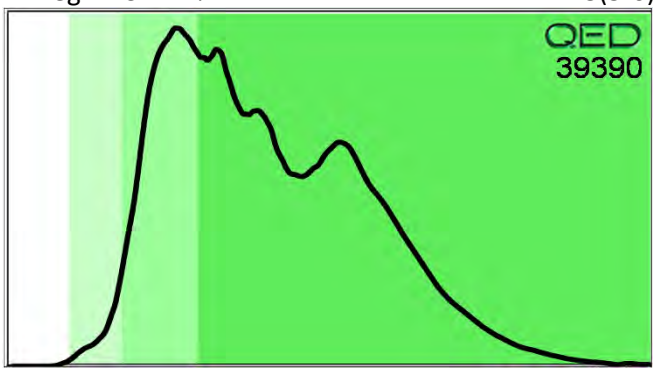
V.Deg.PHC 93.1% 44-1(4-6)



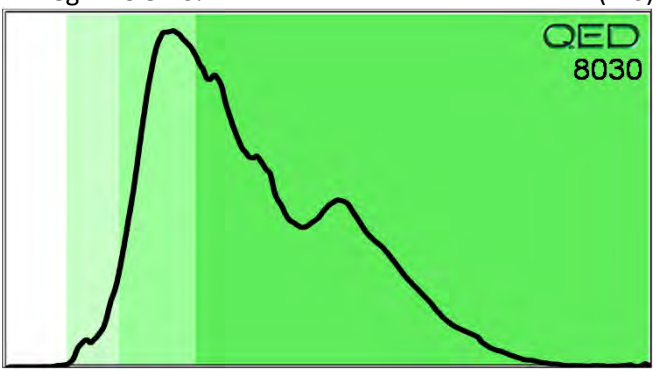
V.Deg.PHC 92.9% 44-2(4-6)



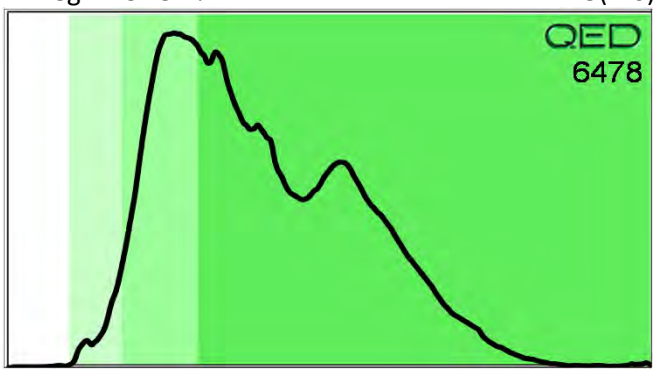
V.Deg.PHC 71.2% 44-3(5-6)



V.Deg.PHC 84.6% 44-4(4-6)



V.Deg.PHC 75.7% 44-5(4-6)



Parcel 44

CHAIN-OF-CUSTODY / Analytical Request Document - QROS / QED

Page: 1 of 1

Pyramid Environmental & Engineering, P.C.

Company:
Pyramid Environmental & Engineering, P.C.
Address: 503 Industrial Ave.
Greensboro, NC 27406

Purchase Order No.:
Project Name: NCDOT Cumberland Cty Parcel 44
Project Number:

	ITEM	SAMPLE ID	Matrix	C=Comp. G=Grab	COLLECTED Date	COLLECTED Time	Containers	Un-preserved	Methanol	Requested Analysis GRO	DRO	TPH
*	1	44-1 (2-4)	Soil	G	2/18/14	10:15	1	11 g	20 mL	<0.2	52.8	52.8
	2	44-1 (4-6)	Soil	G	2/18/14	11:30	1	11.1 g	20 mL	<0.2	43.5	43.5
*	3	44-2 (4-6)	Soil	G	2/18/14	11:40	1	11.0 g	20 mL	<0.2	23.6	23.6
	4	44-3 (5-6)	Soil	G	2/18/14	11:50	1	10.6 g	20 mL	<0.2	70.4	70.4
*	5	44-4 (4-6)	Soil	G	2/18/14	12:00	1	10.8 g	20 mL	<0.2	7.6	7.6
	6	44-5 (4-6)	Soil	G	2/18/14	12:15	1	10.1 g	20 mL	<0.3	6.2	6.2

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time

SAMPLER NAME AND SIGNATURE

Print Name of Sampler: Ryan Kramer
Signature of Sampler: Ryan Kramer
Date Signed: 2/18/14

* 8260 & 8270

APPENDIX E

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

March 04, 2014

Chemical Testing Engineer
Materials and Tests Unit
1801 Blue Ridge Road
Raleigh, NC 27607

RE: Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Dear Chemical Engineer:
Enclosed are the analytical results for sample(s) received by the laboratory on February 20, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jon D Bradley
jon.bradley@pacelabs.com
Project Manager

Enclosures

cc: Tim Leatherman, Pyramid Environmental

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Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-1 (4-6) **Lab ID: 92190447001** Collected: 02/18/14 11:30 Received: 02/20/14 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	83-32-9	
Acenaphthylene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	208-96-8	
Aniline	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	62-53-3	
Anthracene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	120-12-7	
Benzo(a)anthracene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	56-55-3	
Benzo(a)pyrene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	207-08-9	
Benzoic Acid	ND	ug/kg	1930	1	02/20/14 16:05	02/27/14 10:28	65-85-0	
Benzyl alcohol	ND	ug/kg	770	1	02/20/14 16:05	02/27/14 10:28	100-51-6	
4-Bromophenylphenyl ether	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	101-55-3	
Butylbenzylphthalate	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	85-68-7	
4-Chloro-3-methylphenol	ND	ug/kg	770	1	02/20/14 16:05	02/27/14 10:28	59-50-7	
4-Chloroaniline	ND	ug/kg	1930	1	02/20/14 16:05	02/27/14 10:28	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	108-60-1	
2-Chloronaphthalene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	91-58-7	
2-Chlorophenol	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	7005-72-3	
Chrysene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	53-70-3	
Dibenzofuran	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	1930	1	02/20/14 16:05	02/27/14 10:28	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	120-83-2	
Diethylphthalate	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	105-67-9	
Dimethylphthalate	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	131-11-3	
Di-n-butylphthalate	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	770	1	02/20/14 16:05	02/27/14 10:28	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	1930	1	02/20/14 16:05	02/27/14 10:28	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	606-20-2	
Di-n-octylphthalate	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	117-81-7	
Fluoranthene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	206-44-0	
Fluorene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	87-68-3	
Hexachlorobenzene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	118-74-1	
Hexachlorocyclopentadiene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	77-47-4	
Hexachloroethane	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	193-39-5	

REPORT OF LABORATORY ANALYSIS

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-1 (4-6) **Lab ID: 92190447001** Collected: 02/18/14 11:30 Received: 02/20/14 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Isophorone	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	78-59-1	
1-Methylnaphthalene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	90-12-0	
2-Methylnaphthalene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28		
Naphthalene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	91-20-3	
2-Nitroaniline	ND	ug/kg	1930	1	02/20/14 16:05	02/27/14 10:28	88-74-4	
3-Nitroaniline	ND	ug/kg	1930	1	02/20/14 16:05	02/27/14 10:28	99-09-2	
4-Nitroaniline	ND	ug/kg	770	1	02/20/14 16:05	02/27/14 10:28	100-01-6	
Nitrobenzene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	98-95-3	
2-Nitrophenol	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	88-75-5	
4-Nitrophenol	ND	ug/kg	1930	1	02/20/14 16:05	02/27/14 10:28	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	86-30-6	
Pentachlorophenol	ND	ug/kg	1930	1	02/20/14 16:05	02/27/14 10:28	87-86-5	
Phenanthrene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	85-01-8	
Phenol	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	108-95-2	
Pyrene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	95-95-4	
2,4,6-Trichlorophenol	ND	ug/kg	385	1	02/20/14 16:05	02/27/14 10:28	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	62	%	23-110	1	02/20/14 16:05	02/27/14 10:28	4165-60-0	
2-Fluorobiphenyl (S)	60	%	30-110	1	02/20/14 16:05	02/27/14 10:28	321-60-8	
Terphenyl-d14 (S)	74	%	28-110	1	02/20/14 16:05	02/27/14 10:28	1718-51-0	
Phenol-d6 (S)	72	%	22-110	1	02/20/14 16:05	02/27/14 10:28	13127-88-3	
2-Fluorophenol (S)	71	%	13-110	1	02/20/14 16:05	02/27/14 10:28	367-12-4	
2,4,6-Tribromophenol (S)	86	%	27-110	1	02/20/14 16:05	02/27/14 10:28	118-79-6	
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	106	1		02/24/14 22:11	67-64-1	
Benzene	ND	ug/kg	5.3	1		02/24/14 22:11	71-43-2	
Bromobenzene	ND	ug/kg	5.3	1		02/24/14 22:11	108-86-1	
Bromochloromethane	ND	ug/kg	5.3	1		02/24/14 22:11	74-97-5	
Bromodichloromethane	ND	ug/kg	5.3	1		02/24/14 22:11	75-27-4	
Bromoform	ND	ug/kg	5.3	1		02/24/14 22:11	75-25-2	
Bromomethane	ND	ug/kg	10.6	1		02/24/14 22:11	74-83-9	
2-Butanone (MEK)	ND	ug/kg	106	1		02/24/14 22:11	78-93-3	
n-Butylbenzene	ND	ug/kg	5.3	1		02/24/14 22:11	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.3	1		02/24/14 22:11	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.3	1		02/24/14 22:11	98-06-6	
Carbon tetrachloride	ND	ug/kg	5.3	1		02/24/14 22:11	56-23-5	
Chlorobenzene	ND	ug/kg	5.3	1		02/24/14 22:11	108-90-7	
Chloroethane	ND	ug/kg	10.6	1		02/24/14 22:11	75-00-3	
Chloroform	ND	ug/kg	5.3	1		02/24/14 22:11	67-66-3	

REPORT OF LABORATORY ANALYSIS

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-1 (4-6) **Lab ID: 92190447001** Collected: 02/18/14 11:30 Received: 02/20/14 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Chloromethane	ND	ug/kg	10.6	1		02/24/14 22:11	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.3	1		02/24/14 22:11	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.3	1		02/24/14 22:11	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.3	1		02/24/14 22:11	96-12-8	
Dibromochloromethane	ND	ug/kg	5.3	1		02/24/14 22:11	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.3	1		02/24/14 22:11	106-93-4	
Dibromomethane	ND	ug/kg	5.3	1		02/24/14 22:11	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.3	1		02/24/14 22:11	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.3	1		02/24/14 22:11	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.3	1		02/24/14 22:11	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	10.6	1		02/24/14 22:11	75-71-8	1g
1,1-Dichloroethane	ND	ug/kg	5.3	1		02/24/14 22:11	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.3	1		02/24/14 22:11	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.3	1		02/24/14 22:11	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.3	1		02/24/14 22:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.3	1		02/24/14 22:11	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.3	1		02/24/14 22:11	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.3	1		02/24/14 22:11	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.3	1		02/24/14 22:11	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.3	1		02/24/14 22:11	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.3	1		02/24/14 22:11	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.3	1		02/24/14 22:11	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.3	1		02/24/14 22:11	108-20-3	
Ethylbenzene	ND	ug/kg	5.3	1		02/24/14 22:11	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.3	1		02/24/14 22:11	87-68-3	
2-Hexanone	ND	ug/kg	52.9	1		02/24/14 22:11	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.3	1		02/24/14 22:11	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.3	1		02/24/14 22:11	99-87-6	
Methylene Chloride	ND	ug/kg	21.1	1		02/24/14 22:11	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	52.9	1		02/24/14 22:11	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.3	1		02/24/14 22:11	1634-04-4	
Naphthalene	ND	ug/kg	5.3	1		02/24/14 22:11	91-20-3	
n-Propylbenzene	ND	ug/kg	5.3	1		02/24/14 22:11	103-65-1	
Styrene	ND	ug/kg	5.3	1		02/24/14 22:11	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.3	1		02/24/14 22:11	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.3	1		02/24/14 22:11	79-34-5	
Tetrachloroethene	ND	ug/kg	5.3	1		02/24/14 22:11	127-18-4	
Toluene	ND	ug/kg	5.3	1		02/24/14 22:11	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.3	1		02/24/14 22:11	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.3	1		02/24/14 22:11	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.3	1		02/24/14 22:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.3	1		02/24/14 22:11	79-00-5	
Trichloroethene	ND	ug/kg	5.3	1		02/24/14 22:11	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.3	1		02/24/14 22:11	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.3	1		02/24/14 22:11	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.3	1		02/24/14 22:11	95-63-6	

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(704)875-9092

ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-1 (4-6) **Lab ID: 92190447001** Collected: 02/18/14 11:30 Received: 02/20/14 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
1,3,5-Trimethylbenzene	ND	ug/kg	5.3	1		02/24/14 22:11	108-67-8	
Vinyl acetate	ND	ug/kg	52.9	1		02/24/14 22:11	108-05-4	
Vinyl chloride	ND	ug/kg	10.6	1		02/24/14 22:11	75-01-4	
Xylene (Total)	ND	ug/kg	10.6	1		02/24/14 22:11	1330-20-7	
m&p-Xylene	ND	ug/kg	10.6	1		02/24/14 22:11	179601-23-1	
o-Xylene	ND	ug/kg	5.3	1		02/24/14 22:11	95-47-6	
Surrogates								
Toluene-d8 (S)	119	%	70-130	1		02/24/14 22:11	2037-26-5	
4-Bromofluorobenzene (S)	82	%	70-130	1		02/24/14 22:11	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	70-132	1		02/24/14 22:11	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**14.3**	%	0.10	1		03/03/14 19:05		

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-3 (5-6) **Lab ID: 92190447002** Collected: 02/18/14 12:40 Received: 02/20/14 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	83-32-9	
Acenaphthylene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	208-96-8	
Aniline	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	62-53-3	
Anthracene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	120-12-7	
Benzo(a)anthracene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	56-55-3	
Benzo(a)pyrene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	207-08-9	
Benzoic Acid	ND	ug/kg	1860	1	02/20/14 16:05	02/27/14 10:55	65-85-0	
Benzyl alcohol	ND	ug/kg	746	1	02/20/14 16:05	02/27/14 10:55	100-51-6	
4-Bromophenylphenyl ether	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	101-55-3	
Butylbenzylphthalate	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	85-68-7	
4-Chloro-3-methylphenol	ND	ug/kg	746	1	02/20/14 16:05	02/27/14 10:55	59-50-7	
4-Chloroaniline	ND	ug/kg	1860	1	02/20/14 16:05	02/27/14 10:55	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	108-60-1	
2-Chloronaphthalene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	91-58-7	
2-Chlorophenol	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	7005-72-3	
Chrysene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	53-70-3	
Dibenzofuran	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	1860	1	02/20/14 16:05	02/27/14 10:55	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	120-83-2	
Diethylphthalate	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	105-67-9	
Dimethylphthalate	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	131-11-3	
Di-n-butylphthalate	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	746	1	02/20/14 16:05	02/27/14 10:55	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	1860	1	02/20/14 16:05	02/27/14 10:55	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	606-20-2	
Di-n-octylphthalate	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	117-81-7	
Fluoranthene	**874**	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	206-44-0	
Fluorene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	87-68-3	
Hexachlorobenzene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	118-74-1	
Hexachlorocyclopentadiene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	77-47-4	
Hexachloroethane	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	193-39-5	

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-3 (5-6) **Lab ID: 92190447002** Collected: 02/18/14 12:40 Received: 02/20/14 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Isophorone	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	78-59-1	
1-Methylnaphthalene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	90-12-0	
2-Methylnaphthalene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55		
Naphthalene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	91-20-3	
2-Nitroaniline	ND	ug/kg	1860	1	02/20/14 16:05	02/27/14 10:55	88-74-4	
3-Nitroaniline	ND	ug/kg	1860	1	02/20/14 16:05	02/27/14 10:55	99-09-2	
4-Nitroaniline	ND	ug/kg	746	1	02/20/14 16:05	02/27/14 10:55	100-01-6	
Nitrobenzene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	98-95-3	
2-Nitrophenol	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	88-75-5	
4-Nitrophenol	ND	ug/kg	1860	1	02/20/14 16:05	02/27/14 10:55	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	86-30-6	
Pentachlorophenol	ND	ug/kg	1860	1	02/20/14 16:05	02/27/14 10:55	87-86-5	
Phenanthrene	**643**	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	85-01-8	
Phenol	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	108-95-2	
Pyrene	**651**	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	95-95-4	
2,4,6-Trichlorophenol	ND	ug/kg	373	1	02/20/14 16:05	02/27/14 10:55	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	57	%	23-110	1	02/20/14 16:05	02/27/14 10:55	4165-60-0	
2-Fluorobiphenyl (S)	58	%	30-110	1	02/20/14 16:05	02/27/14 10:55	321-60-8	
Terphenyl-d14 (S)	68	%	28-110	1	02/20/14 16:05	02/27/14 10:55	1718-51-0	
Phenol-d6 (S)	71	%	22-110	1	02/20/14 16:05	02/27/14 10:55	13127-88-3	
2-Fluorophenol (S)	65	%	13-110	1	02/20/14 16:05	02/27/14 10:55	367-12-4	
2,4,6-Tribromophenol (S)	79	%	27-110	1	02/20/14 16:05	02/27/14 10:55	118-79-6	
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	93.2	1		02/24/14 22:30	67-64-1	
Benzene	ND	ug/kg	4.7	1		02/24/14 22:30	71-43-2	
Bromobenzene	ND	ug/kg	4.7	1		02/24/14 22:30	108-86-1	
Bromochloromethane	ND	ug/kg	4.7	1		02/24/14 22:30	74-97-5	
Bromodichloromethane	ND	ug/kg	4.7	1		02/24/14 22:30	75-27-4	
Bromoform	ND	ug/kg	4.7	1		02/24/14 22:30	75-25-2	
Bromomethane	ND	ug/kg	9.3	1		02/24/14 22:30	74-83-9	
2-Butanone (MEK)	ND	ug/kg	93.2	1		02/24/14 22:30	78-93-3	
n-Butylbenzene	ND	ug/kg	4.7	1		02/24/14 22:30	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.7	1		02/24/14 22:30	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.7	1		02/24/14 22:30	98-06-6	
Carbon tetrachloride	ND	ug/kg	4.7	1		02/24/14 22:30	56-23-5	
Chlorobenzene	ND	ug/kg	4.7	1		02/24/14 22:30	108-90-7	
Chloroethane	ND	ug/kg	9.3	1		02/24/14 22:30	75-00-3	
Chloroform	ND	ug/kg	4.7	1		02/24/14 22:30	67-66-3	

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-3 (5-6) **Lab ID: 92190447002** Collected: 02/18/14 12:40 Received: 02/20/14 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Chloromethane	ND	ug/kg	9.3	1		02/24/14 22:30	74-87-3	
2-Chlorotoluene	ND	ug/kg	4.7	1		02/24/14 22:30	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.7	1		02/24/14 22:30	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.7	1		02/24/14 22:30	96-12-8	
Dibromochloromethane	ND	ug/kg	4.7	1		02/24/14 22:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.7	1		02/24/14 22:30	106-93-4	
Dibromomethane	ND	ug/kg	4.7	1		02/24/14 22:30	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.7	1		02/24/14 22:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.7	1		02/24/14 22:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.7	1		02/24/14 22:30	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	9.3	1		02/24/14 22:30	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.7	1		02/24/14 22:30	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.7	1		02/24/14 22:30	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.7	1		02/24/14 22:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.7	1		02/24/14 22:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.7	1		02/24/14 22:30	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.7	1		02/24/14 22:30	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.7	1		02/24/14 22:30	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.7	1		02/24/14 22:30	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.7	1		02/24/14 22:30	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.7	1		02/24/14 22:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.7	1		02/24/14 22:30	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.7	1		02/24/14 22:30	108-20-3	
Ethylbenzene	ND	ug/kg	4.7	1		02/24/14 22:30	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	4.7	1		02/24/14 22:30	87-68-3	
2-Hexanone	ND	ug/kg	46.6	1		02/24/14 22:30	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.7	1		02/24/14 22:30	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.7	1		02/24/14 22:30	99-87-6	
Methylene Chloride	ND	ug/kg	18.6	1		02/24/14 22:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	46.6	1		02/24/14 22:30	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.7	1		02/24/14 22:30	1634-04-4	
Naphthalene	ND	ug/kg	4.7	1		02/24/14 22:30	91-20-3	
n-Propylbenzene	ND	ug/kg	4.7	1		02/24/14 22:30	103-65-1	
Styrene	ND	ug/kg	4.7	1		02/24/14 22:30	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.7	1		02/24/14 22:30	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.7	1		02/24/14 22:30	79-34-5	
Tetrachloroethene	ND	ug/kg	4.7	1		02/24/14 22:30	127-18-4	
Toluene	ND	ug/kg	4.7	1		02/24/14 22:30	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.7	1		02/24/14 22:30	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.7	1		02/24/14 22:30	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.7	1		02/24/14 22:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.7	1		02/24/14 22:30	79-00-5	
Trichloroethene	ND	ug/kg	4.7	1		02/24/14 22:30	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.7	1		02/24/14 22:30	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.7	1		02/24/14 22:30	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.7	1		02/24/14 22:30	95-63-6	

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-3 (5-6) **Lab ID: 92190447002** Collected: 02/18/14 12:40 Received: 02/20/14 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
1,3,5-Trimethylbenzene	ND	ug/kg	4.7	1		02/24/14 22:30	108-67-8	
Vinyl acetate	ND	ug/kg	46.6	1		02/24/14 22:30	108-05-4	
Vinyl chloride	ND	ug/kg	9.3	1		02/24/14 22:30	75-01-4	
Xylene (Total)	ND	ug/kg	9.3	1		02/24/14 22:30	1330-20-7	
m&p-Xylene	ND	ug/kg	9.3	1		02/24/14 22:30	179601-23-1	
o-Xylene	ND	ug/kg	4.7	1		02/24/14 22:30	95-47-6	
Surrogates								
Toluene-d8 (S)	109	%	70-130	1		02/24/14 22:30	2037-26-5	
4-Bromofluorobenzene (S)	82	%	70-130	1		02/24/14 22:30	460-00-4	
1,2-Dichloroethane-d4 (S)	86	%	70-132	1		02/24/14 22:30	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**11.5**	%	0.10	1		03/03/14 19:05		

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-5 (4-6) **Lab ID: 92190447003** Collected: 02/18/14 12:50 Received: 02/20/14 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	83-32-9	
Acenaphthylene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	208-96-8	
Aniline	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	62-53-3	
Anthracene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	120-12-7	
Benzo(a)anthracene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	56-55-3	
Benzo(a)pyrene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	207-08-9	
Benzoic Acid	ND	ug/kg	1920	1	02/20/14 16:05	02/27/14 11:22	65-85-0	
Benzyl alcohol	ND	ug/kg	768	1	02/20/14 16:05	02/27/14 11:22	100-51-6	
4-Bromophenylphenyl ether	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	101-55-3	
Butylbenzylphthalate	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	85-68-7	
4-Chloro-3-methylphenol	ND	ug/kg	768	1	02/20/14 16:05	02/27/14 11:22	59-50-7	
4-Chloroaniline	ND	ug/kg	1920	1	02/20/14 16:05	02/27/14 11:22	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	108-60-1	
2-Chloronaphthalene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	91-58-7	
2-Chlorophenol	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	7005-72-3	
Chrysene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	53-70-3	
Dibenzofuran	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	1920	1	02/20/14 16:05	02/27/14 11:22	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	120-83-2	
Diethylphthalate	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	105-67-9	
Dimethylphthalate	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	131-11-3	
Di-n-butylphthalate	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	768	1	02/20/14 16:05	02/27/14 11:22	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	1920	1	02/20/14 16:05	02/27/14 11:22	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	606-20-2	
Di-n-octylphthalate	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	117-81-7	
Fluoranthene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	206-44-0	
Fluorene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	87-68-3	
Hexachlorobenzene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	118-74-1	
Hexachlorocyclopentadiene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	77-47-4	
Hexachloroethane	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	193-39-5	

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-5 (4-6) **Lab ID: 92190447003** Collected: 02/18/14 12:50 Received: 02/20/14 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Isophorone	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	78-59-1	
1-Methylnaphthalene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	90-12-0	
2-Methylnaphthalene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22		
Naphthalene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	91-20-3	
2-Nitroaniline	ND	ug/kg	1920	1	02/20/14 16:05	02/27/14 11:22	88-74-4	
3-Nitroaniline	ND	ug/kg	1920	1	02/20/14 16:05	02/27/14 11:22	99-09-2	
4-Nitroaniline	ND	ug/kg	768	1	02/20/14 16:05	02/27/14 11:22	100-01-6	
Nitrobenzene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	98-95-3	
2-Nitrophenol	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	88-75-5	
4-Nitrophenol	ND	ug/kg	1920	1	02/20/14 16:05	02/27/14 11:22	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	86-30-6	
Pentachlorophenol	ND	ug/kg	1920	1	02/20/14 16:05	02/27/14 11:22	87-86-5	
Phenanthrene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	85-01-8	
Phenol	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	108-95-2	
Pyrene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	95-95-4	
2,4,6-Trichlorophenol	ND	ug/kg	384	1	02/20/14 16:05	02/27/14 11:22	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	60	%	23-110	1	02/20/14 16:05	02/27/14 11:22	4165-60-0	
2-Fluorobiphenyl (S)	60	%	30-110	1	02/20/14 16:05	02/27/14 11:22	321-60-8	
Terphenyl-d14 (S)	84	%	28-110	1	02/20/14 16:05	02/27/14 11:22	1718-51-0	
Phenol-d6 (S)	68	%	22-110	1	02/20/14 16:05	02/27/14 11:22	13127-88-3	
2-Fluorophenol (S)	68	%	13-110	1	02/20/14 16:05	02/27/14 11:22	367-12-4	
2,4,6-Tribromophenol (S)	87	%	27-110	1	02/20/14 16:05	02/27/14 11:22	118-79-6	
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	93.8	1		02/24/14 22:50	67-64-1	
Benzene	ND	ug/kg	4.7	1		02/24/14 22:50	71-43-2	
Bromobenzene	ND	ug/kg	4.7	1		02/24/14 22:50	108-86-1	
Bromochloromethane	ND	ug/kg	4.7	1		02/24/14 22:50	74-97-5	
Bromodichloromethane	ND	ug/kg	4.7	1		02/24/14 22:50	75-27-4	
Bromoform	ND	ug/kg	4.7	1		02/24/14 22:50	75-25-2	
Bromomethane	ND	ug/kg	9.4	1		02/24/14 22:50	74-83-9	
2-Butanone (MEK)	ND	ug/kg	93.8	1		02/24/14 22:50	78-93-3	
n-Butylbenzene	ND	ug/kg	4.7	1		02/24/14 22:50	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.7	1		02/24/14 22:50	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.7	1		02/24/14 22:50	98-06-6	
Carbon tetrachloride	ND	ug/kg	4.7	1		02/24/14 22:50	56-23-5	
Chlorobenzene	ND	ug/kg	4.7	1		02/24/14 22:50	108-90-7	
Chloroethane	ND	ug/kg	9.4	1		02/24/14 22:50	75-00-3	
Chloroform	ND	ug/kg	4.7	1		02/24/14 22:50	67-66-3	

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-5 (4-6) **Lab ID: 92190447003** Collected: 02/18/14 12:50 Received: 02/20/14 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Chloromethane	ND	ug/kg	9.4	1		02/24/14 22:50	74-87-3	
2-Chlorotoluene	ND	ug/kg	4.7	1		02/24/14 22:50	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.7	1		02/24/14 22:50	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.7	1		02/24/14 22:50	96-12-8	
Dibromochloromethane	ND	ug/kg	4.7	1		02/24/14 22:50	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.7	1		02/24/14 22:50	106-93-4	
Dibromomethane	ND	ug/kg	4.7	1		02/24/14 22:50	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.7	1		02/24/14 22:50	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.7	1		02/24/14 22:50	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.7	1		02/24/14 22:50	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	9.4	1		02/24/14 22:50	75-71-8	1g
1,1-Dichloroethane	ND	ug/kg	4.7	1		02/24/14 22:50	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.7	1		02/24/14 22:50	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.7	1		02/24/14 22:50	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.7	1		02/24/14 22:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.7	1		02/24/14 22:50	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.7	1		02/24/14 22:50	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.7	1		02/24/14 22:50	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.7	1		02/24/14 22:50	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.7	1		02/24/14 22:50	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.7	1		02/24/14 22:50	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.7	1		02/24/14 22:50	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.7	1		02/24/14 22:50	108-20-3	
Ethylbenzene	ND	ug/kg	4.7	1		02/24/14 22:50	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	4.7	1		02/24/14 22:50	87-68-3	
2-Hexanone	ND	ug/kg	46.9	1		02/24/14 22:50	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.7	1		02/24/14 22:50	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.7	1		02/24/14 22:50	99-87-6	
Methylene Chloride	ND	ug/kg	18.8	1		02/24/14 22:50	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	46.9	1		02/24/14 22:50	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.7	1		02/24/14 22:50	1634-04-4	
Naphthalene	ND	ug/kg	4.7	1		02/24/14 22:50	91-20-3	
n-Propylbenzene	ND	ug/kg	4.7	1		02/24/14 22:50	103-65-1	
Styrene	ND	ug/kg	4.7	1		02/24/14 22:50	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.7	1		02/24/14 22:50	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.7	1		02/24/14 22:50	79-34-5	
Tetrachloroethene	ND	ug/kg	4.7	1		02/24/14 22:50	127-18-4	
Toluene	ND	ug/kg	4.7	1		02/24/14 22:50	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.7	1		02/24/14 22:50	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.7	1		02/24/14 22:50	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.7	1		02/24/14 22:50	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.7	1		02/24/14 22:50	79-00-5	
Trichloroethene	ND	ug/kg	4.7	1		02/24/14 22:50	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.7	1		02/24/14 22:50	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.7	1		02/24/14 22:50	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.7	1		02/24/14 22:50	95-63-6	

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-5 (4-6) **Lab ID: 92190447003** Collected: 02/18/14 12:50 Received: 02/20/14 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
1,3,5-Trimethylbenzene	ND	ug/kg	4.7	1		02/24/14 22:50	108-67-8	
Vinyl acetate	ND	ug/kg	46.9	1		02/24/14 22:50	108-05-4	
Vinyl chloride	ND	ug/kg	9.4	1		02/24/14 22:50	75-01-4	
Xylene (Total)	ND	ug/kg	9.4	1		02/24/14 22:50	1330-20-7	
m&p-Xylene	ND	ug/kg	9.4	1		02/24/14 22:50	179601-23-1	
o-Xylene	ND	ug/kg	4.7	1		02/24/14 22:50	95-47-6	
Surrogates								
Toluene-d8 (S)	104	%	70-130	1		02/24/14 22:50	2037-26-5	
4-Bromofluorobenzene (S)	81	%	70-130	1		02/24/14 22:50	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-132	1		02/24/14 22:50	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**14.0**	%	0.10	1		03/03/14 19:05		

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-1 (TW) **Lab ID: 92190447004** Collected: 02/18/14 12:30 Received: 02/20/14 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
Acenaphthene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	83-32-9	
Acenaphthylene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	208-96-8	
Anthracene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	120-12-7	
Benzo(a)anthracene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	56-55-3	
Benzo(a)pyrene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	207-08-9	
4-Bromophenylphenyl ether	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	101-55-3	
Butylbenzylphthalate	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	59-50-7	
bis(2-Chloroethoxy)methane	ND	ug/L	10.0	1	02/20/14 13:00	02/28/14 02:31	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	108-60-1	
2-Chloronaphthalene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	91-58-7	
2-Chlorophenol	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	7005-72-3	
Chrysene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	53-70-3	
3,3'-Dichlorobenzidine	ND	ug/L	25.0	1	02/20/14 13:00	02/28/14 02:31	91-94-1	
2,4-Dichlorophenol	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	120-83-2	
Diethylphthalate	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	84-66-2	
2,4-Dimethylphenol	ND	ug/L	10.0	1	02/20/14 13:00	02/28/14 02:31	105-67-9	
Dimethylphthalate	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	131-11-3	
Di-n-butylphthalate	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	20.0	1	02/20/14 13:00	02/28/14 02:31	534-52-1	
2,4-Dinitrophenol	ND	ug/L	50.0	1	02/20/14 13:00	02/28/14 02:31	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	606-20-2	
Di-n-octylphthalate	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	117-81-7	
Fluoranthene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	206-44-0	
Fluorene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	87-68-3	
Hexachlorobenzene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	10.0	1	02/20/14 13:00	02/28/14 02:31	77-47-4	
Hexachloroethane	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	193-39-5	
Isophorone	ND	ug/L	10.0	1	02/20/14 13:00	02/28/14 02:31	78-59-1	
Naphthalene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	91-20-3	
Nitrobenzene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	98-95-3	
2-Nitrophenol	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	88-75-5	
4-Nitrophenol	ND	ug/L	50.0	1	02/20/14 13:00	02/28/14 02:31	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	10.0	1	02/20/14 13:00	02/28/14 02:31	86-30-6	
Pentachlorophenol	ND	ug/L	10.0	1	02/20/14 13:00	02/28/14 02:31	87-86-5	

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-1 (TW) **Lab ID: 92190447004** Collected: 02/18/14 12:30 Received: 02/20/14 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
Phenanthrene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	85-01-8	
Phenol	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	108-95-2	
Pyrene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1	02/20/14 13:00	02/28/14 02:31	120-82-1	
2,4,6-Trichlorophenol	ND	ug/L	10.0	1	02/20/14 13:00	02/28/14 02:31	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	39	%	10-120	1	02/20/14 13:00	02/28/14 02:31	4165-60-0	
2-Fluorobiphenyl (S)	41	%	15-120	1	02/20/14 13:00	02/28/14 02:31	321-60-8	
Terphenyl-d14 (S)	65	%	11-131	1	02/20/14 13:00	02/28/14 02:31	1718-51-0	
Phenol-d6 (S)	21	%	10-120	1	02/20/14 13:00	02/28/14 02:31	13127-88-3	
2-Fluorophenol (S)	27	%	10-120	1	02/20/14 13:00	02/28/14 02:31	367-12-4	
2,4,6-Tribromophenol (S)	66	%	10-137	1	02/20/14 13:00	02/28/14 02:31	118-79-6	
6200B MSV	Analytical Method: SM 6200B							
Benzene	ND	ug/L	0.50	1		02/26/14 21:15	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		02/26/14 21:15	108-86-1	
Bromochloromethane	ND	ug/L	0.50	1		02/26/14 21:15	74-97-5	
Bromodichloromethane	ND	ug/L	0.50	1		02/26/14 21:15	75-27-4	
Bromoform	ND	ug/L	0.50	1		02/26/14 21:15	75-25-2	
Bromomethane	ND	ug/L	5.0	1		02/26/14 21:15	74-83-9	
n-Butylbenzene	ND	ug/L	0.50	1		02/26/14 21:15	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	1		02/26/14 21:15	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		02/26/14 21:15	98-06-6	
Carbon tetrachloride	ND	ug/L	0.50	1		02/26/14 21:15	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		02/26/14 21:15	108-90-7	
Chloroethane	ND	ug/L	1.0	1		02/26/14 21:15	75-00-3	
Chloroform	ND	ug/L	0.50	1		02/26/14 21:15	67-66-3	
Chloromethane	ND	ug/L	1.0	1		02/26/14 21:15	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		02/26/14 21:15	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		02/26/14 21:15	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	1		02/26/14 21:15	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		02/26/14 21:15	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	0.50	1		02/26/14 21:15	106-93-4	
Dibromomethane	ND	ug/L	0.50	1		02/26/14 21:15	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		02/26/14 21:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		02/26/14 21:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		02/26/14 21:15	106-46-7	
Dichlorodifluoromethane	ND	ug/L	0.50	1		02/26/14 21:15	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		02/26/14 21:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		02/26/14 21:15	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		02/26/14 21:15	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		02/26/14 21:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		02/26/14 21:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		02/26/14 21:15	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		02/26/14 21:15	142-28-9	
2,2-Dichloropropane	ND	ug/L	0.50	1		02/26/14 21:15	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		02/26/14 21:15	563-58-6	

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Sample: 44-1 (TW) **Lab ID: 92190447004** Collected: 02/18/14 12:30 Received: 02/20/14 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		02/26/14 21:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		02/26/14 21:15	10061-02-6	
Diisopropyl ether	ND	ug/L	0.50	1		02/26/14 21:15	108-20-3	
Ethylbenzene	ND	ug/L	0.50	1		02/26/14 21:15	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	1		02/26/14 21:15	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		02/26/14 21:15	98-82-8	
Methylene Chloride	ND	ug/L	2.0	1		02/26/14 21:15	75-09-2	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		02/26/14 21:15	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		02/26/14 21:15	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	1		02/26/14 21:15	103-65-1	
Styrene	ND	ug/L	0.50	1		02/26/14 21:15	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	1		02/26/14 21:15	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		02/26/14 21:15	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		02/26/14 21:15	127-18-4	
Toluene	ND	ug/L	0.50	1		02/26/14 21:15	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	1		02/26/14 21:15	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	1		02/26/14 21:15	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		02/26/14 21:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		02/26/14 21:15	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		02/26/14 21:15	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		02/26/14 21:15	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	0.50	1		02/26/14 21:15	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		02/26/14 21:15	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		02/26/14 21:15	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		02/26/14 21:15	75-01-4	
m&p-Xylene	ND	ug/L	1.0	1		02/26/14 21:15	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		02/26/14 21:15	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%	70-130	1		02/26/14 21:15	17060-07-0	
4-Bromofluorobenzene (S)	97	%	70-130	1		02/26/14 21:15	460-00-4	
Toluene-d8 (S)	101	%	70-130	1		02/26/14 21:15	2037-26-5	

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

QC Batch: MSV/25905
QC Batch Method: SM 6200B
Analysis Method: SM 6200B
Analysis Description: 6200B MSV
Associated Lab Samples: 92190447004

METHOD BLANK: 1145841
Matrix: Water
Associated Lab Samples: 92190447004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	0.50	02/26/14 18:47	
1,1,1-Trichloroethane	ug/L	ND	0.50	02/26/14 18:47	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	02/26/14 18:47	
1,1,2-Trichloroethane	ug/L	ND	0.50	02/26/14 18:47	
1,1-Dichloroethane	ug/L	ND	0.50	02/26/14 18:47	
1,1-Dichloroethene	ug/L	ND	0.50	02/26/14 18:47	
1,1-Dichloropropene	ug/L	ND	0.50	02/26/14 18:47	
1,2,3-Trichlorobenzene	ug/L	ND	2.0	02/26/14 18:47	
1,2,3-Trichloropropane	ug/L	ND	0.50	02/26/14 18:47	
1,2,4-Trichlorobenzene	ug/L	ND	2.0	02/26/14 18:47	
1,2,4-Trimethylbenzene	ug/L	ND	0.50	02/26/14 18:47	
1,2-Dibromo-3-chloropropane	ug/L	ND	1.0	02/26/14 18:47	
1,2-Dibromoethane (EDB)	ug/L	ND	0.50	02/26/14 18:47	
1,2-Dichlorobenzene	ug/L	ND	0.50	02/26/14 18:47	
1,2-Dichloroethane	ug/L	ND	0.50	02/26/14 18:47	
1,2-Dichloropropane	ug/L	ND	0.50	02/26/14 18:47	
1,3,5-Trimethylbenzene	ug/L	ND	0.50	02/26/14 18:47	
1,3-Dichlorobenzene	ug/L	ND	0.50	02/26/14 18:47	
1,3-Dichloropropane	ug/L	ND	0.50	02/26/14 18:47	
1,4-Dichlorobenzene	ug/L	ND	0.50	02/26/14 18:47	
2,2-Dichloropropane	ug/L	ND	0.50	02/26/14 18:47	
2-Chlorotoluene	ug/L	ND	0.50	02/26/14 18:47	
4-Chlorotoluene	ug/L	ND	0.50	02/26/14 18:47	
Benzene	ug/L	ND	0.50	02/26/14 18:47	
Bromobenzene	ug/L	ND	0.50	02/26/14 18:47	
Bromochloromethane	ug/L	ND	0.50	02/26/14 18:47	
Bromodichloromethane	ug/L	ND	0.50	02/26/14 18:47	
Bromoform	ug/L	ND	0.50	02/26/14 18:47	
Bromomethane	ug/L	ND	5.0	02/26/14 18:47	
Carbon tetrachloride	ug/L	ND	0.50	02/26/14 18:47	
Chlorobenzene	ug/L	ND	0.50	02/26/14 18:47	
Chloroethane	ug/L	ND	1.0	02/26/14 18:47	
Chloroform	ug/L	ND	0.50	02/26/14 18:47	
Chloromethane	ug/L	ND	1.0	02/26/14 18:47	
cis-1,2-Dichloroethene	ug/L	ND	0.50	02/26/14 18:47	
cis-1,3-Dichloropropene	ug/L	ND	0.50	02/26/14 18:47	
Dibromochloromethane	ug/L	ND	0.50	02/26/14 18:47	
Dibromomethane	ug/L	ND	0.50	02/26/14 18:47	
Dichlorodifluoromethane	ug/L	ND	0.50	02/26/14 18:47	
Diisopropyl ether	ug/L	ND	0.50	02/26/14 18:47	
Ethylbenzene	ug/L	ND	0.50	02/26/14 18:47	
Hexachloro-1,3-butadiene	ug/L	ND	2.0	02/26/14 18:47	
Isopropylbenzene (Cumene)	ug/L	ND	0.50	02/26/14 18:47	

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

METHOD BLANK: 1145841 Matrix: Water
Associated Lab Samples: 92190447004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
m&p-Xylene	ug/L	ND	1.0	02/26/14 18:47	
Methyl-tert-butyl ether	ug/L	ND	0.50	02/26/14 18:47	
Methylene Chloride	ug/L	ND	2.0	02/26/14 18:47	
n-Butylbenzene	ug/L	ND	0.50	02/26/14 18:47	
n-Propylbenzene	ug/L	ND	0.50	02/26/14 18:47	
Naphthalene	ug/L	ND	2.0	02/26/14 18:47	
o-Xylene	ug/L	ND	0.50	02/26/14 18:47	
sec-Butylbenzene	ug/L	ND	0.50	02/26/14 18:47	
Styrene	ug/L	ND	0.50	02/26/14 18:47	
tert-Butylbenzene	ug/L	ND	0.50	02/26/14 18:47	
Tetrachloroethene	ug/L	ND	0.50	02/26/14 18:47	
Toluene	ug/L	ND	0.50	02/26/14 18:47	
trans-1,2-Dichloroethene	ug/L	ND	0.50	02/26/14 18:47	
trans-1,3-Dichloropropene	ug/L	ND	0.50	02/26/14 18:47	
Trichloroethene	ug/L	ND	0.50	02/26/14 18:47	
Trichlorofluoromethane	ug/L	ND	1.0	02/26/14 18:47	
Vinyl chloride	ug/L	ND	1.0	02/26/14 18:47	
1,2-Dichloroethane-d4 (S)	%	101	70-130	02/26/14 18:47	
4-Bromofluorobenzene (S)	%	98	70-130	02/26/14 18:47	
Toluene-d8 (S)	%	101	70-130	02/26/14 18:47	

LABORATORY CONTROL SAMPLE: 1145842

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	49.0	98	60-140	
1,1,1-Trichloroethane	ug/L	50	53.7	107	60-140	
1,1,2,2-Tetrachloroethane	ug/L	50	50.2	100	60-140	
1,1,2-Trichloroethane	ug/L	50	52.9	106	60-140	
1,1-Dichloroethane	ug/L	50	49.2	98	60-140	
1,1-Dichloroethene	ug/L	50	48.0	96	60-140	
1,1-Dichloropropene	ug/L	50	51.3	103	60-140	
1,2,3-Trichlorobenzene	ug/L	50	49.1	98	60-140	
1,2,3-Trichloropropane	ug/L	50	49.8	100	60-140	
1,2,4-Trichlorobenzene	ug/L	50	49.1	98	60-140	
1,2,4-Trimethylbenzene	ug/L	50	51.4	103	60-140	
1,2-Dibromo-3-chloropropane	ug/L	50	64.7	129	60-140	
1,2-Dibromoethane (EDB)	ug/L	50	52.8	106	60-140	
1,2-Dichlorobenzene	ug/L	50	48.3	97	60-140	
1,2-Dichloroethane	ug/L	50	47.9	96	60-140	
1,2-Dichloropropane	ug/L	50	50.1	100	60-140	
1,3,5-Trimethylbenzene	ug/L	50	52.4	105	60-140	
1,3-Dichlorobenzene	ug/L	50	47.3	95	60-140	
1,3-Dichloropropane	ug/L	50	51.3	103	60-140	
1,4-Dichlorobenzene	ug/L	50	47.7	95	60-140	
2,2-Dichloropropane	ug/L	50	55.4	111	60-140	

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

LABORATORY CONTROL SAMPLE: 1145842

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Chlorotoluene	ug/L	50	48.4	97	60-140	
4-Chlorotoluene	ug/L	50	49.8	100	60-140	
Benzene	ug/L	50	52.3	105	60-140	
Bromobenzene	ug/L	50	49.8	100	60-140	
Bromochloromethane	ug/L	50	52.0	104	60-140	
Bromodichloromethane	ug/L	50	55.3	111	60-140	
Bromoform	ug/L	50	44.8	90	60-140	
Bromomethane	ug/L	50	36.3	73	60-140	
Carbon tetrachloride	ug/L	50	46.6	93	60-140	
Chlorobenzene	ug/L	50	50.6	101	60-140	
Chloroethane	ug/L	50	48.7	97	60-140	
Chloroform	ug/L	50	51.2	102	60-140	
Chloromethane	ug/L	50	45.3	91	60-140	
cis-1,2-Dichloroethene	ug/L	50	48.1	96	60-140	
cis-1,3-Dichloropropene	ug/L	50	48.3	97	60-140	
Dibromochloromethane	ug/L	50	48.0	96	60-140	
Dibromomethane	ug/L	50	50.6	101	60-140	
Dichlorodifluoromethane	ug/L	50	38.5	77	60-140	
Diisopropyl ether	ug/L	50	50.4	101	60-140	
Ethylbenzene	ug/L	50	50.8	102	60-140	
Hexachloro-1,3-butadiene	ug/L	50	50.4	101	60-140	
Isopropylbenzene (Cumene)	ug/L	50	54.0	108	60-140	
m&p-Xylene	ug/L	100	105	105	60-140	
Methyl-tert-butyl ether	ug/L	50	50.5	101	60-140	
Methylene Chloride	ug/L	50	53.9	108	60-140	
n-Butylbenzene	ug/L	50	50.8	102	60-140	
n-Propylbenzene	ug/L	50	52.7	105	60-140	
Naphthalene	ug/L	50	49.0	98	60-140	
o-Xylene	ug/L	50	52.2	104	60-140	
sec-Butylbenzene	ug/L	50	52.1	104	60-140	
Styrene	ug/L	50	55.3	111	60-140	
tert-Butylbenzene	ug/L	50	51.8	104	60-140	
Tetrachloroethene	ug/L	50	51.2	102	60-140	
Toluene	ug/L	50	50.5	101	60-140	
trans-1,2-Dichloroethene	ug/L	50	46.7	93	60-140	
trans-1,3-Dichloropropene	ug/L	50	47.5	95	60-140	
Trichloroethene	ug/L	50	49.9	100	60-140	
Trichlorofluoromethane	ug/L	50	50.3	101	60-140	
Vinyl chloride	ug/L	50	48.4	97	60-140	
1,2-Dichloroethane-d4 (S)	%			99	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			99	70-130	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1145843 1145844

Parameter	Units	92190689006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	17.9	14.3	89	72	60-140	22	
1,1,1-Trichloroethane	ug/L	ND	20	20	21.3	17.1	106	85	60-140	22	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	20.6	15.3	103	76	60-140	30	
1,1,2-Trichloroethane	ug/L	ND	20	20	21.3	16.5	107	83	60-140	25	
1,1-Dichloroethane	ug/L	ND	20	20	21.0	16.8	105	84	60-140	22	
1,1-Dichloroethene	ug/L	ND	20	20	20.2	16.8	101	84	60-140	19	
1,1-Dichloropropene	ug/L	ND	20	20	21.4	17.2	107	86	60-140	22	
1,2,3-Trichlorobenzene	ug/L	ND	20	20	17.4	14.0	87	70	60-140	22	
1,2,3-Trichloropropane	ug/L	ND	20	20	20.3	14.8	101	74	60-140	31	R1
1,2,4-Trichlorobenzene	ug/L	ND	20	20	17.4	14.0	87	70	60-140	22	
1,2,4-Trimethylbenzene	ug/L	ND	20	20	19.3	15.1	96	76	60-140	24	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	22.5	16.2	113	81	60-140	32	R1
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	21.5	16.4	108	82	60-140	27	
1,2-Dichlorobenzene	ug/L	ND	20	20	18.2	14.2	91	71	60-140	24	
1,2-Dichloroethane	ug/L	2.4	20	20	23.0	18.1	103	79	60-140	24	
1,2-Dichloropropane	ug/L	ND	20	20	20.6	16.0	103	80	60-140	25	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	19.5	15.5	97	77	60-140	23	
1,3-Dichlorobenzene	ug/L	ND	20	20	17.7	13.9	89	70	60-140	24	
1,3-Dichloropropane	ug/L	ND	20	20	21.2	16.2	106	81	60-140	26	
1,4-Dichlorobenzene	ug/L	ND	20	20	17.6	14.1	88	70	60-140	23	
2,2-Dichloropropane	ug/L	ND	20	20	18.8	15.5	94	78	60-140	19	
2-Chlorotoluene	ug/L	ND	20	20	18.7	14.9	94	74	60-140	23	
4-Chlorotoluene	ug/L	ND	20	20	19.0	14.9	95	74	60-140	24	
Benzene	ug/L	ND	20	20	20.7	16.6	104	83	60-140	22	
Bromobenzene	ug/L	ND	20	20	19.0	14.8	95	74	60-140	25	
Bromochloromethane	ug/L	ND	20	20	22.3	17.5	112	88	60-140	24	
Bromodichloromethane	ug/L	ND	20	20	19.5	15.6	98	78	60-140	22	
Bromoform	ug/L	ND	20	20	15.7	13.0	78	65	60-140	19	
Bromomethane	ug/L	ND	20	20	14.7	15.1	74	76	60-140	3	
Carbon tetrachloride	ug/L	ND	20	20	17.5	15.6	88	78	60-140	11	
Chlorobenzene	ug/L	ND	20	20	19.8	15.6	99	78	60-140	24	
Chloroethane	ug/L	ND	20	20	22.3	19.5	111	97	60-140	13	
Chloroform	ug/L	ND	20	20	21.3	16.7	106	83	60-140	24	
Chloromethane	ug/L	ND	20	20	18.5	17.8	93	89	60-140	4	
cis-1,2-Dichloroethene	ug/L	ND	20	20	20.4	16.2	102	81	60-140	23	
cis-1,3-Dichloropropene	ug/L	ND	20	20	16.9	13.6	85	68	60-140	21	
Dibromochloromethane	ug/L	ND	20	20	17.2	13.8	86	69	60-140	22	
Dibromomethane	ug/L	ND	20	20	20.0	15.2	100	76	60-140	27	
Dichlorodifluoromethane	ug/L	ND	20	20	15.3	17.9	77	90	60-140	16	
Diisopropyl ether	ug/L	0.55	20	20	22.1	17.1	108	83	60-140	26	
Ethylbenzene	ug/L	ND	20	20	19.7	15.7	99	78	60-140	23	
Hexachloro-1,3-butadiene	ug/L	ND	20	20	17.6	14.2	88	71	60-140	21	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	20.5	16.2	102	81	60-140	23	
m&p-Xylene	ug/L	ND	40	40	39.0	31.5	97	79	60-140	21	
Methyl-tert-butyl ether	ug/L	6.6	20	20	28.2	22.8	108	81	60-140	21	
Methylene Chloride	ug/L	ND	20	20	21.6	16.0	108	80	60-140	30	
n-Butylbenzene	ug/L	ND	20	20	17.8	14.6	89	73	60-140	20	

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1145843 1145844

Parameter	Units	92190689006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
n-Propylbenzene	ug/L	ND	20	20	19.8	15.8	99	79	60-140	23	
Naphthalene	ug/L	ND	20	20	18.6	14.2	93	71	60-140	27	
o-Xylene	ug/L	ND	20	20	20.0	15.8	100	79	60-140	24	
sec-Butylbenzene	ug/L	ND	20	20	19.4	15.7	97	78	60-140	21	
Styrene	ug/L	ND	20	20	20.8	16.2	104	81	60-140	25	
tert-Butylbenzene	ug/L	ND	20	20	19.4	15.6	97	78	60-140	22	
Tetrachloroethene	ug/L	ND	20	20	19.9	16.1	99	81	60-140	21	
Toluene	ug/L	ND	20	20	19.7	15.8	99	79	60-140	22	
trans-1,2-Dichloroethene	ug/L	ND	20	20	19.3	15.6	97	78	60-140	21	
trans-1,3-Dichloropropene	ug/L	ND	20	20	16.9	13.6	85	68	60-140	21	
Trichloroethene	ug/L	ND	20	20	19.3	15.3	96	77	60-140	23	
Trichlorofluoromethane	ug/L	ND	20	20	21.3	18.2	106	91	60-140	15	
Vinyl chloride	ug/L	ND	20	20	20.1	18.6	101	93	60-140	8	
1,2-Dichloroethane-d4 (S)	%						101	100	70-130		
4-Bromofluorobenzene (S)	%						100	100	70-130		
Toluene-d8 (S)	%						100	100	70-130		

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

QC Batch: MSV/25877 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92190447001, 92190447002, 92190447003

METHOD BLANK: 1143876 Matrix: Solid
Associated Lab Samples: 92190447001, 92190447002, 92190447003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	5.0	02/24/14 17:33	
1,1,1-Trichloroethane	ug/kg	ND	5.0	02/24/14 17:33	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	02/24/14 17:33	
1,1,2-Trichloroethane	ug/kg	ND	5.0	02/24/14 17:33	
1,1-Dichloroethane	ug/kg	ND	5.0	02/24/14 17:33	
1,1-Dichloroethene	ug/kg	ND	5.0	02/24/14 17:33	
1,1-Dichloropropene	ug/kg	ND	5.0	02/24/14 17:33	
1,2,3-Trichlorobenzene	ug/kg	ND	5.0	02/24/14 17:33	
1,2,3-Trichloropropane	ug/kg	ND	5.0	02/24/14 17:33	
1,2,4-Trichlorobenzene	ug/kg	ND	5.0	02/24/14 17:33	
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	02/24/14 17:33	
1,2-Dibromo-3-chloropropane	ug/kg	ND	5.0	02/24/14 17:33	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	02/24/14 17:33	
1,2-Dichlorobenzene	ug/kg	ND	5.0	02/24/14 17:33	
1,2-Dichloroethane	ug/kg	ND	5.0	02/24/14 17:33	
1,2-Dichloropropane	ug/kg	ND	5.0	02/24/14 17:33	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	02/24/14 17:33	
1,3-Dichlorobenzene	ug/kg	ND	5.0	02/24/14 17:33	
1,3-Dichloropropane	ug/kg	ND	5.0	02/24/14 17:33	
1,4-Dichlorobenzene	ug/kg	ND	5.0	02/24/14 17:33	
2,2-Dichloropropane	ug/kg	ND	5.0	02/24/14 17:33	
2-Butanone (MEK)	ug/kg	ND	99.0	02/24/14 17:33	
2-Chlorotoluene	ug/kg	ND	5.0	02/24/14 17:33	
2-Hexanone	ug/kg	ND	49.5	02/24/14 17:33	
4-Chlorotoluene	ug/kg	ND	5.0	02/24/14 17:33	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	49.5	02/24/14 17:33	
Acetone	ug/kg	ND	99.0	02/24/14 17:33	
Benzene	ug/kg	ND	5.0	02/24/14 17:33	
Bromobenzene	ug/kg	ND	5.0	02/24/14 17:33	
Bromochloromethane	ug/kg	ND	5.0	02/24/14 17:33	
Bromodichloromethane	ug/kg	ND	5.0	02/24/14 17:33	
Bromoform	ug/kg	ND	5.0	02/24/14 17:33	
Bromomethane	ug/kg	ND	9.9	02/24/14 17:33	
Carbon tetrachloride	ug/kg	ND	5.0	02/24/14 17:33	
Chlorobenzene	ug/kg	ND	5.0	02/24/14 17:33	
Chloroethane	ug/kg	ND	9.9	02/24/14 17:33	
Chloroform	ug/kg	ND	5.0	02/24/14 17:33	
Chloromethane	ug/kg	ND	9.9	02/24/14 17:33	
cis-1,2-Dichloroethene	ug/kg	ND	5.0	02/24/14 17:33	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	02/24/14 17:33	
Dibromochloromethane	ug/kg	ND	5.0	02/24/14 17:33	
Dibromomethane	ug/kg	ND	5.0	02/24/14 17:33	
Dichlorodifluoromethane	ug/kg	ND	9.9	02/24/14 17:33	

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

METHOD BLANK: 1143876 Matrix: Solid
Associated Lab Samples: 92190447001, 92190447002, 92190447003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/kg	ND	5.0	02/24/14 17:33	
Ethylbenzene	ug/kg	ND	5.0	02/24/14 17:33	
Hexachloro-1,3-butadiene	ug/kg	ND	5.0	02/24/14 17:33	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	02/24/14 17:33	
m&p-Xylene	ug/kg	ND	9.9	02/24/14 17:33	
Methyl-tert-butyl ether	ug/kg	ND	5.0	02/24/14 17:33	
Methylene Chloride	ug/kg	ND	19.8	02/24/14 17:33	
n-Butylbenzene	ug/kg	ND	5.0	02/24/14 17:33	
n-Propylbenzene	ug/kg	ND	5.0	02/24/14 17:33	
Naphthalene	ug/kg	ND	5.0	02/24/14 17:33	
o-Xylene	ug/kg	ND	5.0	02/24/14 17:33	
p-Isopropyltoluene	ug/kg	ND	5.0	02/24/14 17:33	
sec-Butylbenzene	ug/kg	ND	5.0	02/24/14 17:33	
Styrene	ug/kg	ND	5.0	02/24/14 17:33	
tert-Butylbenzene	ug/kg	ND	5.0	02/24/14 17:33	
Tetrachloroethene	ug/kg	ND	5.0	02/24/14 17:33	
Toluene	ug/kg	ND	5.0	02/24/14 17:33	
trans-1,2-Dichloroethene	ug/kg	ND	5.0	02/24/14 17:33	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	02/24/14 17:33	
Trichloroethene	ug/kg	ND	5.0	02/24/14 17:33	
Trichlorofluoromethane	ug/kg	ND	5.0	02/24/14 17:33	
Vinyl acetate	ug/kg	ND	49.5	02/24/14 17:33	
Vinyl chloride	ug/kg	ND	9.9	02/24/14 17:33	
Xylene (Total)	ug/kg	ND	9.9	02/24/14 17:33	
1,2-Dichloroethane-d4 (S)	%	87	70-132	02/24/14 17:33	
4-Bromofluorobenzene (S)	%	97	70-130	02/24/14 17:33	
Toluene-d8 (S)	%	111	70-130	02/24/14 17:33	

LABORATORY CONTROL SAMPLE: 1143877

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	49.3	51.7	105	70-131	
1,1,1-Trichloroethane	ug/kg	49.3	61.1	124	70-141	
1,1,2,2-Tetrachloroethane	ug/kg	49.3	46.6	94	70-130	
1,1,2-Trichloroethane	ug/kg	49.3	57.5	117	70-132	
1,1-Dichloroethane	ug/kg	49.3	56.4	114	70-143	
1,1-Dichloroethene	ug/kg	49.3	58.4	119	70-137	
1,1-Dichloropropene	ug/kg	49.3	57.9	117	70-135	
1,2,3-Trichlorobenzene	ug/kg	49.3	50.0	101	69-153	
1,2,3-Trichloropropane	ug/kg	49.3	51.0	103	70-130	
1,2,4-Trichlorobenzene	ug/kg	49.3	47.7	97	55-171	
1,2,4-Trimethylbenzene	ug/kg	49.3	50.7	103	70-149	
1,2-Dibromo-3-chloropropane	ug/kg	49.3	47.0	95	68-141	
1,2-Dibromoethane (EDB)	ug/kg	49.3	53.1	108	70-130	
1,2-Dichlorobenzene	ug/kg	49.3	50.2	102	70-140	

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

LABORATORY CONTROL SAMPLE: 1143877

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/kg	49.3	57.7	117	70-137	
1,2-Dichloropropane	ug/kg	49.3	55.1	112	70-133	
1,3,5-Trimethylbenzene	ug/kg	49.3	51.0	103	70-143	
1,3-Dichlorobenzene	ug/kg	49.3	48.5	98	70-144	
1,3-Dichloropropane	ug/kg	49.3	52.3	106	70-132	
1,4-Dichlorobenzene	ug/kg	49.3	50.3	102	70-142	
2,2-Dichloropropane	ug/kg	49.3	56.7	115	68-152	
2-Butanone (MEK)	ug/kg	98.6	109	111	70-149	
2-Chlorotoluene	ug/kg	49.3	49.7	101	70-141	
2-Hexanone	ug/kg	98.6	92.9	94	70-149	
4-Chlorotoluene	ug/kg	49.3	51.3	104	70-149	
4-Methyl-2-pentanone (MIBK)	ug/kg	98.6	99.5	101	70-153	
Acetone	ug/kg	98.6	105	106	70-157	
Benzene	ug/kg	49.3	56.4	114	70-130	
Bromobenzene	ug/kg	49.3	51.2	104	70-141	
Bromochloromethane	ug/kg	49.3	61.6	125	70-149	
Bromodichloromethane	ug/kg	49.3	55.7	113	70-130	
Bromoform	ug/kg	49.3	45.5	92	70-131	
Bromomethane	ug/kg	49.3	84.7	172	64-136	L3
Carbon tetrachloride	ug/kg	49.3	52.0	105	70-154	
Chlorobenzene	ug/kg	49.3	50.3	102	70-135	
Chloroethane	ug/kg	49.3	61.4	124	68-151	
Chloroform	ug/kg	49.3	58.2	118	70-130	
Chloromethane	ug/kg	49.3	57.5	117	70-132	
cis-1,2-Dichloroethene	ug/kg	49.3	58.5	119	70-140	
cis-1,3-Dichloropropene	ug/kg	49.3	54.0	109	70-137	
Dibromochloromethane	ug/kg	49.3	48.8	99	70-130	
Dibromomethane	ug/kg	49.3	52.7	107	70-136	
Dichlorodifluoromethane	ug/kg	49.3	53.4	108	36-148	
Diisopropyl ether	ug/kg	49.3	57.8	117	70-139	
Ethylbenzene	ug/kg	49.3	50.6	103	70-137	
Hexachloro-1,3-butadiene	ug/kg	49.3	51.7	105	70-145	
Isopropylbenzene (Cumene)	ug/kg	49.3	52.0	105	70-141	
m&p-Xylene	ug/kg	98.6	101	102	70-140	
Methyl-tert-butyl ether	ug/kg	49.3	62.8	127	45-150	
Methylene Chloride	ug/kg	49.3	57.9	117	70-133	
n-Butylbenzene	ug/kg	49.3	52.0	105	65-155	
n-Propylbenzene	ug/kg	49.3	54.2	110	70-148	
Naphthalene	ug/kg	49.3	50.1	102	70-148	
o-Xylene	ug/kg	49.3	50.2	102	70-141	
p-Isopropyltoluene	ug/kg	49.3	53.3	108	70-148	
sec-Butylbenzene	ug/kg	49.3	53.7	109	70-145	
Styrene	ug/kg	49.3	51.2	104	70-138	
tert-Butylbenzene	ug/kg	49.3	53.4	108	70-143	
Tetrachloroethene	ug/kg	49.3	51.5	104	70-140	
Toluene	ug/kg	49.3	53.2	108	70-130	
trans-1,2-Dichloroethene	ug/kg	49.3	58.4	118	70-136	
trans-1,3-Dichloropropene	ug/kg	49.3	53.1	108	70-138	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

LABORATORY CONTROL SAMPLE: 1143877

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/kg	49.3	57.1	116	70-132	
Trichlorofluoromethane	ug/kg	49.3	64.0	130	69-134	
Vinyl acetate	ug/kg	98.6	101	102	24-161	F3
Vinyl chloride	ug/kg	49.3	58.8	119	55-140	
Xylene (Total)	ug/kg	148	151	102	70-141	
1,2-Dichloroethane-d4 (S)	%			96	70-132	
4-Bromofluorobenzene (S)	%			97	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE SAMPLE: 1144253

Parameter	Units	92190447002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/kg	ND	48.3	57.5	119	49-180	
Benzene	ug/kg	ND	48.3	51.3	106	50-166	
Chlorobenzene	ug/kg	ND	48.3	47.7	99	43-169	
Toluene	ug/kg	ND	48.3	45.0	93	52-163	
Trichloroethene	ug/kg	ND	48.3	48.4	100	49-167	
1,2-Dichloroethane-d4 (S)	%				99	70-132	
4-Bromofluorobenzene (S)	%				75	70-130	
Toluene-d8 (S)	%				101	70-130	

SAMPLE DUPLICATE: 1144441

Parameter	Units	92190453001 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		
1,1,1-Trichloroethane	ug/kg	ND	ND		
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		
1,1,2-Trichloroethane	ug/kg	ND	ND		
1,1-Dichloroethane	ug/kg	ND	ND		
1,1-Dichloroethene	ug/kg	ND	ND		
1,1-Dichloropropene	ug/kg	ND	ND		
1,2,3-Trichlorobenzene	ug/kg	ND	ND		
1,2,3-Trichloropropane	ug/kg	ND	ND		
1,2,4-Trichlorobenzene	ug/kg	ND	ND		
1,2,4-Trimethylbenzene	ug/kg	ND	ND		
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		
1,2-Dichlorobenzene	ug/kg	ND	ND		
1,2-Dichloroethane	ug/kg	ND	ND		
1,2-Dichloropropane	ug/kg	ND	ND		
1,3,5-Trimethylbenzene	ug/kg	ND	ND		
1,3-Dichlorobenzene	ug/kg	ND	ND		
1,3-Dichloropropane	ug/kg	ND	ND		
1,4-Dichlorobenzene	ug/kg	ND	ND		
2,2-Dichloropropane	ug/kg	ND	ND		

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

SAMPLE DUPLICATE: 1144441

Parameter	Units	92190453001 Result	Dup Result	RPD	Qualifiers
2-Butanone (MEK)	ug/kg	ND	ND		
2-Chlorotoluene	ug/kg	ND	ND		
2-Hexanone	ug/kg	ND	ND		
4-Chlorotoluene	ug/kg	ND	ND		
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		
Acetone	ug/kg	ND	22.6J		
Benzene	ug/kg	ND	ND		
Bromobenzene	ug/kg	ND	ND		
Bromochloromethane	ug/kg	ND	ND		
Bromodichloromethane	ug/kg	ND	ND		
Bromoform	ug/kg	ND	ND		
Bromomethane	ug/kg	ND	ND		
Carbon tetrachloride	ug/kg	ND	ND		
Chlorobenzene	ug/kg	ND	ND		
Chloroethane	ug/kg	ND	ND		
Chloroform	ug/kg	ND	ND		
Chloromethane	ug/kg	ND	ND		
cis-1,2-Dichloroethene	ug/kg	ND	ND		
cis-1,3-Dichloropropene	ug/kg	ND	ND		
Dibromochloromethane	ug/kg	ND	ND		
Dibromomethane	ug/kg	ND	ND		
Dichlorodifluoromethane	ug/kg	ND	ND		
Diisopropyl ether	ug/kg	ND	ND		
Ethylbenzene	ug/kg	ND	ND		
Hexachloro-1,3-butadiene	ug/kg	ND	ND		
Isopropylbenzene (Cumene)	ug/kg	ND	ND		
m&p-Xylene	ug/kg	ND	ND		
Methyl-tert-butyl ether	ug/kg	ND	ND		
Methylene Chloride	ug/kg	ND	2.7J		
n-Butylbenzene	ug/kg	ND	ND		
n-Propylbenzene	ug/kg	ND	ND		
Naphthalene	ug/kg	ND	1.2J		
o-Xylene	ug/kg	ND	ND		
p-Isopropyltoluene	ug/kg	ND	ND		
sec-Butylbenzene	ug/kg	ND	ND		
Styrene	ug/kg	ND	ND		
tert-Butylbenzene	ug/kg	ND	ND		
Tetrachloroethene	ug/kg	ND	ND		
Toluene	ug/kg	ND	ND		
trans-1,2-Dichloroethene	ug/kg	ND	ND		
trans-1,3-Dichloropropene	ug/kg	ND	ND		
Trichloroethene	ug/kg	ND	ND		
Trichlorofluoromethane	ug/kg	ND	ND		
Vinyl acetate	ug/kg	ND	ND		
Vinyl chloride	ug/kg	ND	ND		
Xylene (Total)	ug/kg	ND	ND		
1,2-Dichloroethane-d4 (S)	%	93	96	1	
4-Bromofluorobenzene (S)	%	90	80	16	

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

SAMPLE DUPLICATE: 1144441

Parameter	Units	92190453001 Result	Dup Result	RPD	Qualifiers
Toluene-d8 (S)	%	111	116	0	

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

QC Batch: OEXT/26010 Analysis Method: EPA 625
QC Batch Method: EPA 625 Analysis Description: 625 MSS
Associated Lab Samples: 92190447004

METHOD BLANK: 1141550 Matrix: Water
Associated Lab Samples: 92190447004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	5.0	02/28/14 07:26	
2,4,6-Trichlorophenol	ug/L	ND	10.0	02/28/14 07:26	
2,4-Dichlorophenol	ug/L	ND	5.0	02/28/14 07:26	
2,4-Dimethylphenol	ug/L	ND	10.0	02/28/14 07:26	
2,4-Dinitrophenol	ug/L	ND	50.0	02/28/14 07:26	
2,4-Dinitrotoluene	ug/L	ND	5.0	02/28/14 07:26	
2,6-Dinitrotoluene	ug/L	ND	5.0	02/28/14 07:26	
2-Chloronaphthalene	ug/L	ND	5.0	02/28/14 07:26	
2-Chlorophenol	ug/L	ND	5.0	02/28/14 07:26	
2-Nitrophenol	ug/L	ND	5.0	02/28/14 07:26	
3,3'-Dichlorobenzidine	ug/L	ND	25.0	02/28/14 07:26	
4,6-Dinitro-2-methylphenol	ug/L	ND	20.0	02/28/14 07:26	
4-Bromophenylphenyl ether	ug/L	ND	5.0	02/28/14 07:26	
4-Chloro-3-methylphenol	ug/L	ND	5.0	02/28/14 07:26	
4-Chlorophenylphenyl ether	ug/L	ND	5.0	02/28/14 07:26	
4-Nitrophenol	ug/L	ND	50.0	02/28/14 07:26	
Acenaphthene	ug/L	ND	5.0	02/28/14 07:26	
Acenaphthylene	ug/L	ND	5.0	02/28/14 07:26	
Anthracene	ug/L	ND	5.0	02/28/14 07:26	
Benzo(a)anthracene	ug/L	ND	5.0	02/28/14 07:26	
Benzo(a)pyrene	ug/L	ND	5.0	02/28/14 07:26	
Benzo(b)fluoranthene	ug/L	ND	5.0	02/28/14 07:26	
Benzo(g,h,i)perylene	ug/L	ND	5.0	02/28/14 07:26	
Benzo(k)fluoranthene	ug/L	ND	5.0	02/28/14 07:26	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	02/28/14 07:26	
bis(2-Chloroethyl) ether	ug/L	ND	5.0	02/28/14 07:26	
bis(2-Chloroisopropyl) ether	ug/L	ND	5.0	02/28/14 07:26	
bis(2-Ethylhexyl)phthalate	ug/L	ND	5.0	02/28/14 07:26	
Butylbenzylphthalate	ug/L	ND	5.0	02/28/14 07:26	
Chrysene	ug/L	ND	5.0	02/28/14 07:26	
Di-n-butylphthalate	ug/L	ND	5.0	02/28/14 07:26	
Di-n-octylphthalate	ug/L	ND	5.0	02/28/14 07:26	
Dibenz(a,h)anthracene	ug/L	ND	5.0	02/28/14 07:26	
Diethylphthalate	ug/L	ND	5.0	02/28/14 07:26	
Dimethylphthalate	ug/L	ND	5.0	02/28/14 07:26	
Fluoranthene	ug/L	ND	5.0	02/28/14 07:26	
Fluorene	ug/L	ND	5.0	02/28/14 07:26	
Hexachloro-1,3-butadiene	ug/L	ND	5.0	02/28/14 07:26	
Hexachlorobenzene	ug/L	ND	5.0	02/28/14 07:26	
Hexachlorocyclopentadiene	ug/L	ND	10.0	02/28/14 07:26	
Hexachloroethane	ug/L	ND	5.0	02/28/14 07:26	
Indeno(1,2,3-cd)pyrene	ug/L	ND	5.0	02/28/14 07:26	
Isophorone	ug/L	ND	10.0	02/28/14 07:26	

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

METHOD BLANK: 1141550 Matrix: Water
Associated Lab Samples: 92190447004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
N-Nitroso-di-n-propylamine	ug/L	ND	5.0	02/28/14 07:26	
N-Nitrosodimethylamine	ug/L	ND	5.0	02/28/14 07:26	
N-Nitrosodiphenylamine	ug/L	ND	10.0	02/28/14 07:26	
Naphthalene	ug/L	ND	5.0	02/28/14 07:26	
Nitrobenzene	ug/L	ND	5.0	02/28/14 07:26	
Pentachlorophenol	ug/L	ND	10.0	02/28/14 07:26	
Phenanthrene	ug/L	ND	5.0	02/28/14 07:26	
Phenol	ug/L	ND	5.0	02/28/14 07:26	
Pyrene	ug/L	ND	5.0	02/28/14 07:26	
2,4,6-Tribromophenol (S)	%	88	10-137	02/28/14 07:26	
2-Fluorobiphenyl (S)	%	74	15-120	02/28/14 07:26	
2-Fluorophenol (S)	%	46	10-120	02/28/14 07:26	
Nitrobenzene-d5 (S)	%	73	10-120	02/28/14 07:26	
Phenol-d6 (S)	%	33	10-120	02/28/14 07:26	
Terphenyl-d14 (S)	%	99	11-131	02/28/14 07:26	

LABORATORY CONTROL SAMPLE: 1141551

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	36.0	72	44-142	
2,4,6-Trichlorophenol	ug/L	50	19.6	39	37-144	
2,4-Dichlorophenol	ug/L	50	23.9	48	1-191	
2,4-Dimethylphenol	ug/L	50	31.7	63	32-119	
2,4-Dinitrophenol	ug/L	250	49.5J	20	1-181	
2,4-Dinitrotoluene	ug/L	50	54.3	109	39-139	
2,6-Dinitrotoluene	ug/L	50	51.3	103	50-158	
2-Chloronaphthalene	ug/L	50	34.2	68	60-118	
2-Chlorophenol	ug/L	50	23.6	47	23-134	
2-Nitrophenol	ug/L	50	20.8	42	29-182	
3,3'-Dichlorobenzidine	ug/L	100	107	107	1-262	
4,6-Dinitro-2-methylphenol	ug/L	100	34.2	34	1-181	
4-Bromophenylphenyl ether	ug/L	50	44.3	89	53-127	
4-Chloro-3-methylphenol	ug/L	100	59.7	60	22-147	
4-Chlorophenylphenyl ether	ug/L	50	48.4	97	25-158	
4-Nitrophenol	ug/L	250	48.6J	19	1-132	
Acenaphthene	ug/L	50	40.8	82	47-145	
Acenaphthylene	ug/L	50	42.0	84	33-145	
Anthracene	ug/L	50	46.2	92	1-166	
Benzo(a)anthracene	ug/L	50	45.7	91	33-143	
Benzo(a)pyrene	ug/L	50	49.2	98	17-163	
Benzo(b)fluoranthene	ug/L	50	44.9	90	24-159	
Benzo(g,h,i)perylene	ug/L	50	45.0	90	1-219	
Benzo(k)fluoranthene	ug/L	50	41.4	83	11-162	
bis(2-Chloroethoxy)methane	ug/L	50	41.6	83	33-184	
bis(2-Chloroethyl) ether	ug/L	50	44.4	89	12-158	

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

LABORATORY CONTROL SAMPLE: 1141551

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
bis(2-Chloroisopropyl) ether	ug/L	50	44.1	88	36-166	
bis(2-Ethylhexyl)phthalate	ug/L	50	47.1	94	8-158	
Butylbenzylphthalate	ug/L	50	45.3	91	1-152	
Chrysene	ug/L	50	47.2	94	17-168	
Di-n-butylphthalate	ug/L	50	45.1	90	1-118	
Di-n-octylphthalate	ug/L	50	54.2	108	4-146	
Dibenz(a,h)anthracene	ug/L	50	49.3	99	1-227	
Diethylphthalate	ug/L	50	45.5	91	1-114	
Dimethylphthalate	ug/L	50	41.6	83	1-112	
Fluoranthene	ug/L	50	50.5	101	26-137	
Fluorene	ug/L	50	47.8	96	59-121	
Hexachloro-1,3-butadiene	ug/L	50	32.1	64	24-116	
Hexachlorobenzene	ug/L	50	40.0	80	1-152	
Hexachlorocyclopentadiene	ug/L	50	25.9	52	25-150	
Hexachloroethane	ug/L	50	33.9	68	40-113	
Indeno(1,2,3-cd)pyrene	ug/L	50	48.5	97	1-171	
Isophorone	ug/L	50	48.3	97	21-196	
N-Nitroso-di-n-propylamine	ug/L	50	51.2	102	1-230	
N-Nitrosodimethylamine	ug/L	50	18.9	38	25-150	
N-Nitrosodiphenylamine	ug/L	50	34.8	70	25-150	
Naphthalene	ug/L	50	41.5	83	21-133	
Nitrobenzene	ug/L	50	39.1	78	35-180	
Pentachlorophenol	ug/L	100	39.6	40	14-176	
Phenanthrene	ug/L	50	44.9	90	54-120	
Phenol	ug/L	50	15.0	30	5-112	
Pyrene	ug/L	50	47.2	94	52-115	
2,4,6-Tribromophenol (S)	%			58	10-137	
2-Fluorobiphenyl (S)	%			75	15-120	
2-Fluorophenol (S)	%			25	10-120	
Nitrobenzene-d5 (S)	%			73	10-120	
Phenol-d6 (S)	%			22	10-120	
Terphenyl-d14 (S)	%			94	11-131	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1141552 1141553

Parameter	Units	92190065001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trichlorobenzene	ug/L	ND	100	100	78.9	64.5	79	65	44-142	20	
2,4,6-Trichlorophenol	ug/L	ND	100	100	87.6	77.0	88	77	37-144	13	
2,4-Dichlorophenol	ug/L	ND	100	100	106	84.4	106	84	1-191	23	
2,4-Dimethylphenol	ug/L	ND	100	100	73.8	48.8	74	49	32-119	41	R1
2,4-Dinitrophenol	ug/L	ND	500	500	263	286	53	57	1-181	9	
2,4-Dinitrotoluene	ug/L	ND	100	100	105	95.2	105	95	39-139	10	
2,6-Dinitrotoluene	ug/L	ND	100	100	105	97.3	105	97	50-158	7	
2-Chloronaphthalene	ug/L	ND	100	100	76.9	64.0	77	64	60-118	18	
2-Chlorophenol	ug/L	ND	100	100	114	78.3	114	78	23-134	37	R1
2-Nitrophenol	ug/L	ND	100	100	94.9	74.9	95	75	29-182	24	

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1141552 1141553

Parameter	Units	92190065001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
3,3'-Dichlorobenzidine	ug/L	ND	200	200	115	124	58	62	1-262	7	
4,6-Dinitro-2-methylphenol	ug/L	ND	200	200	156	152	78	76	1-181	3	
4-Bromophenylphenyl ether	ug/L	ND	100	100	95.3	87.4	95	87	53-127	9	
4-Chloro-3-methylphenol	ug/L	ND	200	200	218	191	109	96	22-147	13	
4-Chlorophenylphenyl ether	ug/L	ND	100	100	98.1	89.0	98	89	25-158	10	
4-Nitrophenol	ug/L	ND	500	500	272	225	54	45	1-132	19	
Acenaphthene	ug/L	ND	100	100	88.4	75.5	88	76	47-145	16	
Acenaphthylene	ug/L	ND	100	100	91.1	77.9	91	78	33-145	16	
Anthracene	ug/L	ND	100	100	93.0	81.8	93	82	1-166	13	
Benzo(a)anthracene	ug/L	ND	100	100	90.0	83.6	90	84	33-143	7	
Benzo(a)pyrene	ug/L	ND	100	100	96.2	87.6	96	88	17-163	9	
Benzo(b)fluoranthene	ug/L	ND	100	100	94.0	86.8	94	87	24-159	8	
Benzo(g,h,i)perylene	ug/L	ND	100	100	89.4	78.4	89	78	1-219	13	
Benzo(k)fluoranthene	ug/L	ND	100	100	84.7	79.4	85	79	11-162	6	
bis(2-Chloroethoxy)methane	ug/L	ND	100	100	92.3	74.8	92	75	33-184	21	
bis(2-Chloroethyl) ether	ug/L	ND	100	100	97.6	78.5	98	78	12-158	22	
bis(2-Chloroisopropyl) ether	ug/L	ND	100	100	97.2	70.9	97	71	36-166	31	R1
bis(2-Ethylhexyl)phthalate	ug/L	ND	100	100	90.9	86.0	91	86	8-158	5	
Butylbenzylphthalate	ug/L	ND	100	100	89.1	86.1	89	86	1-152	3	
Chrysene	ug/L	ND	100	100	93.5	88.6	94	89	17-168	5	
Di-n-butylphthalate	ug/L	ND	100	100	87.5	79.7	88	80	1-118	9	
Di-n-octylphthalate	ug/L	ND	100	100	101	91.7	101	92	4-146	10	
Dibenz(a,h)anthracene	ug/L	ND	100	100	96.1	85.8	96	86	1-227	11	
Diethylphthalate	ug/L	ND	100	100	86.6	80.4	87	80	1-114	7	
Dimethylphthalate	ug/L	ND	100	100	84.2	79.0	84	79	1-112	6	
Fluoranthene	ug/L	ND	100	100	97.9	82.5	98	82	26-137	17	
Fluorene	ug/L	ND	100	100	95.9	86.7	96	87	59-121	10	
Hexachloro-1,3-butadiene	ug/L	ND	100	100	67.7	57.7	68	58	24-116	16	
Hexachlorobenzene	ug/L	ND	100	100	83.7	76.0	84	76	1-152	10	
Hexachlorocyclopentadiene	ug/L	ND	100	100	67.6	53.4	68	53	25-150	24	
Hexachloroethane	ug/L	ND	100	100	69.9	54.7	70	55	40-113	24	
Indeno(1,2,3-cd)pyrene	ug/L	ND	100	100	95.7	84.4	96	84	1-171	13	
Isophorone	ug/L	ND	100	100	104	84.1	104	84	21-196	21	
N-Nitroso-di-n-propylamine	ug/L	ND	100	100	124	74.2	124	74	1-230	50	R1
N-Nitrosodimethylamine	ug/L	ND	100	100	55.1	44.2	55	44	25-150	22	
N-Nitrosodiphenylamine	ug/L	ND	100	100	76.3	70.5	76	70	25-150	8	
Naphthalene	ug/L	ND	100	100	91.5	73.2	92	73	21-133	22	
Nitrobenzene	ug/L	ND	100	100	96.7	75.6	97	76	35-180	24	
Pentachlorophenol	ug/L	ND	200	200	168	139	84	70	14-176	19	
Phenanthrene	ug/L	ND	100	100	92.6	82.6	93	83	54-120	11	
Phenol	ug/L	ND	100	100	91.8	53.4	92	53	5-112	53	R1
Pyrene	ug/L	ND	100	100	97.9	93.6	98	94	52-115	4	
2,4,6-Tribromophenol (S)	%						107	95	10-137		
2-Fluorobiphenyl (S)	%						84	74	15-120		
2-Fluorophenol (S)	%						71	55	10-120		
Nitrobenzene-d5 (S)	%						82	68	10-120		
Phenol-d6 (S)	%						84	50	10-120		

REPORT OF LABORATORY ANALYSIS

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(704)875-9092

QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1141552 1141553

Parameter	Units	92190065001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Terphenyl-d14 (S)	%						98	99	11-131		

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

QC Batch: OEXT/26015 Analysis Method: EPA 8270
QC Batch Method: EPA 3546 Analysis Description: 8270 Solid MSSV Microwave
Associated Lab Samples: 92190447001, 92190447002, 92190447003

METHOD BLANK: 1141738 Matrix: Solid
Associated Lab Samples: 92190447001, 92190447002, 92190447003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	ND	330	02/25/14 15:56	
1,2-Dichlorobenzene	ug/kg	ND	330	02/25/14 15:56	
1,3-Dichlorobenzene	ug/kg	ND	330	02/25/14 15:56	
1,4-Dichlorobenzene	ug/kg	ND	330	02/25/14 15:56	
1-Methylnaphthalene	ug/kg	ND	330	02/25/14 15:56	
2,4,5-Trichlorophenol	ug/kg	ND	330	02/25/14 15:56	
2,4,6-Trichlorophenol	ug/kg	ND	330	02/25/14 15:56	
2,4-Dichlorophenol	ug/kg	ND	330	02/25/14 15:56	
2,4-Dimethylphenol	ug/kg	ND	330	02/25/14 15:56	
2,4-Dinitrophenol	ug/kg	ND	1650	02/25/14 15:56	
2,4-Dinitrotoluene	ug/kg	ND	330	02/25/14 15:56	
2,6-Dinitrotoluene	ug/kg	ND	330	02/25/14 15:56	
2-Chloronaphthalene	ug/kg	ND	330	02/25/14 15:56	
2-Chlorophenol	ug/kg	ND	330	02/25/14 15:56	
2-Methylnaphthalene	ug/kg	ND	330	02/25/14 15:56	
2-Methylphenol(o-Cresol)	ug/kg	ND	330	02/25/14 15:56	
2-Nitroaniline	ug/kg	ND	1650	02/25/14 15:56	
2-Nitrophenol	ug/kg	ND	330	02/25/14 15:56	
3&4-Methylphenol(m&p Cresol)	ug/kg	ND	330	02/25/14 15:56	
3,3'-Dichlorobenzidine	ug/kg	ND	1650	02/25/14 15:56	
3-Nitroaniline	ug/kg	ND	1650	02/25/14 15:56	
4,6-Dinitro-2-methylphenol	ug/kg	ND	660	02/25/14 15:56	
4-Bromophenylphenyl ether	ug/kg	ND	330	02/25/14 15:56	
4-Chloro-3-methylphenol	ug/kg	ND	660	02/25/14 15:56	
4-Chloroaniline	ug/kg	ND	1650	02/25/14 15:56	
4-Chlorophenylphenyl ether	ug/kg	ND	330	02/25/14 15:56	
4-Nitroaniline	ug/kg	ND	660	02/25/14 15:56	
4-Nitrophenol	ug/kg	ND	1650	02/25/14 15:56	
Acenaphthene	ug/kg	ND	330	02/25/14 15:56	
Acenaphthylene	ug/kg	ND	330	02/25/14 15:56	
Aniline	ug/kg	ND	330	02/25/14 15:56	
Anthracene	ug/kg	ND	330	02/25/14 15:56	
Benzo(a)anthracene	ug/kg	ND	330	02/25/14 15:56	
Benzo(a)pyrene	ug/kg	ND	330	02/25/14 15:56	
Benzo(b)fluoranthene	ug/kg	ND	330	02/25/14 15:56	
Benzo(g,h,i)perylene	ug/kg	ND	330	02/25/14 15:56	
Benzo(k)fluoranthene	ug/kg	ND	330	02/25/14 15:56	
Benzoic Acid	ug/kg	ND	1650	02/25/14 15:56	
Benzyl alcohol	ug/kg	ND	660	02/25/14 15:56	
bis(2-Chloroethoxy)methane	ug/kg	ND	330	02/25/14 15:56	
bis(2-Chloroethyl) ether	ug/kg	ND	330	02/25/14 15:56	
bis(2-Chloroisopropyl) ether	ug/kg	ND	330	02/25/14 15:56	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	330	02/25/14 15:56	

REPORT OF LABORATORY ANALYSIS

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(704)875-9092

QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

METHOD BLANK: 1141738 Matrix: Solid
Associated Lab Samples: 92190447001, 92190447002, 92190447003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/kg	ND	330	02/25/14 15:56	
Chrysene	ug/kg	ND	330	02/25/14 15:56	
Di-n-butylphthalate	ug/kg	ND	330	02/25/14 15:56	
Di-n-octylphthalate	ug/kg	ND	330	02/25/14 15:56	
Dibenz(a,h)anthracene	ug/kg	ND	330	02/25/14 15:56	
Dibenzofuran	ug/kg	ND	330	02/25/14 15:56	
Diethylphthalate	ug/kg	ND	330	02/25/14 15:56	
Dimethylphthalate	ug/kg	ND	330	02/25/14 15:56	
Fluoranthene	ug/kg	ND	330	02/25/14 15:56	
Fluorene	ug/kg	ND	330	02/25/14 15:56	
Hexachloro-1,3-butadiene	ug/kg	ND	330	02/25/14 15:56	
Hexachlorobenzene	ug/kg	ND	330	02/25/14 15:56	
Hexachlorocyclopentadiene	ug/kg	ND	330	02/25/14 15:56	
Hexachloroethane	ug/kg	ND	330	02/25/14 15:56	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	330	02/25/14 15:56	
Isophorone	ug/kg	ND	330	02/25/14 15:56	
N-Nitroso-di-n-propylamine	ug/kg	ND	330	02/25/14 15:56	
N-Nitrosodimethylamine	ug/kg	ND	330	02/25/14 15:56	
N-Nitrosodiphenylamine	ug/kg	ND	330	02/25/14 15:56	
Naphthalene	ug/kg	ND	330	02/25/14 15:56	
Nitrobenzene	ug/kg	ND	330	02/25/14 15:56	
Pentachlorophenol	ug/kg	ND	1650	02/25/14 15:56	
Phenanthrene	ug/kg	ND	330	02/25/14 15:56	
Phenol	ug/kg	ND	330	02/25/14 15:56	
Pyrene	ug/kg	ND	330	02/25/14 15:56	
2,4,6-Tribromophenol (S)	%	85	27-110	02/25/14 15:56	
2-Fluorobiphenyl (S)	%	80	30-110	02/25/14 15:56	
2-Fluorophenol (S)	%	80	13-110	02/25/14 15:56	
Nitrobenzene-d5 (S)	%	73	23-110	02/25/14 15:56	
Phenol-d6 (S)	%	78	22-110	02/25/14 15:56	
Terphenyl-d14 (S)	%	105	28-110	02/25/14 15:56	

LABORATORY CONTROL SAMPLE: 1141739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	1670	1220	73	39-101	
1,2-Dichlorobenzene	ug/kg	1670	1210	73	36-110	
1,3-Dichlorobenzene	ug/kg	1670	1190	71	35-110	
1,4-Dichlorobenzene	ug/kg	1670	1210	73	35-110	
1-Methylnaphthalene	ug/kg	1670	1380	83	45-105	
2,4,5-Trichlorophenol	ug/kg	1670	1400	84	48-109	
2,4,6-Trichlorophenol	ug/kg	1670	1290	77	45-111	
2,4-Dichlorophenol	ug/kg	1670	1420	85	51-116	
2,4-Dimethylphenol	ug/kg	1670	1510	90	42-103	
2,4-Dinitrophenol	ug/kg	8330	5120	61	28-103	

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

LABORATORY CONTROL SAMPLE: 1141739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4-Dinitrotoluene	ug/kg	1670	1550	93	46-114	
2,6-Dinitrotoluene	ug/kg	1670	1490	89	48-112	
2-Chloronaphthalene	ug/kg	1670	1100	66	44-105	
2-Chlorophenol	ug/kg	1670	1400	84	36-110	
2-Methylnaphthalene	ug/kg	1670	1430	86	39-112	
2-Methylphenol(o-Cresol)	ug/kg	1670	1410	85	39-101	
2-Nitroaniline	ug/kg	3330	2810	84	44-111	
2-Nitrophenol	ug/kg	1670	1380	83	41-100	
3&4-Methylphenol(m&p Cresol)	ug/kg	1670	1420	85	43-103	
3,3'-Dichlorobenzidine	ug/kg	3330	2820	84	10-150	
3-Nitroaniline	ug/kg	3330	2840	85	35-110	
4,6-Dinitro-2-methylphenol	ug/kg	3330	2480	74	38-118	
4-Bromophenylphenyl ether	ug/kg	1670	1380	83	47-115	
4-Chloro-3-methylphenol	ug/kg	3330	2950	88	43-127	
4-Chloroaniline	ug/kg	3330	2750	82	34-109	
4-Chlorophenylphenyl ether	ug/kg	1670	1400	84	44-115	
4-Nitroaniline	ug/kg	3330	2980	89	37-111	
4-Nitrophenol	ug/kg	8330	6710	80	21-152	
Acenaphthene	ug/kg	1670	1250	75	38-117	
Acenaphthylene	ug/kg	1670	1320	79	46-107	
Aniline	ug/kg	1670	1230	74	29-110	
Anthracene	ug/kg	1670	1430	86	50-110	
Benzo(a)anthracene	ug/kg	1670	1380	83	47-116	
Benzo(a)pyrene	ug/kg	1670	1470	88	47-106	
Benzo(b)fluoranthene	ug/kg	1670	1420	85	47-109	
Benzo(g,h,i)perylene	ug/kg	1670	1280	77	39-115	
Benzo(k)fluoranthene	ug/kg	1670	1330	80	45-117	
Benzoic Acid	ug/kg	8330	5600	67	16-110	
Benzyl alcohol	ug/kg	3330	2470	74	38-105	
bis(2-Chloroethoxy)methane	ug/kg	1670	1280	77	39-110	
bis(2-Chloroethyl) ether	ug/kg	1670	1320	79	19-119	
bis(2-Chloroisopropyl) ether	ug/kg	1670	1180	71	21-110	
bis(2-Ethylhexyl)phthalate	ug/kg	1670	1380	83	35-116	
Butylbenzylphthalate	ug/kg	1670	1420	85	38-110	
Chrysene	ug/kg	1670	1430	86	49-110	
Di-n-butylphthalate	ug/kg	1670	1310	79	43-109	
Di-n-octylphthalate	ug/kg	1670	1460	87	37-109	
Dibenz(a,h)anthracene	ug/kg	1670	1390	83	43-116	
Dibenzofuran	ug/kg	1670	1190	71	45-106	
Diethylphthalate	ug/kg	1670	1270	76	41-114	
Dimethylphthalate	ug/kg	1670	1210	72	43-110	
Fluoranthene	ug/kg	1670	1450	87	50-114	
Fluorene	ug/kg	1670	1390	83	46-114	
Hexachloro-1,3-butadiene	ug/kg	1670	1220	73	28-111	
Hexachlorobenzene	ug/kg	1670	1240	74	46-120	
Hexachlorocyclopentadiene	ug/kg	1670	995	60	18-119	
Hexachloroethane	ug/kg	1670	1160	69	33-110	
Indeno(1,2,3-cd)pyrene	ug/kg	1670	1380	83	42-115	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

LABORATORY CONTROL SAMPLE: 1141739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Isophorone	ug/kg	1670	1380	83	44-109	
N-Nitroso-di-n-propylamine	ug/kg	1670	1080	65	43-104	
N-Nitrosodimethylamine	ug/kg	1670	1100	66	29-110	
N-Nitrosodiphenylamine	ug/kg	1670	1150	69	48-113	
Naphthalene	ug/kg	1670	1330	80	41-110	
Nitrobenzene	ug/kg	1670	1320	79	38-110	
Pentachlorophenol	ug/kg	3330	2490	75	32-128	
Phenanthrene	ug/kg	1670	1380	83	50-110	
Phenol	ug/kg	1670	1460	88	28-106	
Pyrene	ug/kg	1670	1680	101	45-114	
2,4,6-Tribromophenol (S)	%			95	27-110	
2-Fluorobiphenyl (S)	%			77	30-110	
2-Fluorophenol (S)	%			87	13-110	
Nitrobenzene-d5 (S)	%			77	23-110	
Phenol-d6 (S)	%			87	22-110	
Terphenyl-d14 (S)	%			103	28-110	

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

QC Batch: PMST/6293 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92190447001, 92190447002, 92190447003

SAMPLE DUPLICATE: 1148440

Parameter	Units	92190307005 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	15.2	14.4	5	

SAMPLE DUPLICATE: 1148441

Parameter	Units	92190704006 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	11.5	11.0	5	

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QUALIFIERS

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1g	The internal standard response is below criteria. No hits associated with this internal standard. Results unaffected by high bias.
F3	The recovery of the second source standard used to verify the initial calibration curve for this analyte is outside the laboratory's control limits. The result is estimated.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WBS33727.1.1/B4490 CUMBERLAND
Pace Project No.: 92190447

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92190447004	**44-1 (TW)**	EPA 625	OEXT/26010	EPA 625	MSSV/8797
92190447001	**44-1 (4-6)**	EPA 3546	OEXT/26015	EPA 8270	MSSV/8785
92190447002	**44-3 (5-6)**	EPA 3546	OEXT/26015	EPA 8270	MSSV/8785
92190447003	**44-5 (4-6)**	EPA 3546	OEXT/26015	EPA 8270	MSSV/8785
92190447004	**44-1 (TW)**	SM 6200B	MSV/25905		
92190447001	**44-1 (4-6)**	EPA 8260	MSV/25877		
92190447002	**44-3 (5-6)**	EPA 8260	MSV/25877		
92190447003	**44-5 (4-6)**	EPA 8260	MSV/25877		
92190447001	**44-1 (4-6)**	ASTM D2974-87	PMST/6293		
92190447002	**44-3 (5-6)**	ASTM D2974-87	PMST/6293		
92190447003	**44-5 (4-6)**	ASTM D2974-87	PMST/6293		

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Pace Analytical	Sample Condition Upon Receipt (SCUR)	Page 1 of 2
	Document Number: F-CHR-CS-03-rev.13	Issuing Authority: Pace Huntersville Quality Office

Client Name: Pyramid Env.

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: IR Gun T1102 T1301 **Type of Ice:** Wet Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor **T1102**: No Correction **T1301**: No Correction

Corrected Cooler Temp.: 3.2 °C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Optional
Proj. Due Date:
Proj. Name:

Date and Initials of person examining contents: EN 2/20/14

Comments:

Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix:_____				
All containers needing preservation have been checked.	☐Yes	☐No	☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☐No	☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes	☐No		
Samples checked for dechlorination:	☑Yes	☐No	☐N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☑No	☐N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased):_____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review:	JDB	Date:	2/20/14
SRF Review:	JDB	Date:	2/20/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO# : 92190447

92190447

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1785945

Section A Required Client Information:

Company: Pyramid Envir.
Address: 503 Industrial Ave. Greensboro, NC 27406
Email To: Eric@pyramidenvironmental.com
Phone: 336-335-3174 Fax:
Requested Due Date/TAT: Normal

Section B Required Project Information:

Report To: Tim Leatherman-Pyramid
Copy To:
Purchase Order No.: WBS# 33727.1.1/13-4490
Project Name: NCDOT Cumberland Parcel 044
Project Number: 2014-008

Section C Invoice Information:

Attention:
Company Name: NCDOT
Address:
Pace Quote Reference: WBS# 33727.1.1
Pace Project Manager: Jon Bradley
Pace Profile #: 0527 1.2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: 6260	8270	6200B	625	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	44-1(4-6)	S	G			2/18/14	1130		5									X	X				92190447001
2	44-3(5-6)	S	G			2/18/14	1240		5									X	X				002
3	44-5(4-6)	S	G			2/18/14	1250		5									X	X				003
4	44-1(TW)	WT	G			2/18/14	1230		6											X	X		004
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Ryan Kramer/Pyramid	2/19/14	1645	Pace	2/20	1105				
	Pace	2/20/14	0855		2/20/14	1356	3.2	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ryan Kramer

SIGNATURE of SAMPLER: Ryan Kramer DATE Signed (MM/DD/YY): 2/18/14

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

APPENDIX F

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Cumberland County ROW **PROJECT NO.:** B-4490
PARCELS 6, 8, 23, 25, 29, 38 and 44

Name: Eric Cross **Date:** 1/20/14 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross:
On site: 9AM
Mobilize to site. Performed site visits and owner interviews.
Leave site: 3:30PM

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Cumberland County ROW **PROJECT NO.:** B-4490
PARCELS 6, 8, 23, 25, 29, 38 and 44

Name: Eric Cross, Mika Trifunovic **Date:** 1/26/14 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross & M. Trifunovic:
On site: 9AM
Mobilize to site. Performed geophysical surveys.
Leave site: 4:00PM

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Cumberland County ROW **PROJECT NO.:** B-4490
PARCELS 6, 8, 23, 25, 29, 38 and 44

Name: Eric Cross, Alan McFadden **Date:** 1/27/14 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross & A. McFadden:
On site: 8AM
Mobilize to site. Performed geophysical surveys.
Leave site: ~6PM

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Cumberland County ROW **PROJECT NO.:** B-4490
PARCELS 6, 8, 23, 25, 29, 38 and 44

Name: Eric Cross, Alan McFadden **Date:** 1/28/14 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross & A. McFadden:
On site: 8AM
Mobilize to site. Performed geophysical surveys.
Leave site: ~6PM

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Cumberland County ROW **PROJECT NO.:** B-4490
PARCELS 6, 8, 23, 25, 29, 38 and 44

Name: Eric Cross **Date:** 1/30/14 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross:
On site: 9AM
Mobilize to site. Performed geophysical surveys.
Leave site: ~5PM

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Cumberland County ROW **PROJECT NO.:** B-4490
PARCELS 6, 8, 23, 25, 29, 38 and 44

Name: Eric Cross **Date:** 2/4/14 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross:
On site: 9AM
Mobilize to site. Performed geophysical surveys.
Leave site: ~4PM

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Cumberland County ROW **PROJECT NO.:** B-4490
PARCELS 6, 8, 23, 25, 29, 38 and 44

Name: Eric Cross, Tim Leatherman **Date:** 2/6/14 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross & T. Leatherman:
On site: 9AM
Mobilize to site. Performed geophysical surveys, GPS collection, meet locators, research.
Leave site: ~4PM

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Cumberland County ROW **PROJECT NO.:** B-4490
PARCELS 6, 8, 23, 25, 29, 38 and 44

Name: Tim Leatherman, Mika Trifunovic **Date:** 2/14/14 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

T. Leatherman & M. Trifunovic:
On site: 9AM
Mobilize to site. Performed soil boring supervision and QED analysis.
Leave site: ~5PM with additional evening processing

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Cumberland County ROW **PROJECT NO.:** B-4490
PARCELS 6, 8, 23, 25, 29, 38 and 44

Name: Tim Leatherman, Eric Cross, Ryan Kramer **Date:** 2/17/14
Mon Tue Wed Th Fri Sat Sun

TASKS PERFORMED:

T. Leatherman, E. Cross, R. Kramer:
On site: 9AM
Mobilize to site. Performed soil boring supervision and QED analysis.
Leave site: ~5PM with additional evening processing

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Cumberland County ROW **PROJECT NO.:** B-4490
PARCELS 6, 8, 23, 25, 29, 38 and 44

Name: Eric Cross, Ryan Kramer **Date:** 2/18/14 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross, R. Kramer:
On site: 9AM
Mobilize to site. Performed soil boring supervision and QED analysis.
Leave site: ~5PM with additional evening processing

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Cumberland County ROW **PROJECT NO.:** B-4490
PARCELS 6, 8, 23, 25, 29, 38 and 44

Name: Ryan Kramer **Date:** 2/19/14 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

R. Kramer:
On site: 9AM
Mobilize to site. Performed QED analysis.
Leave site: ~2PM

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Cumberland County ROW **PROJECT NO.:** B-4490
PARCELS 6, 8, 23, 25, 29, 38 and 44

Name: Eric Cross **Date:** 2/20/14 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross:
On site: 11AM
Mobilize to site. Performed groundwater sample collection.
Leave site: ~3PM