

Prepared for:

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


## Preliminary Site Assessment Report

VS & MK Inc. Property  
Parcel # 2  
416 South JK Powell Boulevard  
Whiteville, Columbus County, North Carolina  
US 701 Bypass from SR 1437 to US 74/76  
TIP Number: R-5020B  
WBS Element: 41499.1.3



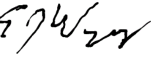
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**November 21, 2018**

*not considered final unless all signatures are completed*

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## 1.0 INTRODUCTION

This report presents the results of a Preliminary Site Assessment (PSA) for the North Carolina Department of Transportation (NCDOT) VS & MK Inc. Property performed by Apex Companies, LLC (Apex) (dba Apex Engineering PC) on behalf of the NCDOT. The subject Site of this PSA report will be affected by the widening of the US 701 Bypass from SR 1437 to US 74/76. The Site is comprised of one parcel and is located at 416 South JK Powell Boulevard and is identified as Parcel 2, VS & MK Inc. Property, within the NCDOT R-5020B design project. The property is located northwest of the South JK Powell Boulevard and West Virgil Street intersection in Whiteville, Columbus County, North Carolina, as shown in the attached Site Location Map (**Figure 1**). The Site investigation was conducted in accordance with Apex Company's Technical and Cost proposal dated May 15, 2018.

NCDOT contracted Apex to perform the PSA within the existing right-of-way (ROW) and/or easement of the VS & MK Inc. Property due to the potential presence of contamination at the Site and because excavation and grading may occur within the area. The PSA was performed to evaluate if soils have been impacted as a result of past and present uses of the property within the proposed investigation area, if buried underground storage tanks (USTs) are present in the area of investigation, and if groundwater is impacted.

The following report presents the results of an electromagnetic (EM) and ground penetrating radar (GPR) geophysical survey to identify potential underground storage tanks (USTs) in the investigation area and describes the subsurface field investigation at the Site. The report includes the evaluation of field screening, as well as field and laboratory analyses with regards to the presence or absence of soil and groundwater contamination within the area of investigation across VS & MK Inc. Property. **Appendix A** includes a Photograph log for the Site.

### 1.1 Site History

The VS & MK Inc. Property has been identified with the address of 416 South JK Powell Boulevard. Based on a search of the North Carolina Department of Environmental Quality (NCDEQ) UST database registry, three active tanks were identified for the 416 South JK Powell Boulevard Site. Apex personnel also reviewed the NCDEQ Incident Management Database and groundwater incident number 12422 is associated with this property. Incident number 12422 is named the Former Seller's Service Station and was found to have historical soil and groundwater contamination. The UST Facility ID number associated with this property is 0-035403. The location is currently operating as a Happy Mart Convenience store and gas station. Apex personnel verified monitoring wells on site.

- On February 24, 1994 a UST61 form was filed where a tank closure report filed to the Department of Environment and Natural Health stated that the closure report samples were below detectable limits (BDL) however a site visit by division proved otherwise. Additional analytical data reported TPH-DRO at 5,200 mg/kg. Contaminated soil was present in the former tank bed.
- A Notice of Regulatory Requirements was sent to the owner of Mr. Wayne Sellers on August 11, 1995 confirming a release from the UST system and depicted the legal requirements pertaining to this type of release.
- September 22, 1995 four 3,000-gallon capacity gasoline USTs were removed from the site and one 1,000-gallon capacity kerosene UST was removed from the site.
- According Environmental Hydrogeological Consultant's Inc., Initial of Title 15A NCAC 2N Requirements Report on February 16, 1996 described evidence of contamination in the groundwater exceeding the North Carolina 2L Groundwater Quality Standards (2L Standards) on the northern and southern portions of the property.

Historical records can be found in **Appendix B**.

## 1.2 Site Description

The Site is located in a mixed commercial and residential area of Whiteville in Columbus County, North Carolina bordered to the north by residential properties and to the east by S JK Powell Boulevard followed by commercial buildings. West Virgil Street followed by residential properties borders the Site to the south, and residential properties are located to the west. Parcel 2, VS & MK Inc. Property, appears on the NCDEQ UST database registry and is identified with three known USTs on Site. The geophysical surveyor, Pyramid Environmental & Engineering, PC, (Pyramid) identified one EM anomaly (Anomaly 5) which was suspected reinforced concrete. Pyramid concluded the geophysical data did not indicate the presence of metallic USTs on Parcel 2 within the area of investigation.

## 2.0 GEOLOGY

### 2.1 Regional Geology

Parcel 2, the VS & MK Inc. property, is located within the Coastal Plain Physiographic Province. The Coastal Plain is the largest physiographic province in the state, covering about 45% of the land area. According to the US Geological Survey Hydrogeological framework of the North Carolina coastal plain, the geology consists of eastward-dipping and eastward-thickening series of sedimentary rocks which range in age from Holocene to Cretaceous. The most common type of sediment types are sand and clay, although a significant amount of limestone occurs in the southern part of the coastal plain. The Site overlies surficial sediments (to approximately 30 to

40 feet bls), the PeeDee Confining unit (approximately 10 feet thick in this area), and the Late Cretaceous age Peedee Formation. The Peedee Formation is named for exposures along the great Peedee River, it preserves belemnites and foraminifera fossils dating from the Late Cretaceous. It generally consists of marine sand, clayey sand and clay (M.D. Winner Jr. and R.W. Coble, 1996, *Hydrogeologic Framework of the North Carolina Coastal Plain, Regional Aquifer-System Analysis – Northern Atlantic Coastal Plain*, USGS Professional Paper 1404-I).

## 2.2 Site Geology

Site geology was observed through the drilling and sampling of ten direct push technology (DPT) soil borings (SB) onsite. **Figure 2** presents the boring locations and Site layout. Borings did not exceed a total depth of ten feet below ground surface (bgs) since that depth was the maximum excavation depth for proposed drainage features. Soil consisting predominantly of black sand and silt was observed across the parcel. The soils were unconsolidated and as a result the borings often collapsed. According to historic assessment reports, the approximate direction of groundwater flow was determined to generally flow towards the south-southeast towards Soules Swamp. Boring logs are presented in **Appendix C**.

## 3.0 FIELD ACTIVITIES

### 3.1 Preliminary Activities

Prior to commencing field sampling activities at the Site, several tasks were accomplished in preparation for the subsurface investigation. A Health and Safety Plan (HASP) was prepared to include the Site-specific health and safety information necessary for the field activities. North Carolina-One Call was contacted on May 25, 2018 to report the proposed drilling activities and notify affected utilities. Apex subcontracted Pyramid to locate subsurface utilities and other subsurface drilling hazards as well as to perform a geophysical survey. Carolina Soil Investigations, LLC (CSI) of Olin, North Carolina was retained by Apex to perform the direct push sampling for soil borings. REDLAB, LLC (REDLAB) provided an ultraviolet fluorescence (UVF) Hydrocarbon Analyzer and Eastern Solutions provided a calibrated Flame Ionization/Photoionization Detector (FID/PID). Boring locations were strategically placed in a pattern within the area of investigation to maximize the opportunity to encounter potentially contaminated soil.

### 3.2 Site Reconnaissance

Apex personnel performed a Site reconnaissance on June 7, 2018. During the Site reconnaissance, the area was visually examined for the presence of potential USTs or areas/obstructions that could potentially affect the subsurface investigation. The proposed boring locations were marked based on the Site inspection and geophysical survey results.

Apex personnel also used the Site visit as an opportunity to contact the property manager/owner to inform them of upcoming field activities.

### 3.3 Geophysics Survey Results

The geophysical survey of the Site was conducted from May 30, 2018 to June 5, 2018. Pyramid performed an EM metal survey followed by a GPR survey. Six EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. One EM anomaly (Anomaly 5) was associated with suspected reinforced concrete. GPR verified the presence of metal reinforcement within the concrete covered by asphalt. Pyramid concluded the geophysical data did not record any evidence of metallic USTs on Parcel 2. A copy of the Geophysical Report is presented in **Appendix D**. The anomaly locations are depicted on **Figure 2** of the Geophysical report.

### 3.4 Well Survey

No water supply wells were observed on Site, however one monitoring well was noted within the assessment area of Parcel 2 with the G.P.S coordinates of 34.324712 -78.708053. Historical data indicates that this monitoring well is identified as MW-1. Depth to water for MW-1 is 2.75 feet bgs. Two additional monitoring wells were identified on Site; however, they are not located within the design area.

### 3.5 Soil Sampling

Apex conducted drilling activities at the Site on June 7, 2018. The purpose of soil sampling was to determine if a petroleum release had occurred within the investigation area, and if so, to estimate the volume of impacted soil that might require special handling during construction activities. Apex drilling subcontractor, CSI, advanced ten direct push soil borings within the proposed investigation area. The ten boring locations were placed in a pattern to maximize the likelihood of identifying potential soil contamination. **Figure 2** presents the Site Map with boring locations and site structures.

Soil sampling was performed utilizing hand auger and direct push methods accompanied by field screening with the FID/PID unit and onsite quantitative analyses with the UVF Hydrocarbon Analyzer. One to two intervals of the soil boring, exhibiting the most elevated FID/PID readings, were selected for onsite quantitative analysis of total petroleum hydrocarbons (TPH) in soil using the REDLAB UVF Hydrocarbon Analyzer. The analysis was performed onsite by Mr. Troy Holzschuh, a certified REDLAB UVF technician with Apex. The UVF results were generated concurrent with soil boring activities so that rapid assessment could be utilized for strategic boring placement.

### 3.6 Groundwater Sampling

Apex personnel mobilized to the Site on June 7, 2018 to obtain groundwater grab samples. Groundwater grab sample locations were chosen based on data generated from the UVF analyzer and on-site conditions such as the likely groundwater gradient and UST locations. The soils encountered were very sandy and unconsolidated, and as a result the borings would not stand open. Apex instructed CSI personnel to temporarily install a one-inch diameter 10-slot screen into monitoring well SB-4 for the purposes of collecting a groundwater grab sample. Apex personnel collected one sample for laboratory analysis to determine the chemical specific concentrations present. The sample was collected from boring P2-SB4 and analyzed for the presence of volatile organic compounds (VOCs) in accordance with Method 8260, semi-volatile organic compounds (SVOCs) in accordance with Method 8270, and extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH) in accordance with the Massachusetts Department of Environmental Protection (MADEP) Method.

## 4.0 SAMPLING RESULTS

### 4.1 Soil Sampling Results

Based on FID/PID field screening and onsite UVF hydrocarbon analysis from the June 2018 soil sampling there is significant evidence of petroleum hydrocarbon contamination onsite, within the area of investigation.

Elevated FID/PID readings, above ten parts per million (ppm), were observed soils in several of the borings. The FID readings ranged from non-detect to greater than 264,000 parts per million (ppm) (P2-SB4 at 4 to 5 feet bgs, P2-SB4a at 0 to 3 feet bgs, and P2-SB4d at 2 to 3 feet bgs) and the PID readings ranged from non-detectable to 1,120 ppm (P2-SB4 at 4 to 5 feet bgs). The FID/PID field screening results are provided on the boring logs in **Appendix C**.

Soil samples which exhibited elevated PID and/or FID readings were field analyzed using the UVF instrument for the presence of TPH as diesel range organics (DRO) and gasoline range organics (GRO). These analytical results are provided in **Table 1**, with instrument generated tables and chromatographs included as **Appendix E**. **Figure 3** presents the GRO and DRO results at each boring.

Based on the UVF analyses, TPH-GRO and TPH-DRO concentrations were identified in soils on the VS & MK Inc. property. Due to the shallow groundwater table, Apex personnel collected samples from above the smear zone and in the saturated zone to analyze with the onsite UVF. TPH-GRO concentrations above the smear zone ranged from below detectable levels to 1,216 milligrams per kilogram (mg/kg) in P2-SB-4d and TPH-GRO concentrations in the saturated

zone ranged from below detectable levels to 752.5 mg/kg in P2-SB-4. TPH-DRO concentrations above the smear zone ranged from below detectable levels to 4,222 mg/kg in P2-SB-4d. TPH-DRO concentrations collected in the saturated zone ranged from below detectable levels to 670.5 mg/kg in P2-SB-4. TPH-GRO and the TPH-DRO concentrations exceeded their regulatory action levels of 50 mg/kg and 100 mg/kg respectively. The estimated area of soil contamination in the southeastern portion of Parcel 2 is approximately 533 square feet in size, or approximately 99 cubic yards. The estimated area of impact is presented in **Figure 5**.

## 4.2 Groundwater Sampling Results

Due to the elevated TPH-GRO and TPH DRO values obtained in the saturated zone of P2-SB4 using the UVF, Apex personnel collected a groundwater grab sample from boring P2-SB4 and had it analyzed by a North Carolina certified laboratory for the presence of VOCs in accordance with Method 8260, SVOCs in accordance with Method 8270, and EPH and VPH in accordance with the MADEP Method. The groundwater sample from P2-SB4 contained VOCs, SVOCs, EPH and VPH above detectable limits.

The sample contained MADEP EPH aliphatic carbon class (C09-C18) and aromatic carbon class (C11-C22), MADEP VPH aliphatic carbon class (C05-C08), aliphatic carbon class (C09-C12) and aromatic carbon class (C09-C10) above the 15A NCAC 02L.0202 Groundwater Standards (2L Standard). MADEP EPH aliphatic carbon class (C19-C36) was none detect.

The sample contained VOCs including benzene, 2-butanone (MEK), chloroethene, ethylbenzene, isopropyl benzene, 4-Methyl-2-pentone (MBK), naphthalene, n-propyl benzene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, xylene (total). All contaminants were identified exceed their respective 2L Standard, with exception to 4-methyl-2-pentone (MBK).

The sample contained SVOCs included 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene. Of those constituents, 2-methylnaphthalene and naphthalene exceeded the 2L Standard.

The groundwater UVF results are tabulated in **Table 1**, the chemical specific analytical data is tabulated in **Tables 2**. The instrument generated tables and chromatographs as well as the laboratory analytical data report is included in **Appendix E** and summarized on **Figure 4**.

The estimated area of groundwater impact in the southeastern portion of Parcel 2 is approximately 2,674 square feet in size. The estimated area of impact is presented in **Figure 5**.



## 5.0 CONCLUSIONS

Based on Site observations and onsite UVF analysis, petroleum-impacted soil contamination was identified above the NCDEQ Action level of 50 mg/kg for TPH-GRO or above the NCDEQ Action level of 100 mg/kg for TPH-DRO. The groundwater sample analyzed from boring P2-SB4 contained constituents of concern exceeding the 2L Standards including EPH, VPH, VOC's and SVOC's.

The following bulleted summary is based upon Apex's evaluation of field observations and onsite quantitative analyses of samples collected from the Site on June 7, 2018.

- Historic assessment results indicate that groundwater on-site is impacted in excess of the 2L Standards. The groundwater from the source area flows toward the south-southwest, towards the proposed ROW.
- Results of the geophysical survey did not produce anomalies characteristic of USTs.
- Ten soil borings were advanced onsite. Soil samples collected from each boring were analyzed in the field using a REDLAB UVF Hydrocarbon Analyzer.
- Soil samples, P2-SB4, P2-SB4a, P2-SB4d, analyzed using the UVF contained TPH-DRO and TPH-GRO concentrations above their respective NCDEQ Action levels of 100 mg/kg and 50 mg/kg.
- One groundwater sample was analyzed by the laboratory for the presence of VOCs, SVOCs, and VPH and EPH using the MADEP Method. As described in Section 4.2, all constituents that were identified resulted in exceedances above the 2L Standard with exception of MADEP EPH, aliphatic carbon class (C19-C36). VCO 4-methyl-2-pentinone, and SVOC 1-methylnaphthalene. This data indicates there is significant groundwater impacts on Parcel 2.

## 6.0 RECOMMENDATIONS

Based on these PSA results, NCDOT will need to manage any groundwater encountered during excavation activities to assure that the impacted water does not migrate from the Site and to prevent exposure to workers. The subject parcel is designed as a fill area. The drainage features are planned to be installed in the southeastern portion of Parcel 2. Soil and groundwater contamination was noted in the southeastern portion of Parcel 2. Due to shallow groundwater the drainage features will likely encounter groundwater. Groundwater could be

encountered as shallow as 2.75 feet bgs. NCDOT should be prepared to dewater and containerize contaminated groundwater if encountered during construction activities. Additionally, MW-1 lies within the central portion of the design area, which will need to be abandoned prior to removal.

## **TABLES**

**Table 1**  
**UVF Onsite Hydrocarbon Analytical Soil and Groundwater Data from June 2018**  
**R-5020B, Parcel 02, VS and MK Property**  
**Whiteville, Columbus County, North Carolina**

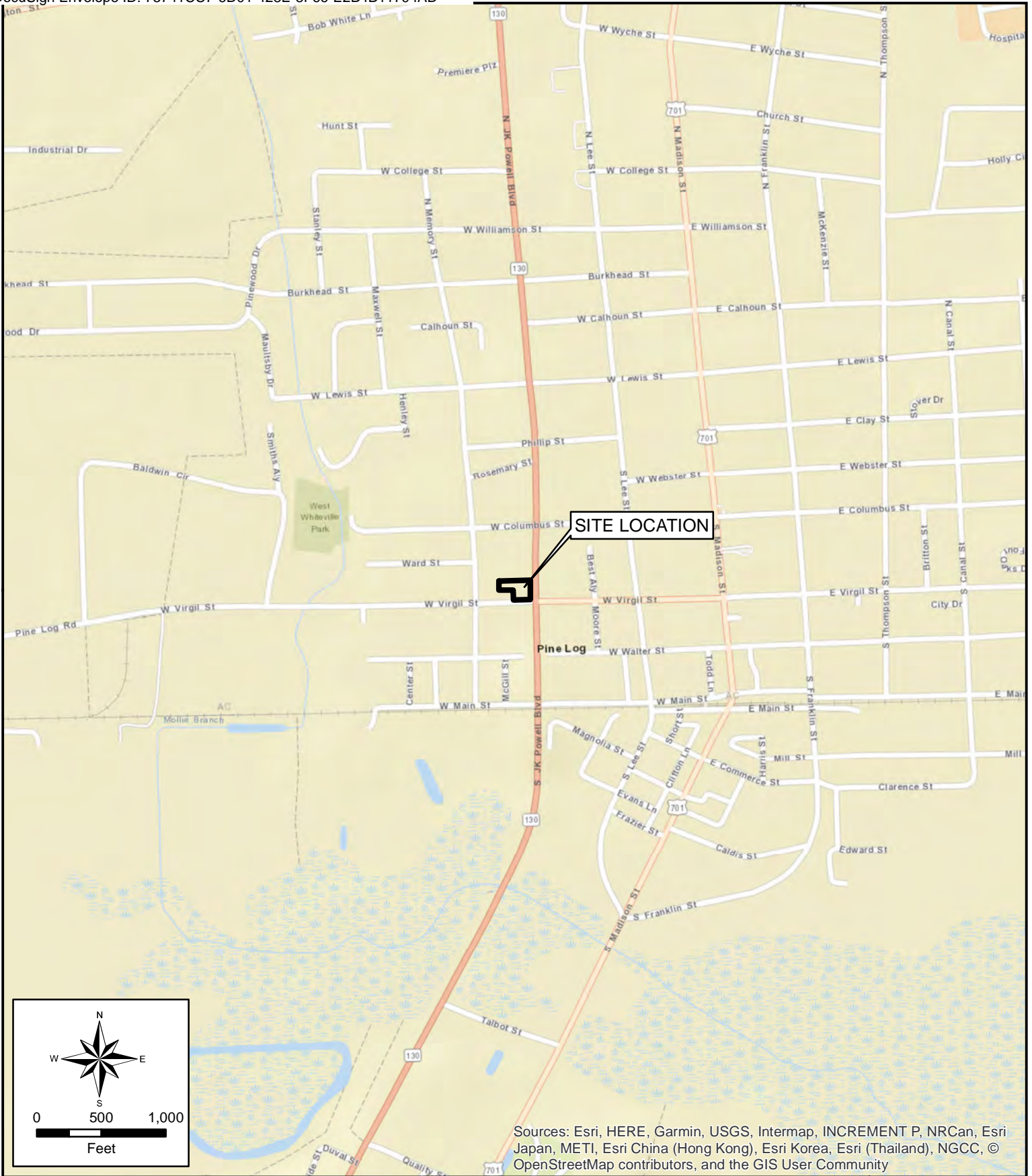
Sample ID Number	Sample Date	Sample Depth (ft bgs)	GRO (mg/kg) (C5-C10)	DRO (mg/kg) (C10-C35)
<b>SOIL</b>				
NCDEQ Action Level in mg/kg			<b>50</b>	<b>100</b>
P2-SB1	6/7/2018	1.5 - 2	<0.48	0.48
P2-SB1	6/7/2018	4 - 5	<0.41	0.41
P2-SB2	6/7/2018	2 - 3	<0.58	<0.58
P2-SB2	6/7/2018	3 - 4	<0.27	<0.27
P2-SB3	6/7/2018	1 - 2	<0.81	2.1
P2-SB3	6/7/2018	3 - 4	<0.26	<0.26
P2-SB4	6/7/2018	2 - 2.5	<b>719.9</b>	<b>792.2</b>
P2-SB4	6/7/2018	4 - 5	<b>752.5</b>	<b>670.5</b>
P2-SB5	6/7/2018	1 - 2	<0.26	<0.26
P2-SB5	6/7/2018	4 - 5	<0.28	<0.28
P2-SB4a	6/7/2018	2 - 2.5	<b>697.2</b>	<b>728</b>
P2-SB4b	6/7/2018	1.5 - 2	<2.2	<2.2
P2-SB4c	6/7/2018	2 - 2.5	<2.5	<2.5
P2-SB4d	6/7/2018	2 - 2.5	<b>1216</b>	<b>4222</b>
P2-SB4dd	6/7/2018	2 - 2.5	8.7	87.8
<b>NOTES:</b> (mg/kg) = Milligrams per kilogram GRO = Gasoline Range Organics DRO = Diesel Range Organics ft bgs = feet below ground surface TPH - GRO values in exceedance of NCDEQ Action Level of 50 mg/kg are shown in Bold TPH - DRO values in exceedance of NCDEQ Action Level of 100 mg/kg are shown in Bold				

**Table 2**  
**Analytical Groundwater Data (June 2018) - Detected Analytes**  
**R-5020B, Parcel 02, VS MK Inc., Property**  
**Whiteville, Columbus County, North Carolina**

Analytical Method		EPA Method 8260											EPA Method 8270			MADEP EPH			MADEP VPH			
Sample ID Number	Sample Date	Benzene	2-Butanone (MEK)	Chloroethane	Ethylbenzene	Isopropylbenzene (Cumene)	4-Methyl-2-pentynone (MIBK)	Naphthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylene (Total)	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Aliphatic (C09-C18)	Aliphatic (C19-C36)	Aromatic (C11-C22)	Aliphatic (C05-C08)	Aliphatic (C09-C12)	Aromatic (C09-C10)
15A NCAC 02L.0202 Groundwater Standards µg/L		1	4 mg/L	3 mg/L	600	70	NE	6	70	600	400	400	500	NE	30	6	700	10,000	200	400	700	200
P-2-SB-4	6/7/2018	2,510	829	111	5,400	686	97.4J	2,320	1,870	13,500	12,800	4,230	31,600	120	276	671	63,100,000	ND	2,940,000	37,600	62,800	22,200

**NOTES:**  
 µg/L - micrograms per liter  
 US EPA 8260 - Volatile Organic Compounds  
 Samples collected on 6/7/2018 were analyzed for VOCs using method 8260 MSV Low Level  
 J - Estimated concentration above adjusted method detection limit and below adjusted reporting limit  
 B- Detected in the method blank  
 ND - Below laboratory practical quantitative limits  
 NA - Not Analyzed  
 NE - No standard established  
 NCAC - North Carolina Administrative Code  
 Concentrations in **BOLD** exceed the NCAC 2L Standards  
 Concentrations in   exceed the NCAC 2B Standards  
 \* - Value based on limited available data  
 US EPA 82670 - Semi-Volatile Organic Compounds  
 MADEP EPH and VPH - Massachusetts Department of Environmental Protection - Extractable Petroleum Hydrocarbons and Volatile Petroleum Hydrocarbons

## FIGURES



CHECK BY: TH
DRAWN BY: SP
DATE: 7/6/2018
SCALE: AS SHOWN
CAD NO.: NCDOT-001
PRJ NO.: NCDOT-001

**SITE LOCATION MAP**  
  
**PARCEL #2**  
**416 S. JK POWELL BOULEVARD**  
**WHITEVILLE, NORTH CAROLINA**



FIGURE  
  
**1**





Sample Identification	P2-SB1
Sample Depth (Feet bgs)	1.5-2
TPH GRO (mg/kg)	<0.48
THP DRO (mg/kg)	0.48
Sample Depth (Feet bgs)	4-5
TPH GRO (mg/kg)	<0.41
THP DRO (mg/kg)	0.41

Sample Identification	P2-SB3
Sample Depth (Feet bgs)	1-2
TPH GRO (mg/kg)	<0.81
THP DRO (mg/kg)	2.1
Sample Depth (Feet bgs)	3-4
TPH GRO (mg/kg)	<0.26
THP DRO (mg/kg)	<0.26

Sample Identification	P2-SB4dd
Sample Depth (Feet bgs)	2-2.5
TPH GRO (mg/kg)	8.7
THP DRO (mg/kg)	87.8

Sample Identification	P2-SB4d
Sample Depth (Feet bgs)	2-2.5
TPH GRO (mg/kg)	1216
THP DRO (mg/kg)	4222

Sample Identification	P2-SB4c
Sample Depth (Feet bgs)	2-2.5
TPH GRO (mg/kg)	<2.5
THP DRO (mg/kg)	<2.5

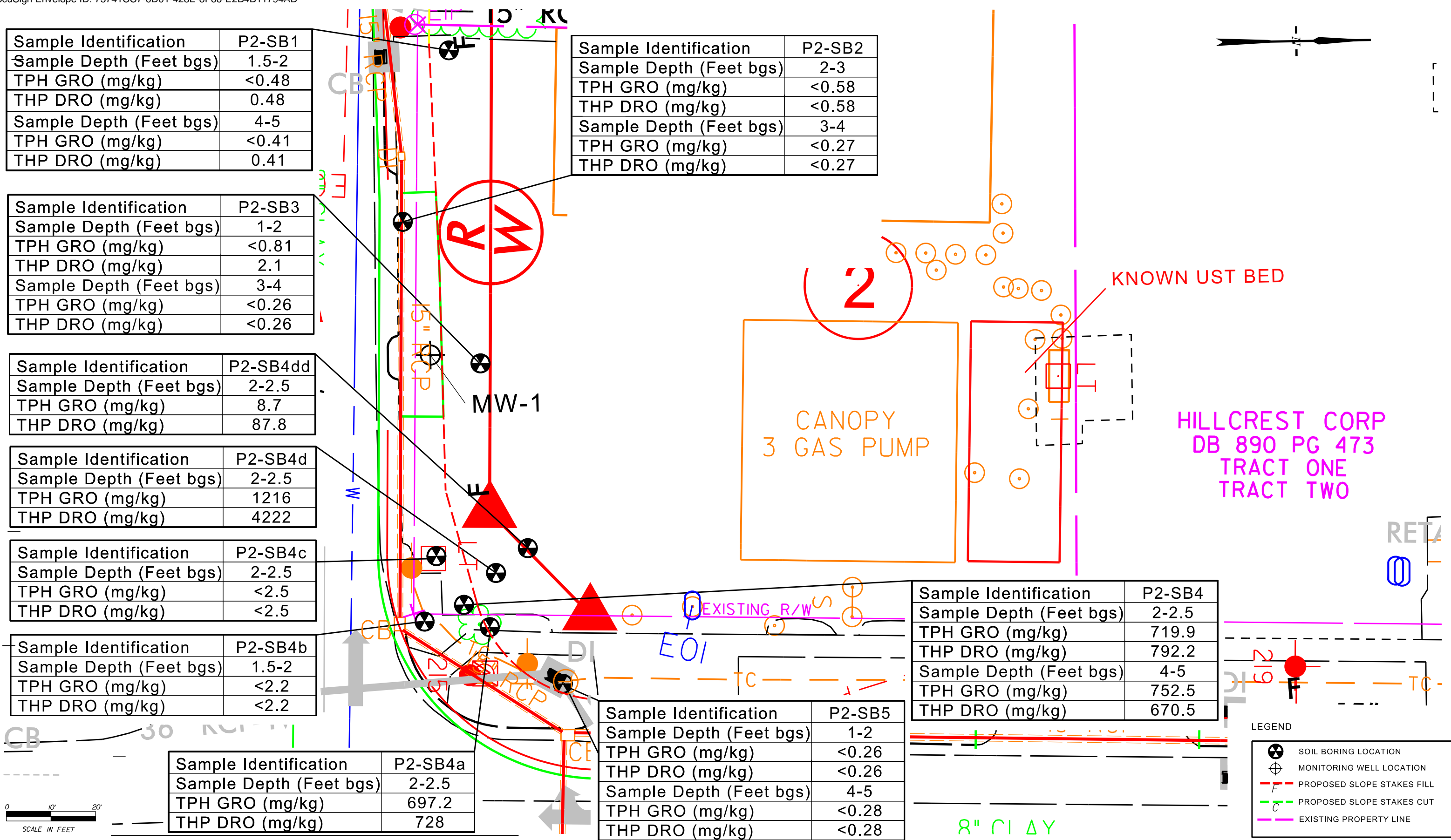
Sample Identification	P2-SB4b
Sample Depth (Feet bgs)	1.5-2
TPH GRO (mg/kg)	<2.2
THP DRO (mg/kg)	<2.2

Sample Identification	P2-SB4a
Sample Depth (Feet bgs)	2-2.5
TPH GRO (mg/kg)	697.2
THP DRO (mg/kg)	728

Sample Identification	P2-SB2
Sample Depth (Feet bgs)	2-3
TPH GRO (mg/kg)	<0.58
THP DRO (mg/kg)	<0.58
Sample Depth (Feet bgs)	3-4
TPH GRO (mg/kg)	<0.27
THP DRO (mg/kg)	<0.27

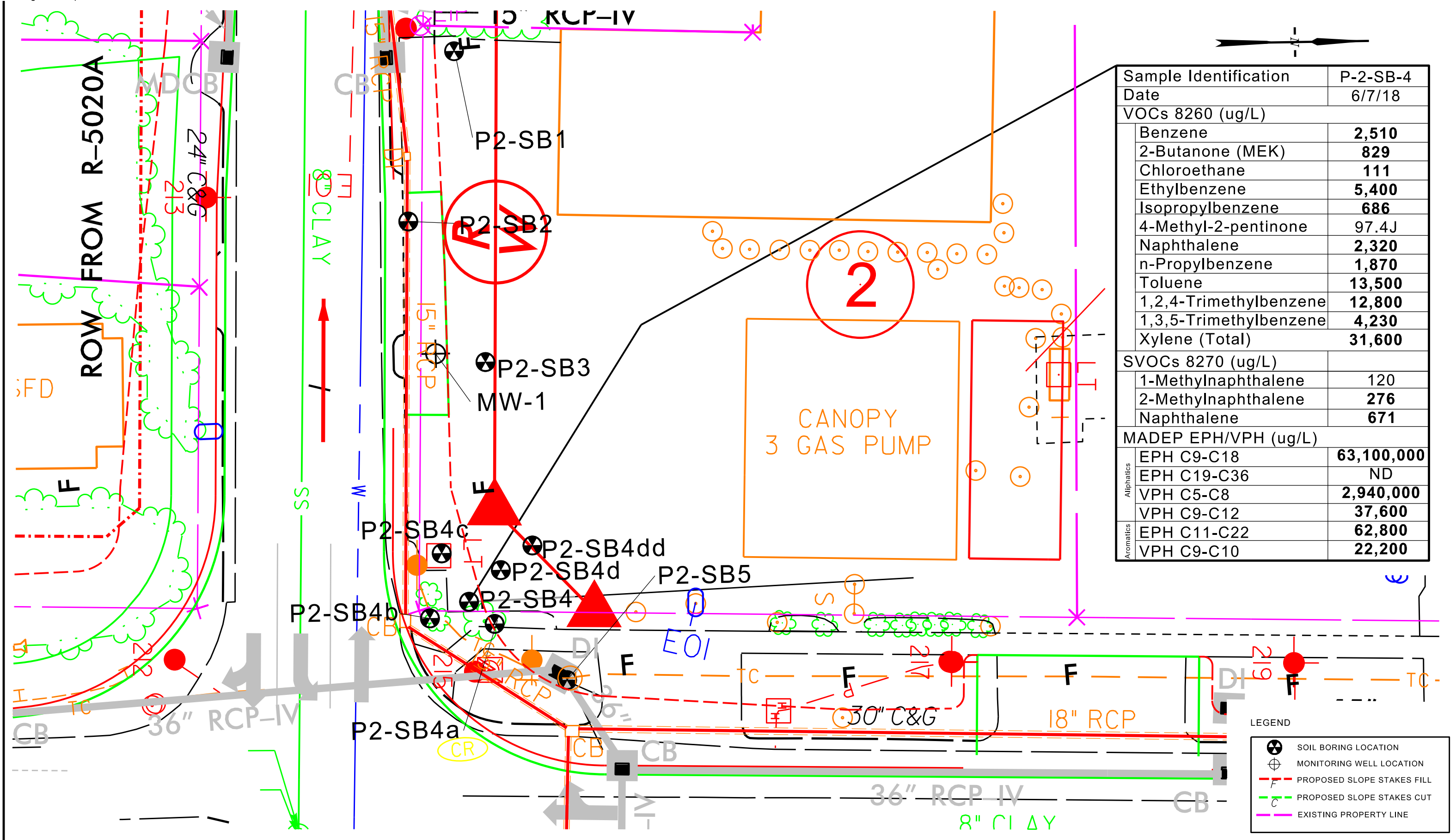
Sample Identification	P2-SB4
Sample Depth (Feet bgs)	2-2.5
TPH GRO (mg/kg)	719.9
THP DRO (mg/kg)	792.2
Sample Depth (Feet bgs)	4-5
TPH GRO (mg/kg)	752.5
THP DRO (mg/kg)	670.5

Sample Identification	P2-SB5
Sample Depth (Feet bgs)	1-2
TPH GRO (mg/kg)	<0.26
THP DRO (mg/kg)	<0.26
Sample Depth (Feet bgs)	4-5
TPH GRO (mg/kg)	<0.28
THP DRO (mg/kg)	<0.28



**FIGURE 3**  
**PARCEL 02**  
 416 S. JK. POWELL BLVD.  
 ONSITE UVF HYDROCARBON ANALYSIS RESULTS - SOIL JUNE 7, 2018

Date:	7/2/18	R-5020B US 701 BYPASS COLUMBUS COUNTY		
Proj. #	NCDOT-001			
pc_02_fig 3.dgn		Project Title:		
CAD File:		1" = 20'	MJO	NC DOT
Approx. Scale:		Drawn by:		Client:



Sample Identification	P-2-SB-4
Date	6/7/18
VOCs 8260 (ug/L)	
Benzene	2,510
2-Butanone (MEK)	829
Chloroethane	111
Ethylbenzene	5,400
Isopropylbenzene	686
4-Methyl-2-pentinone	97.4J
Naphthalene	2,320
n-Propylbenzene	1,870
Toluene	13,500
1,2,4-Trimethylbenzene	12,800
1,3,5-Trimethylbenzene	4,230
Xylene (Total)	31,600
SVOCs 8270 (ug/L)	
1-Methylnaphthalene	120
2-Methylnaphthalene	276
Naphthalene	671
MADEP EPH/VPH (ug/L)	
Aliphatics	
EPH C9-C18	63,100,000
EPH C19-C36	ND
VPH C5-C8	2,940,000
VPH C9-C12	37,600
Aromatics	
EPH C11-C22	62,800
VPH C9-C10	22,200

LEGEND

- SOIL BORING LOCATION
- MONITORING WELL LOCATION
- PROPOSED SLOPE STAKES FILL
- PROPOSED SLOPE STAKES CUT
- EXISTING PROPERTY LINE

FIGURE 4  
 PARCEL 02  
 416 S. JK. POWELL BLVD.  
 GROUNDWATER ANALYTICAL RESULTS - DETECTED ANALYTES

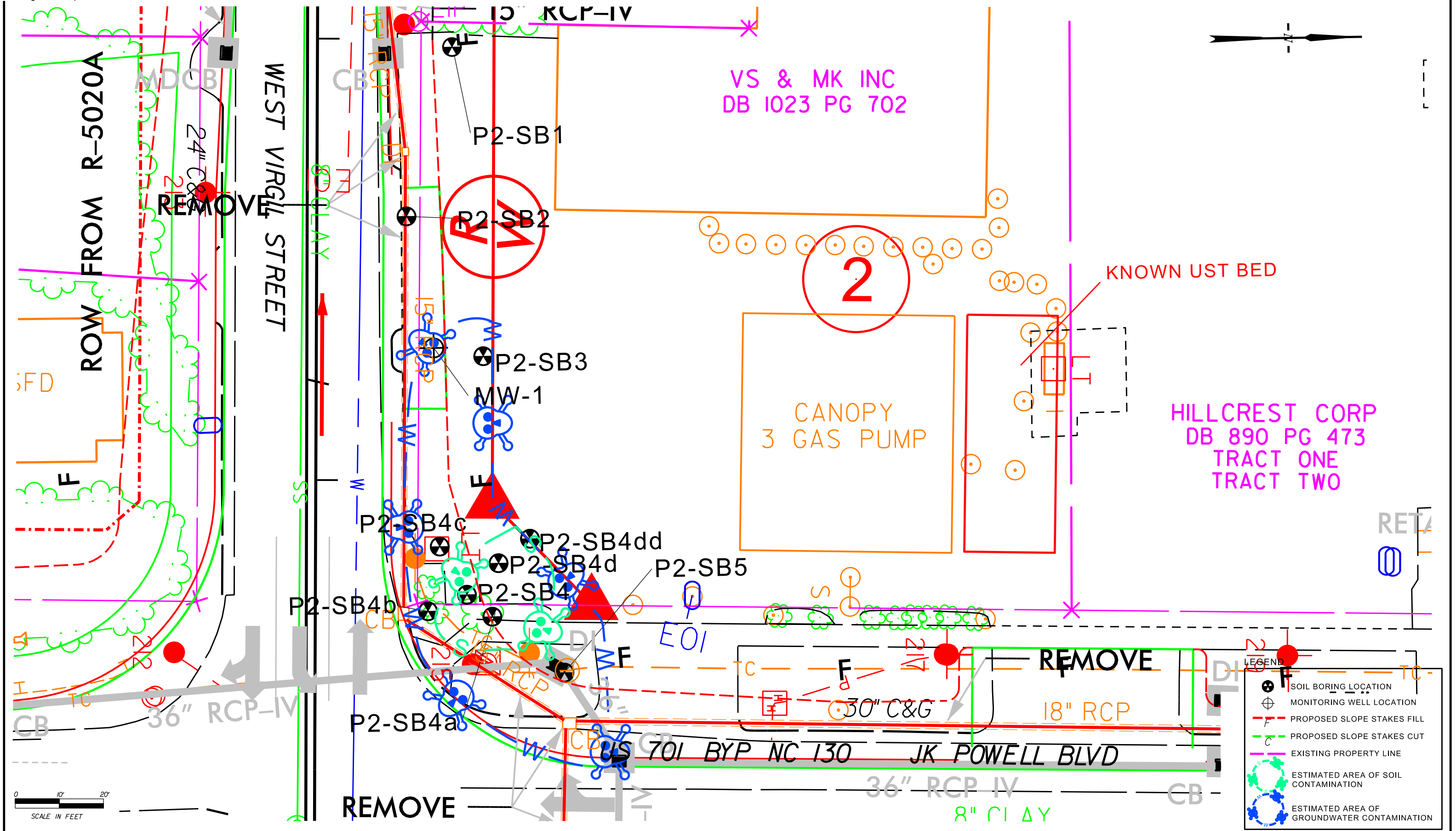


FIGURE 5  
 PARCEL 02  
 416 S. JK. POWELL BLVD.  
 SITE MAP WITH ESTIMATED AREA OF SOIL  
 AND GROUNDWATER CONTAMINATION

**APPENDIX A**  
**PHOTOGRAPH LOG**



**Photo 1**

Overview of site prior to preliminary site assessment activities.



**Photo 2**

CSI preparing to begin drilling.

10610 Metromont Pkwy  
Suite 206  
Charlotte, NC 28269



WBS	41499.1.3
PROCESSED	TLH
DATE	June 2018

PHOTOGRAPHIC LOG  
 PSA Field Activities  
 Parcel 2  
 VS & MK Property  
 Whiteville, NC



**Photo 3**

Photo shows CSI hand clearing for utilities prior to using direct push rig.



**Photo 4**

Photo of temporary monitoring well after being installed.

10610 Metromont Pkwy  
Suite 206  
Charlotte, NC 28269



WBS 41499.1.3  
PROCESSED TLH  
DATE June 2018

PHOTOGRAPHIC LOG  
PSA Field Activities  
Parcel 2  
VS & MK Property  
Whiteville, NC

**APPENDIX B**  
**HISTORICAL RECORDS**



State of North Carolina  
Department of Environment, Health, and Natural Resources  
Wilmington Regional Office

James G. Martin, Governor  
William W. Cobey, Jr., Secretary

Bob Jamieson  
Regional Manager

**DIVISION OF ENVIRONMENTAL MANAGEMENT**

Groundwater Section

October 14, 1992

Mr. Wayne Sellers  
701 Bypass  
Whiteville, NC 28472

Subject: Tank Closure  
Sellers' Service Station  
701 Bypass  
Columbus County

Dear Mr. Sellers:

I have received notice of your intent to remove (or close in place) an underground storage tank. Because the tank owner, not the contractor, is held responsible for proper tank closure, I have enclosed several documents to help you. After you have read the information, call me at (919) 395-3900 if you have any questions.

**Please call me two days before you begin work so that a representative of the Division may be present.**

After tank closure, return the enclosed GW/UST-2 and your report of tank closure with soil sample results. Our central billing office will then stop invoicing you for the annual tank fees. This letter does not imply that you will be eligible for reimbursement of any costs associated with tank closure from the Leaking Petroleum Underground Storage Tank Trust Fund.

Thank you for your cooperation.

Sincerely,

Deborah T. Mayo  
Hydrogeological Technician

DTM/lfc

cc: Calvin Goins' Construction  
Columbus County Fire Marshall  
**WiRO-GWS**

Enclosures: (1) GW/UST-2  
(2) GW/UST-3  
(3) Tank Closure Guidelines

UST\SELLERS.OCT  
10/14/92



## Notice of Intent: UST Permanent Closure or Change-In-Service

<b>FOR TANKS IN NC</b>	<b>Return Completed Form To:</b> The appropriate DEM Regional Office according to the county of the facility's location. [SEE REVERSE SIDE OF OWNER'S COPY (BLUE) FOR REGIONAL OFFICE ADDRESS].	State Use Only I. D. Number _____ Date Received <u>RECEIVED</u>
------------------------------------	--	---

### INSTRUCTIONS

Complete and return thirty (30) days prior to closure or change-in-service.

OCT 9 1992

I. OWNERSHIP OF TANK(S)	II. LOCATION OF TANK(S) <small>Wilmington Regional Office DEM</small>
Tank Owner Name: <u>Wayne &amp; David Sellers</u> <small>(Corporation, Individual, Public Agency, or Other Entry)</small>	Facility Name or Company: <u>Sellers' Service Station</u>
Street Address: <u>701 Bypass</u>	Facility ID # (if available): <u>56-0614412</u>
County: <u>Columbus</u>	Street Address or State Road: <u>701 Bypass</u>
City: <u>Whiteville</u> State: <u>N.C.</u> Zip Code: <u>28472</u>	County: <u>Columbus</u> City: <u>Whiteville</u> Zip Code: <u>28472</u>
Tele. No. (Area Code): <u>919-642-4394</u>	Tele. No. (Area Code): <u>919-642-4394</u>

### III. CONTACT PERSON

Name: Wayne Sellers Job Title: Co-owner Telephone Number: (919) <sup>642-4394</sup> 642-4631

### IV. TANK REMOVAL, CLOSURE IN PLACE, CHANGE-IN-SERVICE

- |   |  |
|---|--|
| 1. Contact Local Fire Marshall.<br>2. Plan the entire closure event.<br>3. Conduct Site Soil Assessments.<br>4. If Removing Tanks or Closing in Place refer to API Publications. 2015 "Cleaning Petroleum Storage Tanks" & 1604 "Removal & Disposal of Used Underground Petroleum Storage Tanks". | 5. Provide a sketch locating piping, tanks and soil sampling locations.<br>6. Fill out form GW/UST-2 "Site Investigation Report for Permanent Closure" and return within 30 days following the site investigation.<br>7. Keep records for 3 years. |
|---|--|

### V. WORK TO BE PERFORMED BY:

(Contractor) Name: Calvin Goins' Construction

Address: Rt. 1, Box 363 E, Whiteville State: N.C. Zip Code: 28472

Contact: Calvin Goins Phone: 919-642-0542

### VI. TANK(S) SCHEDULED FOR CLOSURE OR CHANGE-IN-SERVICE

TANK ID#	TANK CAPACITY	LAST CONTENTS	PROPOSED ACTIVITY		
			CLOSURE		CHANGE-IN-SERVICE
			Removal	Abandonment In Place	New Contents Stored
<u>1</u>	<u>3000</u>	<u>Gasoline</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<u>2</u>	<u>3000</u>	<u>Gasoline</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<u>3</u>	<u>3000</u>	<u>Gasoline</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<u>4</u>	<u>3000</u>	<u>Gasoline</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<u>5</u>	<u>1000</u>	<u>Kerosene</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	

### VII. OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE

Print name and official title: Wayne Sellers Co-owner \*Scheduled Removal Date: 11-10-92

Signature: Wayne Sellers Date Submitted: 10-8-92

\*If scheduled work date changes, notify your appropriate DEM Regional Office 48 hours prior to originally scheduled date.

**(GW/UST-2) Site Investigation Report For Permanent Closure or Change-in-Service of U.S.T.**

<p><b>FOR TANKS IN NC</b></p>	<p><b>Return Completed Form To:</b> The appropriate DEM Regional Office according to the county of the facility's location. [SEE MAP ON REVERSE SIDE OF OWNER'S COPY (PINK) FOR REGIONAL OFFICE ADDRESS].</p>	<p>State Use Only I.D. Number _____ Date Received _____</p>
-------------------------------	---	---

**INSTRUCTIONS**

Complete and return within (30) days following completion of site investigation.

I. Ownership of Tank(s)	II. Location of Tank(s)
<p>Wayne &amp; David Sellers Owner Name (Corporation, Individual, Public Agency, or Other Entity) 701 BYPASS Street Address Columbus County Whiteville, N.C. 28472 City State Zip Code 919 642-4394 Area Code Telephone Number</p>	<p>Sellers Service Station Facility Name or Company 0-032672 Facility ID # (if available) 701 BYPASS Street Address or State Road Columbus Whiteville 28472 County City Zip Code 919 642-4394 Area Code Telephone Number</p>

**III. Contact Person**

Calvin Goins owner 919-642-0542  
Name Job Title Telephone No. (Area Code)  
Goins Const. Rt. 5, Box 363E Whiteville, N.C. 919-642-0542  
(Name) (Address) Telephone No. (Area Code)  
Law & Company of Wilmington P.O. Box 629 Wilmington, N.C. 919-762-7082  
(Name) (Address) Telephone No. (Area Code)

IV. U.S.T. Information				V. Excavation Condition				VI. Additional Information Required	
Tank No.	Size in Gallons	Tank Dimensions	Last Contents	Water in Excavation		Free Product		Notable Odor or Visible Soil Contamination	
				Yes	No	Yes	No	Yes	No
1	3,000	18' X 5' 4"	Gas					✓	✓
2	3,000		Gas					✓	✓
3	3,000		Gas					✓	✓
4	3,000		Gas					✓	✓
5	1,000	46" X 143"	Kero					✓	✓

See reverse side of pink copy (owner's copy) for additional information required by N.C. - DEM in the written report and sketch.

RECEIVED

DEC 12 1993

**VII. Check List**

Check the activities completed.

- Contact local fire marshal
  - Notify DEM Regional Office before abandonment.
  - Drain & flush piping into tank.
  - Remove all product and residuals from tank
  - Excavate down to tank
  - Clean and inspect tank.
  - Remove drop tube, fill pipe, gauge pipe, vapor recovery tank connections, submersible pumps and other tank fixtures.
  - Cap or plug all lines except the vent and fill lines.
  - Purge tank of all product & flammable vapors.
  - Cut one or more large holes in the tanks.
  - Backfill the area.
- Date Tank(s) Permanently closed: 12-4-92  
Date of Change-in-Service: \_\_\_\_\_

- ABANDONMENT IN PLACE**
- Fill tank until material overflows tank opening;
  - Plug or cap all openings;
  - Disconnect and cap or remove vent line
  - Solid inert material used - specify: \_\_\_\_\_

- REMOVAL**
- Create vent hole
  - Label tank
  - Dispose of tank in approved manner
- Final tank destination: Jacksonville, N.C.

**VIII. Certification (Read and Sign)**

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

Print name and official title of owner or owner's authorized representative	Signature	Date Signed
Wayne Sellers Co-owner	Wayne Sellers	12-30-92

**UST SITE INVESTIGATION SUMMARY REPORT (DO NOT Write On This Page)**

(Attach Written Report and Sketch to this form)

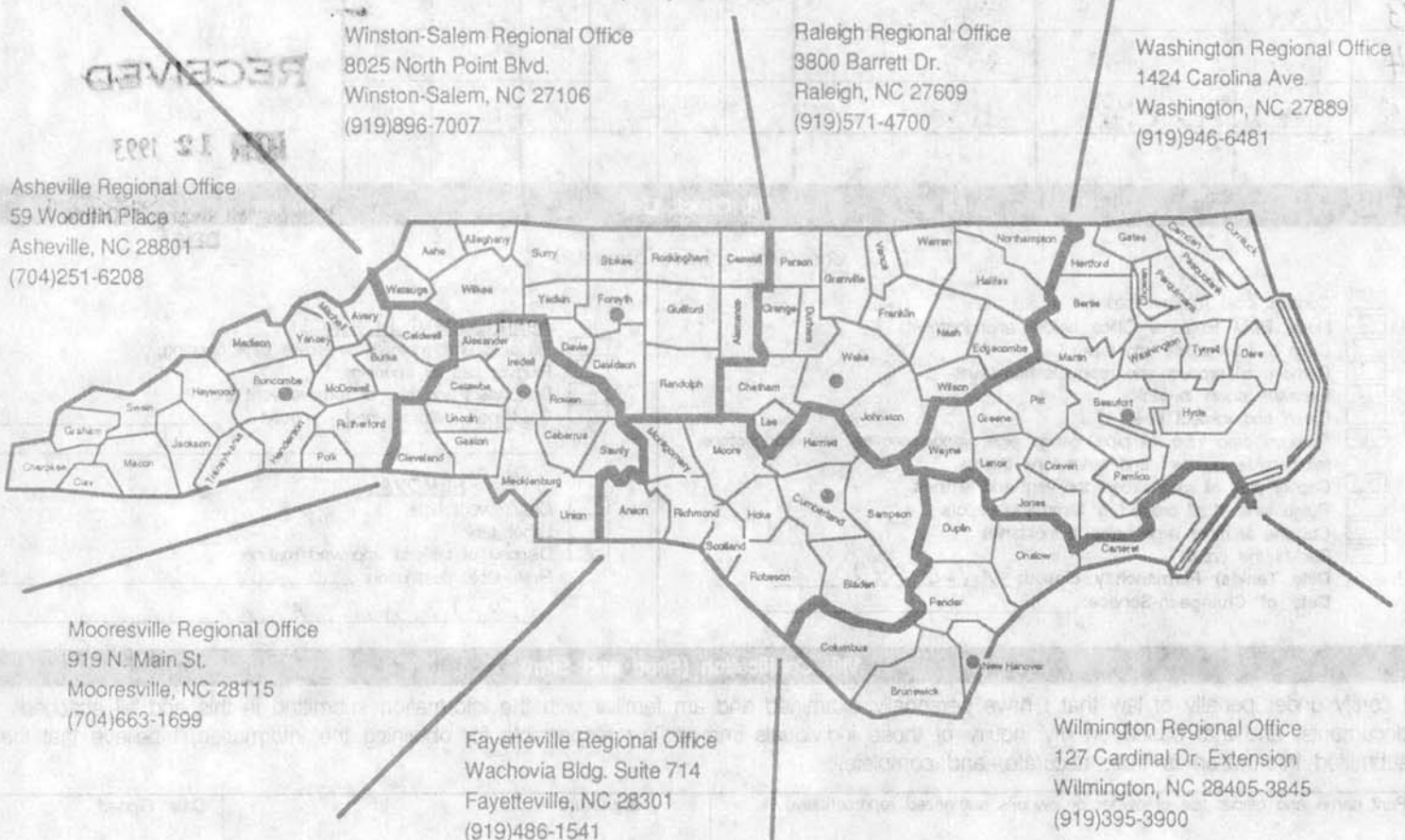
**I. Written Report Must Indicate:**

- a. probable source(s) of contamination
- b. field screening methods used
- c. tabulated results of field screening, including sample depths and types of sample (soil, groundwater, surface water)
- d. facility status: active or inactive?
- e. copy of chain of custody
- f. copy of lab report (including TPH plus other analysis required by Soil Remediation Guidelines)
- g. quantity of soil excavated (was all contaminated soil removed?)
- h. method of temporary storage or disposal of soil

**II. Sketch Must Indicate:**

- a. North arrow
- b. adjacent streets, roads, highways with names and numbers
- c. sewer lines and other conduits
- d. tank(s), dispenser(s), and if applicable line locations
- e. boring locations properly identified (i.e. B-1, B-2.....)
- f. groundwater flow direction (when indicated by surface features such as streams or springs; or if available from previous investigative work)
- g. distance to public water supply well(s)
- h. distance to private water supply well(s)
- i. distance to surface waters

**North Carolina - Department of Environment, Health, & Natural Resources**  
**Division of Environmental Management**  
**Groundwater Section - Pollution Control Branch**  
**441 North Harrington Street**  
**Raleigh, NC 27603**  
**(919)733-8486**



● Denotes Regional Office Location

701 By Pass

Soil Samples  
For Pumps #s

- 1- Prem.
- 2- Un.L
- 3- Prem.
- 4- Prem.
- 5- Un.Reg.



1" = 10'  
SCALE

# LAW & COMPANY

## Consulting and Analytical Chemists

ESTABLISHED 1903

Main Office  
1711 Castle Street  
P.O. Box 629  
Wilmington, N.C. 28402

919-762-7082 919-762-8956  
FAX 919-762-8785

## REPORT OF ANALYSES

MR. WAYNE SELLERS  
SELLERS SERVICE STATION  
701 BYPASS  
WHITEVILLE, NC 28472-  
Attn: ATTN: W. SELLERS

PROJECT NAME: SELLERS GAS  
DATE: 12/28/92

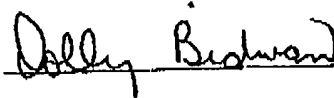
SOIL SAMPLES FROM SELLERS GAS (Page 1 of 1)

LAB No.	SAMPLE		SAMPLER	DELIVERY TO LAB	
	DATE	TIME		DATE	TIME
1916	12/15/92	1145	WAYN SELLERS	12/16/92	1320
1917	12/15/92	1100	WAYN SELLERS	12/16/92	1320
1918	12/15/92	1010	WAYN SELLERS	12/16/92	1320
1919	12/15/92	0930	WAYN SELLERS	12/16/92	1320
1920	12/15/92	0905	WAYN SELLERS	12/16/92	1320

CLIENT STATION ID	LAB NUMBER	TOTAL PETROLEUM FUEL HYDROCARB
		ppm
SAMPLE #1	1916	<10
SAMPLE #2	1917	<10
SAMPLE #3	1918	<10
SAMPLE #4	1919	<10
SAMPLE #5	1920	<10

METHOD #5030 G.C. TOTAL PETROLEUM FUEL HYDROCARBON  
DETECTION LIMITS = 10 PPM  
< = BELOW DETECTION LIMITS.

LABORATORY DIRECTOR



Fax#

# LAW & COMPANY

*Consulting and Analytical Chemists*  
ESTABLISHED 1903

1711 Castle Street • P.O. Box 629 • Wilmington, North Carolina 28402  
Telephones (919) 762-7082 or (919) 762-8956  
FAX (919) 762-8785

*Rush*  
↕

## CHAIN OF CUSTODY RECORD

CUSTOMER: *Sellers Gas*

PROJECT ID:

SAMPLERS (Signature) *Wayne Sellers*

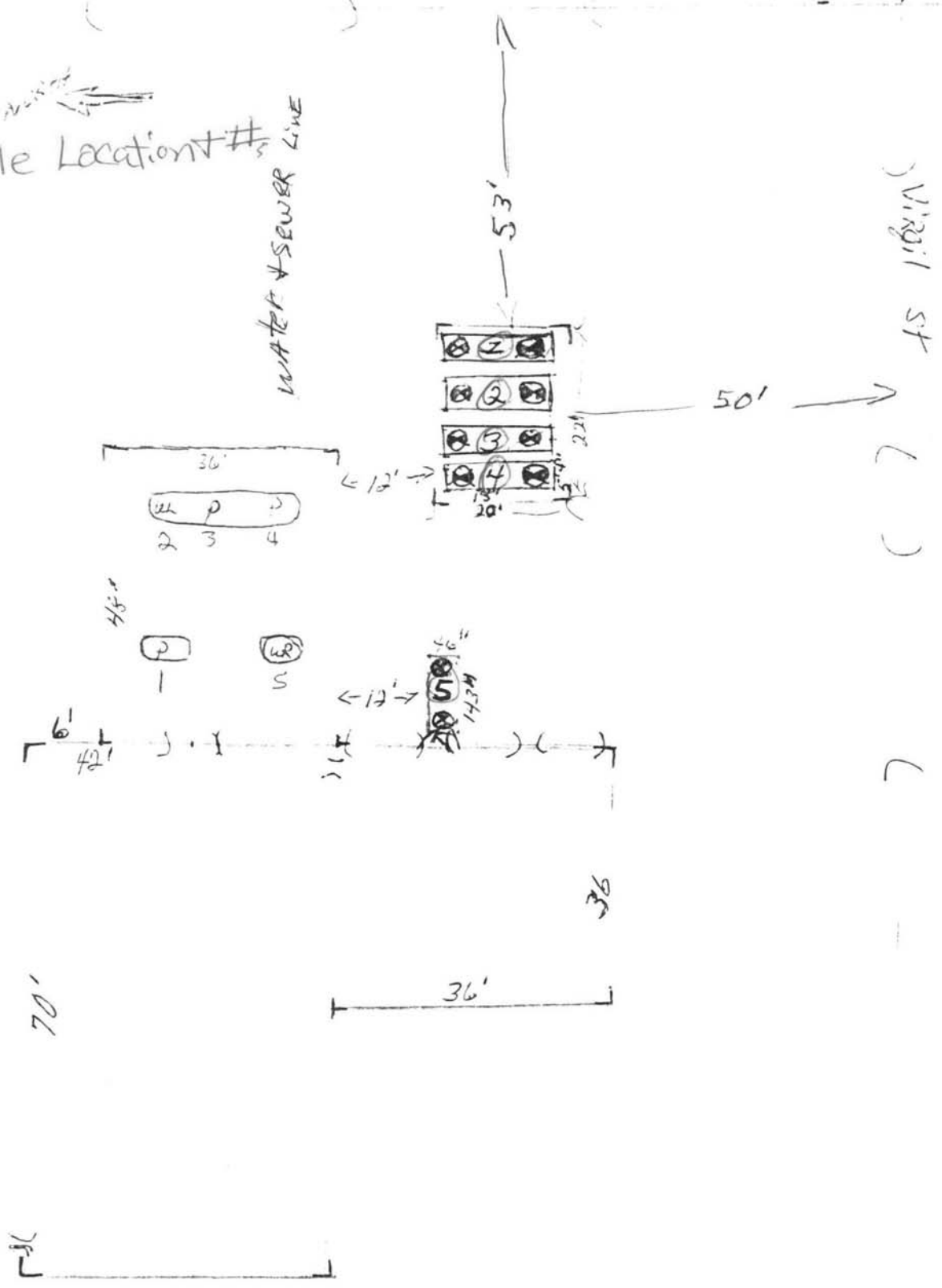
SAMPLE NUMBER	SAMPLE LOCATION	DATE	TIME	SAMPLE TYPE			NO. OF CONT.	ANALYSIS REQUIRED
				WATER		SOIL		
				COMP	GRAB			
1	<i>Under Pump</i>	<i>12-15</i>	<i>11:45</i>			<input checked="" type="checkbox"/>	1	<i>5030</i>
2	<i>" "</i>	<i>" "</i>	<i>11:00</i>			<input checked="" type="checkbox"/>	1	↓
3	<i>" "</i>	<i>" "</i>	<i>10:10</i>			<input checked="" type="checkbox"/>	1	
4	<i>" "</i>	<i>" "</i>	<i>9:30</i>			<input checked="" type="checkbox"/>	1	
5	<i>" "</i>	<i>" "</i>	<i>9:05</i>			<input checked="" type="checkbox"/>	1	

Relinquished by: (Signature) <i>Calvin Gales Calvin Gales</i>	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Methods of Shipment <i>hand carried</i>	Received for Laboratory by: <i>John Bidwan</i>	Date/Time <i>12/16/92 13</i>
Conditions upon receipt <i>good, on ice</i>		Remarks:

701 By Pass

Tank Sample Location #s

- 1- Gas
- 2- Gas
- 3- Gas
- 4- Gas
- 5- Kero



1" = 10'  
SCALE

# LAW & COMPANY

## Consulting and Analytical Chemists

ESTABLISHED 1903

Main Office  
1711 Castle Street  
P.O. Box 629  
Wilmington, N.C. 28402

919-762-7082 919-762-8956  
FAX 919-762-8785

## REPORT OF ANALYSES

MR. WAYNE SELLERS  
SELLERS SERVICE STATION  
701 BYPASS  
WHITEVILLE, NC 28472-  
Attn: ATTN: W. SELLERS

PROJECT NAME: SELLERS GAS  
DATE: 11/20/92

SOIL SAMPLES FROM SELLERS GAS (Page 1 of 1)

LAB No.	SAMPLE		SAMPLER	DELIVERY TO LAB	
	DATE	TIME		DATE	TIME
888	11/17/92	0920	CALVIN GOINS	11/17/92	1540
889	11/17/92	0935	CALVIN GOINS	11/17/92	1540
890	11/17/92	1005	CALVIN GOINS	11/17/92	1540
891	11/17/92	1015	CALVIN GOINS	11/17/92	1540
892	11/17/92	1040	CALVIN GOINS	11/17/92	1540
893	11/17/92	1030	CALVIN GOINS	11/17/92	1540
894	11/17/92	1030	CALVIN GOINS	11/17/92	1540
895	11/17/92	1110	CALVIN GOINS	11/17/92	1540
896	11/17/92	1130	CALVIN GOINS	11/17/92	1540

CLIENT STATION ID	LAB NUMBER	TOTAL PETROLEUM FUEL HYDROCARB ppm	TOTAL PETROLEUM HYDROCARBONS ppm
1-A	888	<10	N.R.
1-B	889	<10	N.R.
2-A	890	<10	N.R.
2-B	891	<10	N.R.
3-A	892	<10	N.R.
3-B	893	<10	N.R.
4-A	894	<10	N.R.
4-B	895	<10	N.R.
KERO. TANK	896	<10	<10

EPA METHOD #3550 G.C. TOTAL PETROLEUM HYDROCARBON  
EPA METHOD #5030 G.C. TOTAL PETROLEUM FUEL HYDROCARBON  
DETECTION LIMITS = 10 PPM  
< = BELOW DETECTION LIMITS.

NOTE: N. R. = ANALYSIS NOT REQUIRED

LABORATORY DIRECTOR

*John Bidwan*

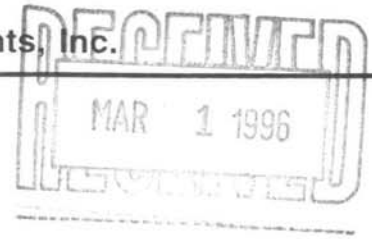




*"Over 30 Years Experience"*

**Environmental Hydrogeological Consultants, Inc.**

Post Office Box 902  
207 West Fourth Avenue  
RED SPRINGS, NORTH CAROLINA 28377  
Telephone (910) 843-4456  
Fax (910) 843-5376



February 16, 1996

Mr. Robert Howard  
Premiere Real Estate Service Company  
P.O. Box 1002  
Whiteville, North Carolina 28472

Subject: Initiation of Title 15A NCAC 2N Requirements  
Former Sellers Service  
Hwy. 701 By-Pass  
Whiteville, Columbus Co., NC

Dear Mr. Howard:

Pursuant to an authorization from you a limited site assessment was conducted at subject site consisting primarily of constructing three(3) monitor wells(#1-#3) and sampling same for laboratory analysis(copies attached).

MONITOR WELLS(MWs)

MW #1 was constructed to a depth of 15', cased with 2" schedule 40 PVC casing and screened from 3'-15'.

MW #2 was constructed to a depth of 20', cased with 2" schedule 40 PVC casing and screened from 5'-20'.

MW #3 was constructed to a depth of 15', cased with schedule 40 PVC casing and screened from 3'-15'.

LABORATORY ANALYSES

When groundwater samples were laboratory analyzed from these MWs using EPA methods 602 plus MTBE and 610 by 625, MW #2 was determined to be unimpacted while both MW #1 & MW #3 showed evidence of contamination as shown in the chart below:

Well #	Well Depth	SWL (FT-BLS)	Elevation (LS)	GW Flow Map Plot	Benzene	Ethylbenzene	Toluene	Xylenes	MTBE
1	15'	2.69	98.62	95.93	997	21.7	BDL	67.5	307
2	20'	3.31	100.00	96.69	BDL	BDL	BDL	BDL	BDL
3	15'	3.12	100.74	97.62	2560	384	26.9	850	2950

Analytes in ug/l (parts per billion)

SWL = Static Water Level  
 FT-BLS = Feet Below Land Surface  
 LS = Land Surface  
 GW = Groundwater  
 MTBE = Methyl-t-butylether  
 BDL = Below Sample Detection Limit

NOTE: Using EPA Method 610 by 625, all of the analytes for each of the three(3) MWs were below sample detection limits except for 78.6 ug/l of naphthalene in MW #1 and 191 ug/l of naphthalene in MW #3.

Based on the analysis of MW #3, it is considered to be the “hot spot” eventhough it is located upgradient from the erstwhile underground storage tank(UST) basin (Figure 1).

Because there is no known on-site potential source of contamination near MW #3 it tends to suggest an off-site source of contamination, possibly & logically the Sunbeam Bread facility. However, more work is needed to definitively determine the contaminant source.

#### GROUNDWATER FLOW DIRECTION

The approximate direction of groundwater flow, at this site, was determined to be generally to the south-southwest towards Soules Swamp(Figure 2). The approximate direction of groundwater flow was based on MW static water levels, relative geographic position of the MWs, the elevation of each well head and the distance between the MWs.

#### CONCLUSIONS

Based on all of the available data the following conclusions are submitted:

- 1) MW #3 represents the “hot spot”;
- 2) The data strongly suggests that the contamination in the area of the “hot spot” is from off-site;

- 3) Additional work is need to definitively determine, if possible, the off-site source; and
- 4) The direction of groundwater flow was determined to be to the south-southwest towards Soules Swamp.

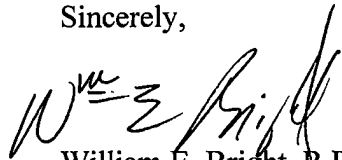
RECOMMENDATIONS

In an attempt to definitively determine the off-site source of contamination at MW #3 and determine if contamination has migrated off-site near MW #1 the following recommendations are submitted:

- ➔ Construct two(2) temporary monitor wells along the northern property line as shown in figure 1;
- ➔ Construct one(1) permanent monitor well(#4) along the south side of W. Virgil Street as shown in figure 1;
- ➔ Construct one(1) permanent monitor well(#5) as shown in figure 1; and
- ➔ Research files in Wilmington Regional Office on Sunbeam Bread.

It is recommended that a copy of this assessment be forwarded to the Wilmington Regional Office(DEM) and if you need additional information or clarification, please advise.

Sincerely,



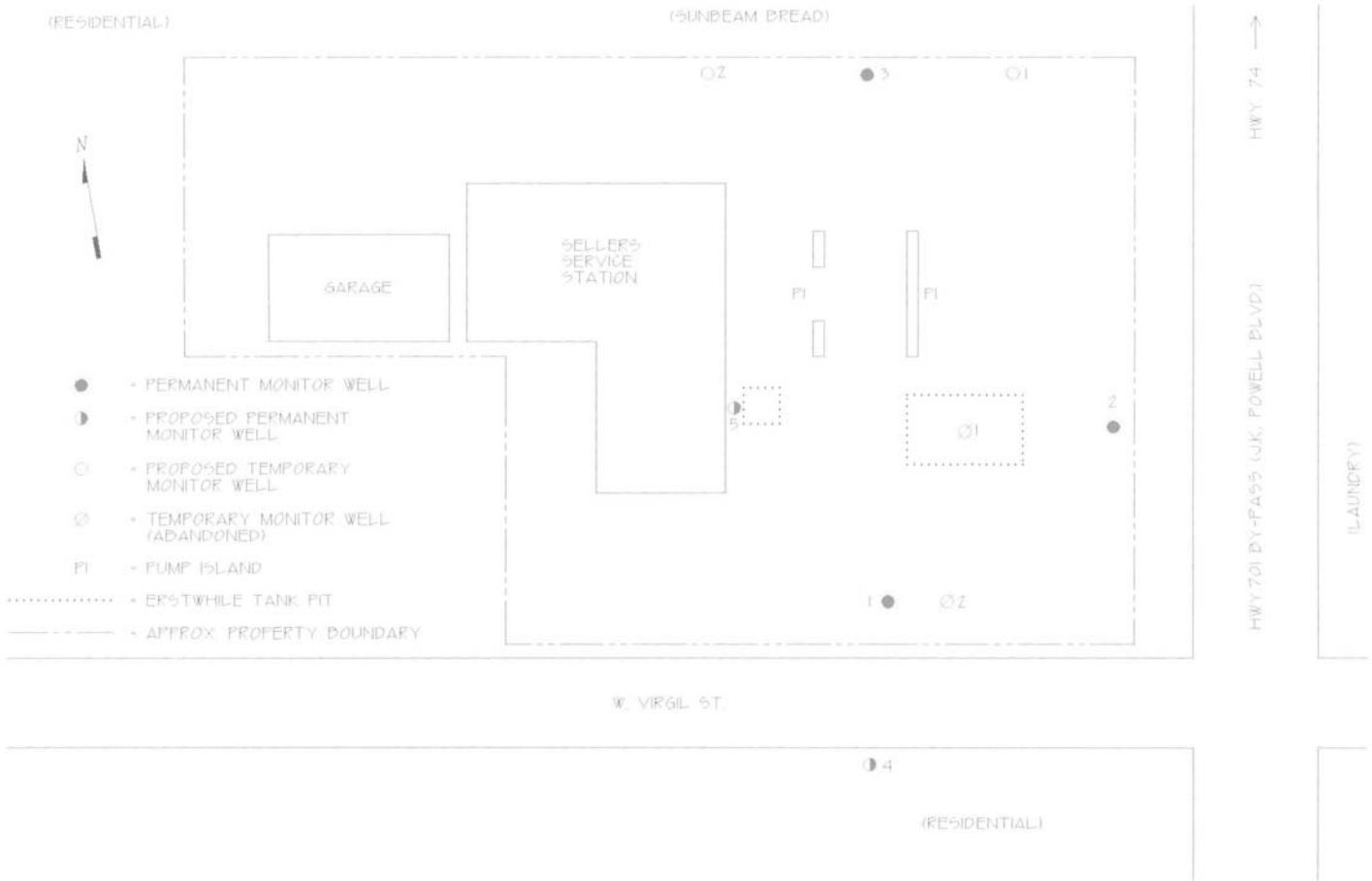
William E. Bright, R.P.G.  
Hydrogeologist

FIGURES

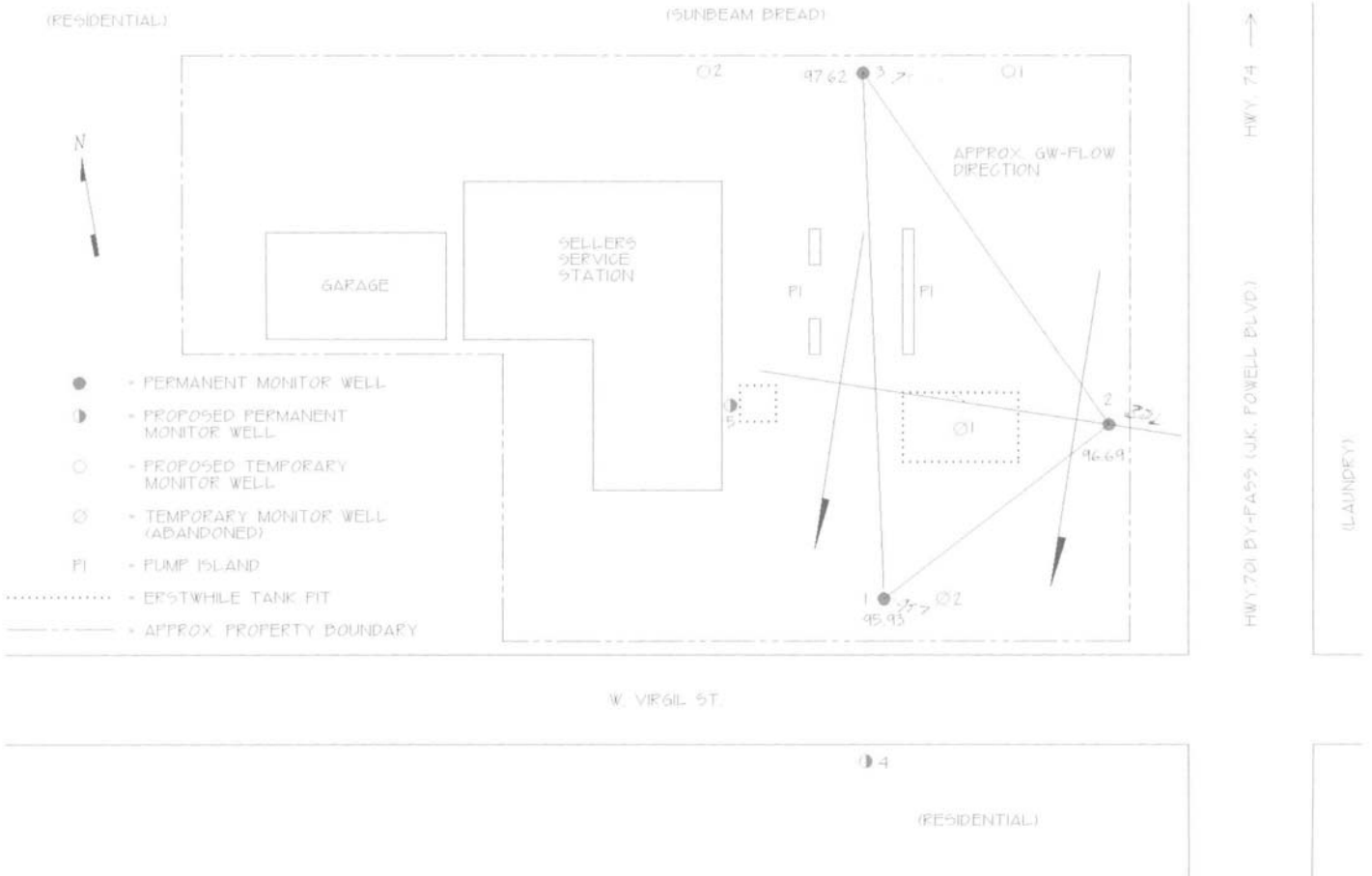
1. Site Map
2. Approximate Groundwater Flow Direction Map

ATTACHMENTS

- Laboratory Analyses
- Chain-of-Custody
- Monitor Well Records



SCALE: 1" = 40'	DATE: 2/16/96	EHC		TITLE: FIGURE 1 SELLERS SERVICE STATION HWY 701 BYPASS WHITEVILLE, N.C. COLUMBUS COUNTY
		ENVIRONMENTAL HYDROGEOLOGICAL CONSULTANTS		
		HYDROLOGY • GEOLOGY • EXPLORATION • ANALYTICAL		



EHC

SCALE: 1" = 40'	DATE: 2/16/96	ENVIRONMENTAL HYDROGEOLOGICAL CONSULTANTS HYDROLOGY • GEOLOGY • EXPLORATION • ANALYTICAL	TITLE: FIGURE 2 SELLER'S SERVICE STATION HWY 701 BYPASS WHITEVILLE, N.C. COLUMBUS COUNTY
-----------------	---------------	---	--

H Y D R O L O G I C , I N C .

February 12, 1996

**REPORTING:**

Hydrologic-Lumberton, Inc  
2003 N. Pine Street  
Suite #2  
Lumberton, NC 28358

**INVOICING:**

Hydrologic-Lumberton, Inc  
2003 N. Pine Street  
Suite #2  
Lumberton, NC 28358

**PROJECT NUMBER:** FL962415

**DATE COMPLETED:** February 12, 1996

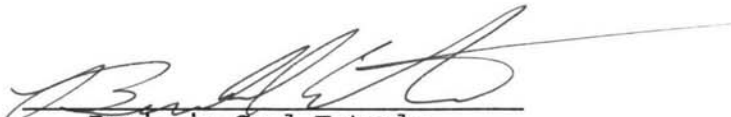
**DATE RECEIVED:** February 7, 1996

**PROJECT DESCRIPTION:**

**EHC0205A/Sellers Gas**--3 water samples analyzed for 602 + MTBE/610.

Enclosed is the laboratory report for the project described above. If you have any questions or if we can be of further assistance, please feel free to contact Jamie Fore. We appreciate your business and look forward to serving you again soon.

Respectfully,



Benjamin Carl Esterle  
Laboratory Director

---

 H Y D R O L O G I C , I N C .
 

---

COMPANY NAME: Hydrologic-Lumberton, Inc  
 COMPANY PROJECT NUMBER: EHC0205A/SELLERS GAS  
  
 HYDROLOGIC PROJECT NUMBER: FL962415  
 HYDROLOGIC SAMPLE NUMBER: 962415  
 HYDROLOGIC LAB I.D.#: 399  
 SAMPLE IDENTIFICATION: MW #1  
 DATE SAMPLED: 2/5/96  
 DATE EXTRACTED: N/A  
 DATE/TIME ANALYZED: 2/08/96

**METHOD EPA 602/MIIBE**

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> ( ug/l)	<u>RESULT</u> ( ug/l)
<b>Benzene</b>	<b>71-43-2</b>	<b>100</b>	<b>997</b>
Chlorobenzene	108-90-7	10.0	BDL
1,2-Dichlorobenzene	95-50-1	10.0	BDL
1,3-Dichlorobenzene	541-73-1	10.0	BDL
1,4-Dichlorobenzene	106-46-7	10.0	BDL
<b>Ethylbenzene</b>	<b>100-41-4</b>	<b>10.0</b>	<b>21.7</b>
Toluene	108-88-3	10.0	BDL
<b>Xylenes (Total)</b>	<b>1330-20-7</b>	<b>10.0</b>	<b>67.5</b>
<b>MIIBE</b>		<b>500</b>	<b>307</b>
Surrogate Recovery: BFB			99%

BDL = Below Sample Detection Limit  
 SDL = Sample Detection Limit

COMMENTS: DILUTION FACTOR X 10; DILUTION FACTOR X 100 FOR BENZENE & MIIBE.



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 H Y D R O L O G I C , I N C .
 

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COMPANY NAME: Hydrologic-Lumberton, Inc  
 COMPANY PROJECT NUMBER: EHC0205A/SELLERS GAS  
  
 HYDROLOGIC PROJECT NUMBER: FL962415  
 HYDROLOGIC SAMPLE NUMBER: 962415  
 HYDROLOGIC LAB I.D.#: 399  
 SAMPLE IDENTIFICATION: MW #1  
 DATE SAMPLED: 2/5/96  
 DATE EXTRACTED: 2/08/96  
 DATE/TIME ANALYZED: 2/12/96

**METHOD 610 by 625**

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> ( ug/l)	<u>RESULT</u> ( ug/l)
<b>Naphthalene</b>	<b>91-20-3</b>	<b>2.0</b>	<b>78.6</b>
Acenaphthylene	208-96-8	2.0	BDL
Acenaphthene	83-32-9	2.0	BDL
Fluorene	86-73-7	2.0	BDL
Phenanthrene	85-01-8	2.0	BDL
Anthracene	120-12-7	2.0	BDL
Fluoranthene	206-44-0	2.0	BDL
Pyrene	129-00-0	2.0	BDL
Benzo(a)anthracene	56-55-3	2.0	BDL
Chrysene	218-01-9	2.0	BDL
Benzo(b)fluoranthene	205-99-2	2.0	BDL
Benzo(k)fluoranthene	207-08-9	2.0	BDL
Benzo(a)pyrene	50-32-8	2.0	BDL
Indeno(1,2,3-cd)pyrene	193-39-5	2.0	BDL
Dibenz(a,h)anthracene	53-70-3	2.0	BDL
Benzo(g,h,i)perylene	191-24-2	2.0	BDL
Surrogate Recoveries:			
2-Fluorobiphenyl			92%
Nitrobenzene	98-95-3		48%
p-Terphenyl			110%

BDL = Below Sample Detection Limit  
 SDL = Sample Detection Limit

COMMENTS: \_\_\_\_\_

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H Y D R O L O G I C , I N C .

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COMPANY NAME: Hydrologic-Lumberton, Inc  
 COMPANY PROJECT NUMBER: EHC0205A/SELLERS GAS  
  
 HYDROLOGIC PROJECT NUMBER: FL962415  
 HYDROLOGIC SAMPLE NUMBER: 962416  
 HYDROLOGIC LAB I.D.#: 399  
 SAMPLE IDENTIFICATION: MW #2  
 DATE SAMPLED: 2/5/96  
 DATE EXTRACTED: N/A  
 DATE/TIME ANALYZED: 2/09/96

**METHOD EPA 602/MTBE**

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> ( ug/l)	<u>RESULT</u> ( ug/l)
Benzene	71-43-2	1.0	BDL
Chlorobenzene	108-90-7	1.0	BDL
1,2-Dichlorobenzene	95-50-1	1.0	BDL
1,3-Dichlorobenzene	541-73-1	1.0	BDL
1,4-Dichlorobenzene	106-46-7	1.0	BDL
Ethylbenzene	100-41-4	1.0	BDL
Toluene	108-88-3	1.0	BDL
Xylenes (Total)	1330-20-7	1.0	BDL
MTBE		5.0	BDL
Surrogate Recovery: BFB			98%

BDL = Below Sample Detection Limit  
 SDL = Sample Detection Limit

COMMENTS: \_\_\_\_\_

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H Y D R O L O G I C , I N C .

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COMPANY NAME: Hydrologic-Lumberton, Inc  
 COMPANY PROJECT NUMBER: EHC0205A/SELLERS GAS

HYDROLOGIC PROJECT NUMBER: FL962415  
 HYDROLOGIC SAMPLE NUMBER: 962416  
 HYDROLOGIC LAB I.D.#: 399  
 SAMPLE IDENTIFICATION: MW #2  
 DATE SAMPLED: 2/5/96  
 DATE EXTRACTED: 2/08/96  
 DATE/TIME ANALYZED: 2/12/96

**METHOD 610 by 625**

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> ( ug/l)	<u>RESULT</u> ( ug/l)
Naphthalene	91-20-3	2.0	BDL
Acenaphthylene	208-96-8	2.0	BDL
Acenaphthene	83-32-9	2.0	BDL
Fluorene	86-73-7	2.0	BDL
Phenanthrene	85-01-8	2.0	BDL
Anthracene	120-12-7	2.0	BDL
Fluoranthene	206-44-0	2.0	BDL
Pyrene	129-00-0	2.0	BDL
Benzo(a)anthracene	56-55-3	2.0	BDL
Chrysene	218-01-9	2.0	BDL
Benzo(b)fluoranthene	205-99-2	2.0	BDL
Benzo(k)fluoranthene	207-08-9	2.0	BDL
Benzo(a)pyrene	50-32-8	2.0	BDL
Indeno(1,2,3-cd)pyrene	193-39-5	2.0	BDL
Dibenz(a,h)anthracene	53-70-3	2.0	BDL
Benzo(g,h,i)perylene	191-24-2	2.0	BDL
Surrogate Recoveries:			
2-Fluorobiphenyl			90%
Nitrobenzene	98-95-3		42%
p-Terphenyl			116%

BDL = Below Sample Detection Limit  
 SDL = Sample Detection Limit

COMMENTS: \_\_\_\_\_

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 H Y D R O L O G I C , I N C .
 

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COMPANY NAME: Hydrologic-Lumberton, Inc  
 COMPANY PROJECT NUMBER: EHC0205A/SELLERS GAS  
  
 HYDROLOGIC PROJECT NUMBER: FL962415  
 HYDROLOGIC SAMPLE NUMBER: 962417  
 HYDROLOGIC LAB I.D.#: 399  
 SAMPLE IDENTIFICATION: MW #3  
 DATE SAMPLED: 2/5/96  
 DATE EXTRACTED: N/A  
 DATE/TIME ANALYZED: 2/09/96

**METHOD EPA 602/MIIBE**

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> ( ug/l)	<u>RESULT</u> ( ug/l)
<b>Benzene</b>	<b>71-43-2</b>	<b>100</b>	<b>2560</b>
Chlorobenzene	108-90-7	10.0	BDL
1,2-Dichlorobenzene	95-50-1	10.0	BDL
1,3-Dichlorobenzene	541-73-1	10.0	BDL
1,4-Dichlorobenzene	106-46-7	10.0	BDL
<b>Ethylbenzene</b>	<b>100-41-4</b>	<b>100</b>	<b>384</b>
<b>Toluene</b>	<b>108-88-3</b>	<b>10.0</b>	<b>26.9</b>
<b>Xylenes (Total)</b>	<b>1330-20-7</b>	<b>100</b>	<b>850</b>
<b>MIIBE</b>		<b>500</b>	<b>2950</b>
Surrogate Recovery: BFB			97%

BDL = Below Sample Detection Limit  
 SDL = Sample Detection Limit

COMMENTS: DILUTION FACTOR X 10; DILUTION FACTOR X 100 FOR BENZENE, ETHYLBENZENE, XYLENES  
 & MIIBE.

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 H Y D R O L O G I C , I N C .
 

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COMPANY NAME: Hydrologic-Lumberton, Inc  
 COMPANY PROJECT NUMBER: EHC0205A/SELLERS GAS  
  
 HYDROLOGIC PROJECT NUMBER: FL962415  
 HYDROLOGIC SAMPLE NUMBER: 962417  
 HYDROLOGIC LAB I.D.#: 399  
 SAMPLE IDENTIFICATION: MW #3  
 DATE SAMPLED: 2/5/96  
 DATE EXTRACTED: 2/08/96  
 DATE/TIME ANALYZED: 2/12/96

**METHOD 610 by 625**

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> ( ug/l)	<u>RESULT</u> ( ug/l)
<b>Naphthalene</b>	<b>91-20-3</b>	<b>2.0</b>	<b>191</b>
Acenaphthylene	208-96-8	2.0	BDL
Acenaphthene	83-32-9	2.0	BDL
Fluorene	86-73-7	2.0	BDL
Phenanthrene	85-01-8	2.0	BDL
Anthracene	120-12-7	2.0	BDL
Fluoranthene	206-44-0	2.0	BDL
Pyrene	129-00-0	2.0	BDL
Benzo(a)anthracene	56-55-3	2.0	BDL
Chrysene	218-01-9	2.0	BDL
Benzo(b)fluoranthene	205-99-2	2.0	BDL
Benzo(k)fluoranthene	207-08-9	2.0	BDL
Benzo(a)pyrene	50-32-8	2.0	BDL
Indeno(1,2,3-cd)pyrene	193-39-5	2.0	BDL
Dibenz(a,h)anthracene	53-70-3	2.0	BDL
Benzo(g,h,i)perylene	191-24-2	2.0	BDL
Surrogate Recoveries:			
2-Fluorobiphenyl			106%
Nitrobenzene	98-95-3		60%
p-Terphenyl			116%

BDL = Below Sample Detection Limit  
 SDL = Sample Detection Limit

COMMENTS: \_\_\_\_\_



FOR OFFICE USE ONLY	
QUAD NO	SERIAL NO
Lat	Long
Minor Basin	
Basin Code	
Header Ent	GW-1 Ent

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Environmental Hydrogeological Consultants

DRILLER REGISTRATION NUMBER: 1029

STATE WELL CONSTRUCTION PERMIT NUMBER: \_\_\_\_\_

1. WELL LOCATION: (Show sketch of the location below)

Nearest Town: Whiteville County: Columbus

Hwy 701 By-Pass  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER Robert Howard - Premier Real Estate

ADDRESS P.O. Box 1002  
 (Street or Route No.)

Whiteville N.C. 28472  
 City or Town State Zip Code

3. DATE DRILLED 1-23-96 USE OF WELL Monitor

4. TOTAL DEPTH 15'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

7. STATIC WATER LEVEL Below Top of Casing: \_\_\_\_\_ FT.  
 (Use "+" if Above Top of Casing)

8. TOP OF CASING IS 1" Below FT. Above Land Surface\*

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): \_\_\_\_\_ METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): \_\_\_\_\_

11. CHLORINATION: Type NA Amount \_\_\_\_\_

12. CASING:

From	Depth	To	Diameter	Wall Thickness or Weight/Ft.	Material
0'	3'	Ft.	2"	SCH 40	PVC
From _____	To _____	Ft. _____	_____	_____	_____
From _____	To _____	Ft. _____	_____	_____	_____

13. GROUT:

From	Depth	To	Material	Method
0	2'	Ft.	Neat Cement	Slow Pour
2'	2.3'	Ft.	Bentonite	Slow Pour

14. SCREEN:

From	Depth	To	Diameter	Slot Size	Material
3'	15'	Ft.	2"	.020 in.	PVC
From _____	To _____	Ft. _____	_____	_____	_____
From _____	To _____	Ft. _____	_____	_____	_____

15. SAND/GRAVEL PACK:

From	Depth	To	Size	Material
23'	15'	Ft.	Torpedo	Quartz-Sand
From _____	To _____	Ft. _____	_____	_____

16. REMARKS: Water @ 4'

DEPTH		DRILLING LOG
From	To	Formation Description
0	6"	Concrete
6"	1'	Beige-Orange fine sand
1'	1.5'	Black-fine clayey sand
1.5'	3'	Grey-fine sand
3'	6'	Grey-white hard packed fine sand
6'	7.5'	Beige-yellow clayey fine sand
7.5'	10'	Grey-fine sand (old gasoline odor)
10'	13'	Grey c/s. sand/gravel (odor)
13'	14'	Beige orange-fine (odor)
14'	15' TD	Black-fine sand (odor)

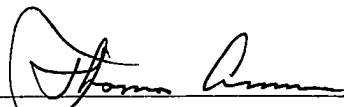
If additional space is needed use back of form

**LOCATION SKETCH**

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

- See attached map -

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



SIGNATURE OF CONTRACTOR OR AGENT

1-31-96

DATE

FOR OFFICE USE ONLY	
QUAD. NO. _____	SERIAL NO. _____
Lat. _____	Long. _____
Minor Basin _____	Header Ent. _____
Basin Code _____	GW-1 Ent. _____

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Environmental Hydrogeological Consultants

STATE WELL CONSTRUCTION PERMIT NUMBER: \_\_\_\_\_

DRILLER REGISTRATION NUMBER: 1029

1. WELL LOCATION: (Show sketch of the location below)  
 Nearest Town: Whiteville County: Columbus

Hwy 701 Bypass  
 (Road, Community or Subdivision and Lot No.)  
 2. OWNER Robert Howard - Premier Real Estate  
 ADDRESS P.O. Box 1002  
 (Street or Route No.)  
Whiteville N.C. 28472  
 City or Town State Zip Code

DEPTH		DRILLING LOG
From	To	Formation Description
0	6"	Concrete
6"	1'	Black-grey fine sand clayey (old gasoline odor)
1'	3'	Beige clayey fine sand (odor)
3'	4'	Black silty sand (odor)
4'	6'	Grey silty sand (odor stronger)
6'	8'	Beige-grey fine clayey sand (odor)
8'	14'	Beige-grey clayey fine sand - (no apparent odor)
14'	20' TD.	Grey-white fine clayey sand

3. DATE DRILLED 1-23-96 USE OF WELL \_\_\_\_\_  
 4. TOTAL DEPTH 20'  
 5. CUTTINGS COLLECTED YES  NO   
 6. DOES WELL REPLACE EXISTING WELL? YES  NO   
 7. STATIC WATER LEVEL Below Top of Casing: \_\_\_\_\_ FT.  
 (Use "+" if Above Top of Casing)  
 8. TOP OF CASING IS 1" Below FT. Above Land Surface\*

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): \_\_\_\_\_ METHOD OF TEST \_\_\_\_\_  
 10. WATER ZONES (depth): \_\_\_\_\_

11. CHLORINATION: Type NA Amount \_\_\_\_\_

12. CASING:

From	Depth	To	Diameter	Wall Thickness	Material
				or Weight/Ft.	
0	5'		2"	SCH 40	PVC
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

13. GROUT:  
 From 0 To 3.3 Ft. Neat Cement Slow Pour  
 From 3.3' To 3.8' Ft. Bentonite Slow Pour

- See attached map -

14. SCREEN:  
 From 5' To 20' Ft. 2" in. .020 in. PVC  
 From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_ in. \_\_\_\_\_ in. \_\_\_\_\_  
 From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_ in. \_\_\_\_\_ in. \_\_\_\_\_

15. SAND/GRAVEL PACK:  
 From 3.8' To 20' Ft. Torpedo Quartz sand  
 From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

16. REMARKS: water @ 14' - No odor

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

1-31-96

SIGNATURE OF CONTRACTOR OR AGENT

DATE

Submit original to Division of Environmental Management and copy to well owner.



FOR OFFICE USE ONLY		
QUAD. NO.	SERIAL NO.	
Lat	Long	Pa
Minor Basin		
Basin Code		
Header Ent.		GW-1 Ent.

**WELL CONSTRUCTION RECORD**

MW# 3

DRILLING CONTRACTOR: Environmental Hydrogeological Consultants

DRILLER REGISTRATION NUMBER: 1029

STATE WELL CONSTRUCTION PERMIT NUMBER: \_\_\_\_\_

1. WELL LOCATION: (Show sketch of the location below)

Nearest Town: Whiterville County: Columbus

Hwy 701 By Pass -  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER Robert Howard  
 ADDRESS P.O. Box 1002

Whiterville (City or Town) N.C. (State) 28472 (Zip Code)

3. DATE DRILLED 1-23-96 USE OF WELL Monitor

4. TOTAL DEPTH 15'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

7. STATIC WATER LEVEL Below Top of Casing: \_\_\_\_\_ FT.  
 (Use "+" if Above Top of Casing)

8. TOP OF CASING IS 1" Below FT. Above Land Surface\*

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): \_\_\_\_\_ METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): \_\_\_\_\_

11. CHLORINATION: Type \_\_\_\_\_ Amount \_\_\_\_\_

12. CASING: \_\_\_\_\_

DEPTH		DRILLING LOG
From	To	Formation Description
0	6"	Concrete
6"	1'	Beige- orange fine sand
1'	3'	Black- Grey fine clayey sand (old gasoline odor)
3'	7'	Beige- fine clayey sand water @ 5'
7'	10'	Beige- red. cfs. sand (odor stronger)
10'	15' TD.	Beige cfs. sand stronger odor old gasoline

If additional space is needed use back of form

**LOCATION SKETCH**

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

- See attached map -

13. GROUT:

From	Depth	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material	Method
3'	3'	15'		2"	SC440	PVC	Slow Pour
23'	3'	3'					Slow Pour

14. SCREEN:

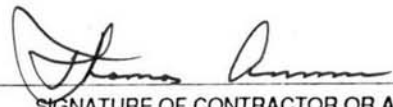
From	Depth	To	Ft.	Diameter	Slot Size	Material
3'	3'	15'		2"	.020 in.	PVC.

15. SAND/GRAVEL PACK:

From	Depth	To	Ft.	Size	Material
3'	3'	15'		Torpedo	Quartz sand

16. REMARKS: water @ 5'

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



SIGNATURE OF CONTRACTOR OR AGENT

1-31-96

DATE

*Premiere*

*Real Estate Service Company*



September 22, 1995

Mr. Steve Kay  
Environmental Engineer I  
NC Department of Environment  
Health and Natural Resources  
127 Cardinal Drive Extension  
Wilmington, NC 28405-3845

Dear Steve:

Thank you for taking time to assist us on several occasions with Mr. Wayne Seller's Application relating to the Underground Storage Tank Cleanup Fund. We have completed the application and mailed it along with the related documentation to Raleigh today.

For your information and review we are enclosing a copy of the Application. Please let me know if we have completed it correctly or if additional information or documentation is necessary.

Again Steve, we thank you and Rick for your courtesy and kindness with this and other matters. Please call on us any time that we may assist you in anyway.

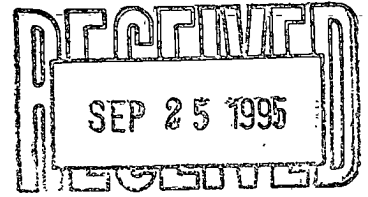
Sincerely,

A handwritten signature in cursive script, appearing to read "Robt", written in dark ink.

Robert D. Howard

*Premiere*

*Real Estate Service Company*



September 22, 1995

North Carolina Department of  
Environment, Health and Natural Resources  
Division of Environmental Management  
Pollution Control Branch  
441 N. Harrington Street  
Raleigh, North Carolina 27603

Dear Sir or Madam:

We are enclosing herewith an Application on behalf of Mr. Wayne Sellers of 416 Oak Street, Whiteville, N. C. We believe we have answered all questions and provided the required documentation, however, should you have questions or need additional information please let us know.

Thank you very much for your assistance and consideration regarding this Application.

Sincerely

A handwritten signature in cursive script, appearing to read "Robert D. Howard".

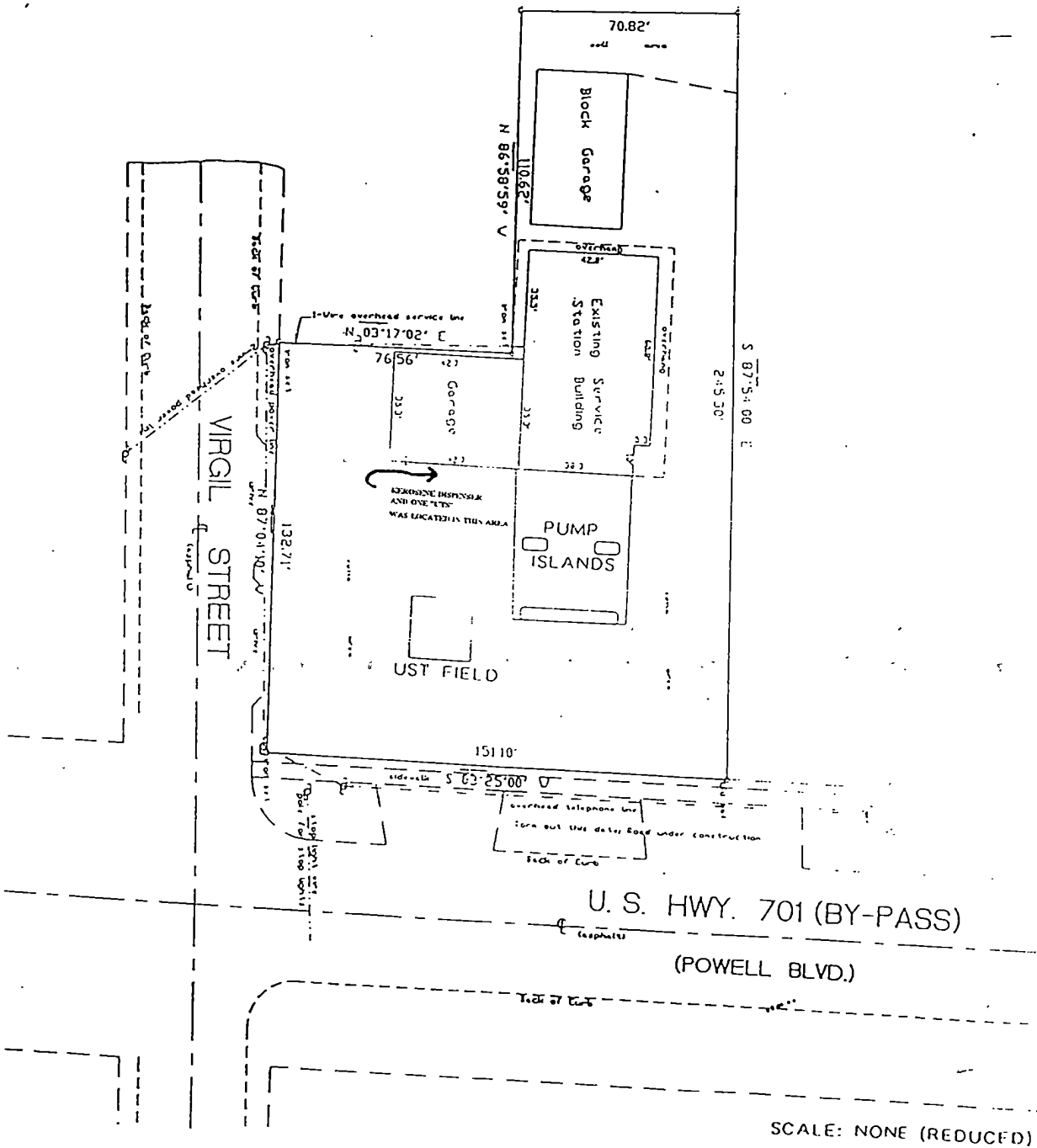
Robert D. Howard

cc: Mr. Wayne Sellers  
416 Oak Street  
Whiteville, NC 28472

## SCHEDULE "A"

<u>TANK ID #</u>	<u>TANK CAPACITY</u>	<u>LAST KNOWN CONTENTS</u>
1	3,000	GASOLINE
2	3,000	GASOLINE
3	3,000	GASOLINE
4	3,000	GASOLINE
5	1,000	KEROSENE

NOTE: No actual leaks detected until the tanks were removed in December 1992 and the initial test indicated was conducted. The identification of which tank (if any) caused the problem was never determined.



SCALE: NONE (REDUCED)

**(GW/UST-2) Site Investigation Report For Permanent Closure or Change-in-Service of U.S.T.**

<b>FOR TANKS IN NC</b>	Return Completed Form To: The appropriate DEM Regional Office according to the county of the facility's location. [SEE MAP ON REVERSE SIDE OF OWNER'S COPY (PINK) FOR REGIONAL OFFICE ADDRESS].	State Use Only I.D. Number _____ Date Received _____
------------------------	---	--

**INSTRUCTIONS**

Complete and return within (30) days following completion of site investigation.

I. Ownership of Tank(s)	II. Location of Tank(s)
Owner Name (Corporation, Individual, Public Agency, or Other Entry) <u>Wayne &amp; David Sellers</u> Street Address <u>701 BYPASS COLUMBUS</u> County <u>Whiteville, N.C. 28472</u> City <u>919</u> State <u>642-4394</u> Zip Code Area Code Telephone Number	Facility Name or Company <u>Sellers Service Station</u> Facility ID # (if available) <u>0-032672</u> Street Address or State Road <u>701 BYPASS COLUMBUS Whiteville 28472</u> County <u>919</u> City <u>642-4394</u> Zip Code Area Code Telephone Number

**III. Contact Person**

Name <u>Calvin Gains</u>	Job Title <u>owner</u>	Telephone No. (Area Code) <u>919-642-0542</u>
Closure Contractor (Name) <u>Gains Const.</u>	(Address) <u>Rt. 5, Box 363E Whiteville N.C.</u>	Telephone No. (Area Code) <u>919-642-0542</u>
Lab (Name) <u>Law &amp; Company of Wilmington</u>	(Address) <u>PO Box 629 Wilmington N.C.</u>	Telephone No. (Area Code) <u>919-762-7082</u>

**IV. U.S.T. Information**

**V. Excavation Condition**

**VI. Additional Information Required**

Tank No.	Size in Gallons	Tank Dimensions	Last Contents	Water in Excavation		Free Product		Notable Odor or Visible Soil Contamination	
				Yes	No	Yes	No	Yes	No
1	3,000	18' x 5'4"	Gas			✓		✓	
2	3,000		Gas			✓		✓	
3	3,000		Gas			✓		✓	
4	3,000		Gas			✓		✓	
5	1,000	46" x 143"	Kero			✓		✓	

See reverse side of pink copy (owner's copy) for additional information required by N.C. - DEM in the written report and sketch.

**VII. Check List**

Check the activities completed.

- Contact local fire marshal
  - Notify DEM Regional Office before abandonment
  - Drain & flush piping into tank
  - Remove all product and residuals from tank
  - Excavate down to tank
  - Clean and inspect tank
  - Remove drop tube, fill pipe, gauge pipe, vapor recovery tank connections, submersible pumps and other tank fixtures.
  - Cap or plug all lines except the vent and fill lines.
  - Purge tank of all product & flammable vapors.
  - Cut one or more large holes in the tanks.
  - Backfill the area.
- Date Tank(s) Permanently closed: 12-4-12  
Date of Change-in-Service: \_\_\_\_\_

- ABANDONMENT IN PLACE**
- Fill tank until material overflows tank opening;
  - Plug or cap all openings;
  - Disconnect and cap or remove vent line
  - Solid inert material used - specify: \_\_\_\_\_

- REMOVAL**
- Create vent hole
  - Label tank
  - Dispose of tank in approved manner
- Final tank destination: Franksville, N.C.

**VIII. Certification (Read and Sign)**

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

Print name and official title of owner or owner's authorized representative <u>Wayne Sellers</u>	Signature <u>Wayne Sellers</u>	Date Signed <u>12-4-12</u>
---	-----------------------------------	-------------------------------

**UST SITE INVESTIGATION SUMMARY REPORT (DO NOT Write On This Page)**

(Attach Written Report and Sketch to this form)

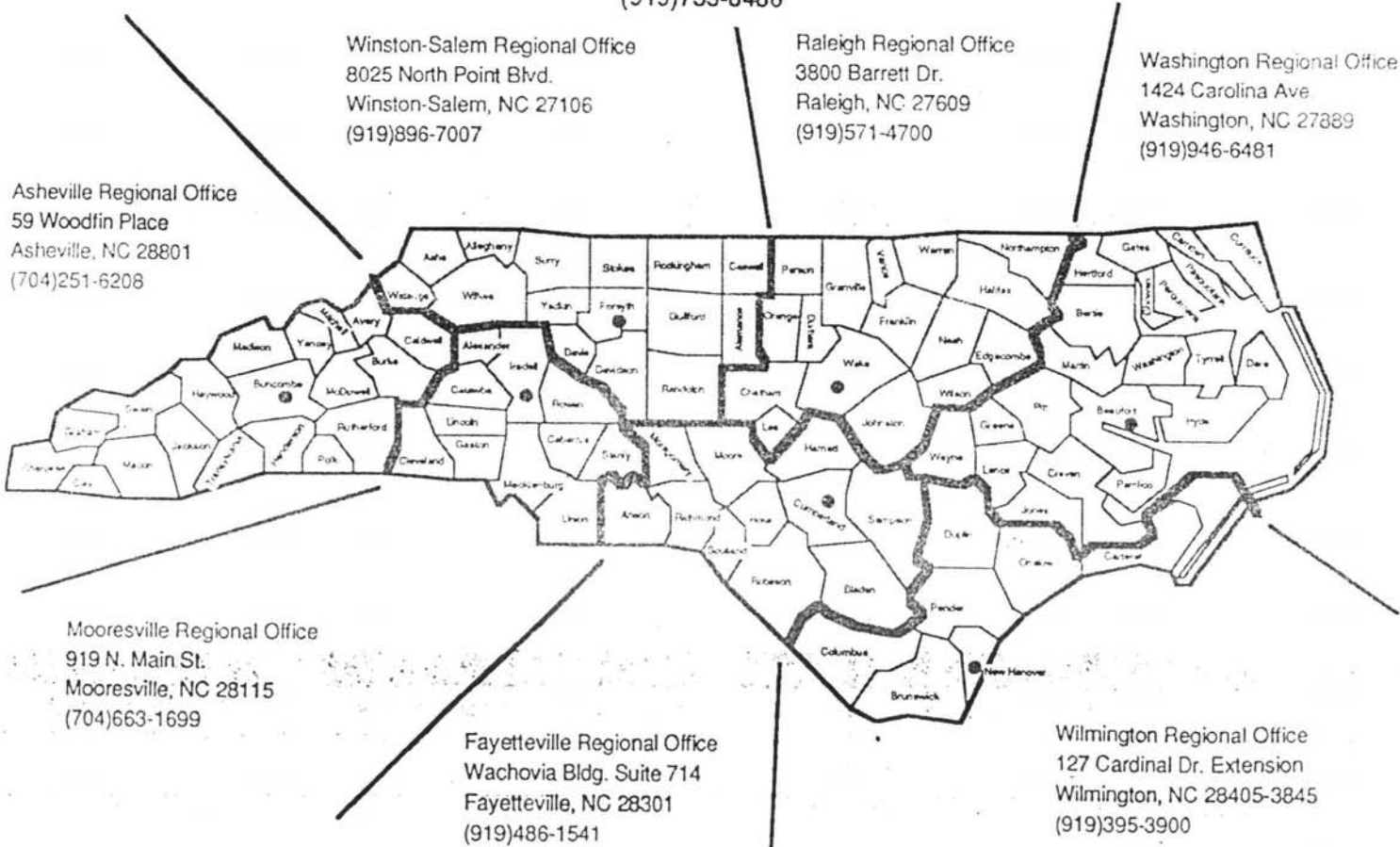
**I. Written Report Must Indicate:**

- a. probable source(s) of contamination
- b. field screening methods used
- c. tabulated results of field screening, including sample depths and types of sample (soil, groundwater, surface water)
- d. facility status: active or inactive?
- e. copy of chain of custody
- f. copy of lab report (including TPH plus other analysis required by Soil Remediation Guidelines)
- g. quantity of soil excavated (was all contaminated soil removed ?)
- h. method of temporary storage or disposal of soil

**II. Sketch Must Indicate:**

- a. North arrow
- b. adjacent streets, roads, highways with names and numbers
- c. sewer lines and other conduits
- d. tank(s), dispenser(s), and if applicable line locations
- e. boring locations properly identified (i.e. B-1, B-2.....)
- f. groundwater flow direction (when indicated by surface features such as streams or springs; or if available from previous investigative work)
- g. distance to public water supply well(s)
- h. distance to private water supply well(s)
- i. distance to surface waters

North Carolina - Department of Environment, Health, & Natural Resources  
 Division of Environmental Management  
 Groundwater Section - Pollution Control Branch  
 441 North Harrington Street  
 Raleigh, NC 27603  
 (919)733-8486



• Denotes Regional Office Location

# POLLUTION INCIDENT/U.S.T. LEAK REPORTING FORM

Department of Environment, Health, Natural Resources  
 Division of Environmental Management  
 GROUNDWATER SECTION

Confirm. GW Contamination (Y/N) ✓  
 Major Soil Contamination (Y/N) ✓  
 Minor Soil Contamination (Y/N) ✓

Incident # \_\_\_\_\_  
 Date Incident Occurred or Leak Detected 2-24-94

## INCIDENT DESCRIPTION

Incident Location/Name Seller's Service Station  
 Address 701 By Pass  
 City/Town Whiteville County Columbus Region WIRO  
 Briefly Describe Incident The tank closure report indicated that soil samples were BDL for this facility. A site visit by the Division proved otherwise. Laboratory analytical results of the Division's soil sample indicated (5200 ppm TPH as gasoline) contaminated soil is present in the former tank pit.

## POTENTIAL SOURCE OWNER-OPERATOR

Potential Source Owner-Operator Wayne and David Sellers Telephone (910) 642-4394  
 Company NA Street Address 701 By Pass  
 City Whiteville County Columbus State NC Zip Code 28472

**OWNERSHIP**  
 0. N/A 1. Municipal 2. Military 3. Unknown 4.  Private 5. Federal 6. County 7. State  
**OPERATION TYPE**  
 0. N/A 1. Public Service 2. Agricultural 3. Residential 4. Educational/Relig. 5. Industrial 6. Commercial 7. Mining

## POLLUTANTS INVOLVED

MATERIALS INVOLVED	AMOUNT LOST	AMOUNT RECOVERED
<u>gasoline / kerosene</u>	<u>OK</u>	<u>OK</u>

## SOURCE OF POLLUTION

PRIMARY SOURCE OF POLLUTION (Select one)	PRIMARY POLLUTANT TYPE (Select one)	LOCATION	SETTING
1. Intentional dump	1. Pesticide/herbicide	1. Facility	1. Residential
2. Pit, pond, lagoon	2. Radioactive waste	2. Railroad	2. Industrial
3. <input checked="" type="checkbox"/> Leak-underground	3. <input checked="" type="checkbox"/> Gasoline/diesel	3. Waterway	3. <input checked="" type="checkbox"/> Urban
4. Spray irrigation	4. Heating oil	4. Pipeline	4. Rural
5. Land application	5. Other petroleum prod.	5. Dumpsite	
6. Animal feedlot	6. Sewage/septage	6. Highway	
7. Source unknown	7. Fertilizers	7. Residence	
8. Septic tank	8. Sludge	8. Other	
9. Sewer line	9. Solid waste leachate		
10. Stockpile	10. Metals		
11. Landfill	11. Other inorganics		
12. Spill-surface	12. Other organics		

Site Priority Ranking NA

D.E.M. Regional Contact Steve Kay / Deborah Mayo Signature [Signature] Date 7-14-94

*Handwritten notes:* 1174 X 7-75 64

### IMPACT ON DRINKING WATER SUPPLIES

WELLS AFFECTED            1. YES            2. NO

NUMBER OF WELLS AFFECTED \_\_\_\_\_

Well(s) Contaminated: (Users Name)

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_
- 5. \_\_\_\_\_

Circle Appropriate Responses

Lab Samples Taken By:            1. DEM            2. DHS            3. Responsible Party            4. Other            5. None

Samples Taken Include:

- 1. Groundwater            2. Soil

### LOCATION OF INCIDENT

7 1/2 Min. Quad Name

Lat. : Deg : Min : Sec : \_\_\_\_\_

5 Min. Quad Number

Long. : Deg : Min : Sec : \_\_\_\_\_

Draw Sketch of Area or Attach Additional Maps



Z 441 972 550



# Receipt for Certified Mail *625*

No Insurance Coverage Provided  
Do not use for International Mail  
(See Reverse)

PS Form 3800, March 1993

Sent to		<i>Wayne Sellers</i>
Street and No.		<i>Seller's Service Station</i>
P.O., State and ZIP Code		
Postage		<i>\$ 1.01</i>
Certified Fee		<i>1.10</i>
Special Delivery Fee		
Restricted Delivery Fee		
Return Receipt Showing to Whom & Date Delivered		<i>1.10</i>
Return Receipt Showing to Whom, Date, and Addressee's Address		
TOTAL Postage & Fees		<i>\$3.21</i>
Postmark or Date		



**STICK POSTAGE STAMPS TO ARTICLE TO COVER FIRST CLASS POSTAGE,  
CERTIFIED MAIL FEE, AND CHARGES FOR ANY SELECTED OPTIONAL SERVICES (see front).**

1. If you want this receipt postmarked, stick the gummed stub to the right of the return address leaving the receipt attached and present the article at a post office service window or hand it to your rural carrier (no extra charge).
2. If you do not want this receipt postmarked, stick the gummed stub to the right of the return address of the article, date, detach and retain the receipt, and mail the article.
3. If you want a return receipt, write the certified mail number and your name and address on a return receipt card, Form 3811, and attach it to the front of the article by means of the gummed ends if space permits. Otherwise, affix to back of article. Endorse front of article **RETURN RECEIPT REQUESTED** adjacent to the number.
4. If you want delivery restricted to the addressee, or to an authorized agent of the addressee, endorse **RESTRICTED DELIVERY** on the front of the article.
5. Enter fees for the services requested in the appropriate spaces on the front of this receipt. If return receipt is requested, check the applicable blocks in item 1 of Form 3811.
6. Save this receipt and present it if you make inquiry.

105693 93 B-0270

PS Form 3800, March 1993 (Reverse)

YOUR RETURN ADDRESS completed on the reverse side.

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1.  Addressee's Address
- 2.  Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

*Mr. Wayne Sellers*  
*416 Oak Street*  
*Whiterville, NC 28472*

4a. Article Number

*Z 441 972 550*

4b. Service Type

- Registered  Insured
- Certified  COD
- Express Mail  Return Receipt for Merchandise

7. Date of Delivery

*8-14-95*

5. Signature (Addressee)

*Wayne Sellers*

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

Thank you for using Return Receipt Service.

**UNITED STATES POSTAL SERVICE**

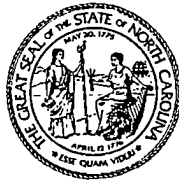
**Official Business**



PENALTY FOR PRIVATE  
USE TO AVOID PAYMENT  
OF POSTAGE, \$300



Print your name, address and ZIP code  
**NC DEHP - DEM GROUNDWATER SECTION**  
• **127 CARDINAL DRIVE EXTENSION** •  
**WILMINGTON NC 28405-3845**  
  
**ATTN: GWEN GOODYEAR**



State of North Carolina  
Department of Environment, Health, and Natural Resources

James B. Hunt, Jr.  
Governor

Wilmington Regional Office  
Division of Environmental Management  
Groundwater Section

Jonathan B. Howes  
Secretary

**NOTICE OF REGULATORY REQUIREMENTS**

August 11, 1995

**CERTIFIED MAIL Z 441 972 550**  
**RETURN RECEIPT REQUESTED**

Mr. Wayne Sellers  
416 Oak Street  
Whiteville, N.C. 28472

**SUBJECT: Seller's Service Station, 701 By-Pass, Whiteville, N.C., Columbus County**

Dear Mr. Sellers:

Information received by this office on January 12, 1993, confirms a release from the underground storage tank system at the above referenced site. This letter is a standard notification to advise you of the legal requirements pertaining to such a release under North Carolina law. The Division of Environmental Management administers the State's rules for underground storage tanks and the required corrective action for petroleum releases adopted pursuant to Chapter 143 of the North Carolina General Statutes. The State rules for underground storage tanks are located in Title 15A, Subchapter 2N of the North Carolina Administrative Code (NCAC). Also, the State rules for groundwater contamination are located in Title 15A, Subchapter 2L of the Code. Pursuant to 15A NCAC 2N .0203, you are the owner and/or operator of the underground storage tanks and therefore must comply with the release response and corrective action requirements of the State's rules. *A copy of this section of the rules (.0700) is attached for your reference.*

Title 15A NCAC 2N .0702 requires you to take immediate action to prevent any further release of the regulated substance into the environment and identify and mitigate any fire, explosion, and vapor hazards. Upon receipt of this notice, you must immediately perform these requirements if not already addressed.

Title 15A NCAC 2N .0703 requires you to undertake certain initial abatement measures, perform a site check, and if free product is discovered, begin recovery within 14 days thereafter. A report of the measures you have taken to comply with this rule must be received by the Wilmington Regional Office at the letterhead address by September 11, 1995.

Wayne Sellers  
August 11, 1995  
Page 2

Title 15A NCAC 2N .0704 requires that you assemble information about the nature and quantity of the release itself and certain surrounding demographic conditions. A report of this information must be received by the Wilmington Regional Office by October 11, 1995.

Title 15A NCAC 2N .0705 describes the requirements for removal of free product if discovered during the initial site check. A report describing the free product removal measures being undertaken must be received by the Wilmington Regional Office by October 11, 1995.

If certain conditions exist as described in the rule, 15A NCAC 2N .0706 requires that you conduct a comprehensive investigation of the release to determine the full extent and location of soils contaminated and any concentrations of dissolved product contamination in the State's groundwaters. This rule requires you to determine the full horizontal and vertical extent of the contamination caused by the release from its underground storage tank system. In order to comply with this requirement, it may be necessary to go beyond the release site and onto surrounding areas to determine the full extent of contamination. If conditions determined in the initial site check require this investigation, then a complete report of the required investigation must be submitted to the Wilmington Regional Office by November 10, 1995.

A corrective action plan is required if in-situ soil concentrations are detected above State action levels (see sections 6.0 and 8.0 of the *Groundwater Section Guidelines for the Remediation of Soils and Groundwater*, March 1993, Revision June 1994, for guidance pertaining to soil clean-up levels and soil excavation procedures) and/or groundwater concentrations exceed groundwater standards (see Title 15A, Subchapter 2L .0202 for the State groundwater quality standards). If the State's groundwater has been contaminated, Title 15A, Subchapter 2L .0106 requires that a corrective action plan be submitted, approved, and implemented until such time that you can demonstrate that continuation of the corrective action plan would not result in any significant reduction in the concentration of contaminants. If a corrective action plan is required, then public notice of the plan must be provided pursuant to 15A NCAC 2N .0708.

With the exception of the 20 day report required by 15A NCAC 2N .0703, the Wilmington Regional Office may establish, in writing, an alternate compliance schedule for the remaining requirements of the corrective action rules and may allow certain of the required reports to be combined. In order for such an alternate compliance schedule to be considered, must contact the Wilmington Regional Office immediately and follow-up in writing with a proposed schedule. Otherwise the requirements and deadlines of each rule are expected to be complied with. Upon any violations of established deadlines, no further notice will be sent and this office may immediately request that enforcement measures be commenced.

In accordance with G.S. 143-215.6A, failure to comply with the State's rules may result in the assessment of civil penalties against of up to \$10,000 per rule violation. Also, if groundwater standards have been exceeded under 15A NCAC 2L .0202, you may also be assessed a civil penalty of up to \$10,000 for each standard violation. Each day that a violation continues may be considered a separate violation.

Wayne Sellers  
August 11, 1995  
Page 3

Failure to comply with the corrective action rules may also result in the Attorney General of the State requesting an injunction in Superior Court requiring the necessary measures. Also any willful or knowing noncompliance which allows groundwater standards to continually be exceeded could result in criminal sanctions being sought under G.S. 143-215.6B.

To arrange for an alternate compliance schedule, you should contact Steve Kay, of the Wilmington Regional Office, at the letterhead address and/or telephone number.

Sincerely,

*Rick Shiver*

Rick Shiver, P.G.  
Regional Supervisor

RSS/CFS/SAK/gjg

Enclosures

cc: WiRO-GWS  
CF

s:\sellers.nor

*bc to;  
DEWEY HILL  
POB 723  
WHITTSVILLE  
28472*

*MARK WIRO COPY THAT Dewey  
was send copy*

**APPENDIX C**  
**BORING LOGS**





# Apex Companies, LLC

## Boring Log

<b>Boring/Well No.:</b> P2-SB1	<b>Site Name:</b> Parcel 2
<b>Date:</b> 6/7/18	<b>Location:</b> Whiteville, Columbus County, NC
<b>Job No.:</b> NCDOT-001	<b>Sample Method:</b> Hand Auger and Direct Push
<b>Apex Rep:</b> Thomas Fisher	<b>Drilling Method:</b> Hand Auger and Direct Push
<b>Drilling Company:</b> Carolina Soil Investigations	<b>Driller Name/Cert #:</b> Danny Summers/2579

**Remarks:**

Depth (ft) BLS)	FID Reading (ppm)	PID Reading (ppm)	Lab Sample ID	Soil/Lithologic Description
1	43	12		0-0.5' Asphalt
2				0.5'-1' Tan <b>SAND</b> .
3	16	15		1'-5' Gray <b>SAND</b> , saturated at 3'.
4				
5	1	19		
6				Boring terminated at 5 feet.
7				
8				
9				
10				
11				
12				
13				
14				

**WELL CONSTRUCTION DETAILS (If Applicable)**

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:



# Apex Companies, LLC

## Boring Log

<b>Boring/Well No.:</b> P2-SB2	<b>Site Name:</b> Parcel 2
<b>Date:</b> 6/7/18	<b>Location:</b> Whiteville, Columbus County, NC
<b>Job No.:</b> NCDOT-001	<b>Sample Method:</b> Hand Auger and Direct Push
<b>Apex Rep:</b> Thomas Fisher	<b>Drilling Method:</b> Hand Auger and Direct Push
<b>Drilling Company:</b> Carolina Soil Investigations	<b>Driller Name/Cert #:</b> Danny Summers/2579

**Remarks:**

Depth (ft) BLS)	FID Reading (ppm)	PID Reading (ppm)	Lab Sample ID	Soil/Lithologic Description
1	105	7		0-0.5' Asphalt
2				0.5'-2' Tan <b>SAND</b> .
3	24	5		2'-4' Black sandy <b>SILT</b> , saturated at 3'.
4				
5	10	4		4'-5' Gray silty <b>SAND</b> .
6				Boring terminated at 5 feet.
7				
8				
9				
10				
11				
12				
13				
14				

**WELL CONSTRUCTION DETAILS (If Applicable)**

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:



# Apex Companies, LLC

## Boring Log

<b>Boring/Well No.:</b> P2-SB3	<b>Site Name:</b> Parcel 2
<b>Date:</b> 6/7/18	<b>Location:</b> Whiteville, Columbus County, NC
<b>Job No.:</b> NCDOT-001	<b>Sample Method:</b> Hand Auger and Direct Push
<b>Apex Rep:</b> Thomas Fisher	<b>Drilling Method:</b> Hand Auger and Direct Push
<b>Drilling Company:</b> Carolina Soil Investigations	<b>Driller Name/Cert #:</b> Danny Summers/2579

**Remarks:**

Depth (ft) BLS)	FID Reading (ppm)	PID Reading (ppm)	Lab Sample ID	Soil/Lithologic Description
1	465	339		0-0.5' Asphalt
2				0.5'-2' Tan <b>SAND</b> .
3	429	109		2'-4' Black sandy <b>SILT</b> , saturated at 3'.
4				
5	254	97		4'-5' Gray silty <b>SAND</b> .
6				Boring terminated at 5 feet.
7				
8				
9				
10				
11				
12				
13				
14				

**WELL CONSTRUCTION DETAILS (If Applicable)**

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:



# Apex Companies, LLC

## Boring Log

<b>Boring/Well No.:</b> P2-SB4	<b>Site Name:</b> Parcel 2
<b>Date:</b> 6/7/18	<b>Location:</b> Whiteville, Columbus County, NC
<b>Job No.:</b> NCDOT-001	<b>Sample Method:</b> Hand Auger and Direct Push
<b>Apex Rep:</b> Thomas Fisher	<b>Drilling Method:</b> Hand Auger and Direct Push
<b>Drilling Company:</b> Carolina Soil Investigations	<b>Driller Name/Cert #:</b> Danny Summers/2579

**Remarks:**

Depth (ft) BLS)	FID Reading (ppm)	PID Reading (ppm)	Lab Sample ID	Soil/Lithologic Description
1	765	123		0-0.5' Asphalt
2				0.5'-2' Tan <b>SAND</b> .
3	3.35%	1054		2'-4' Black sandy <b>SILT</b> , saturated at 3'.
4				
5	>26.4%	1120		4'-5' Gray silty <b>SAND</b> .
6				
7				
8				
9	1,300	150		
10				Boring terminated at 10 feet.
11				
12				
13				
14				

### WELL CONSTRUCTION DETAILS (If Applicable)

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:



# Apex Companies, LLC

## Boring Log

<b>Boring/Well No.:</b> P2-SB5	<b>Site Name:</b> Parcel 2
<b>Date:</b> 6/7/18	<b>Location:</b> Whiteville, Columbus County, NC
<b>Job No.:</b> NCDOT-001	<b>Sample Method:</b> Hand Auger and Direct Push
<b>Apex Rep:</b> Thomas Fisher	<b>Drilling Method:</b> Hand Auger and Direct Push
<b>Drilling Company:</b> Carolina Soil Investigations	<b>Driller Name/Cert #:</b> Danny Summers/2579

**Remarks:**

Depth (ft) BLS)	FID Reading (ppm)	PID Reading (ppm)	Lab Sample ID	Soil/Lithologic Description
1	8	20		0-4' Grass-Tan <b>SAND</b> .
2				
3	5	14		
4				
5	12	218		4'-5' Gray <b>SAND</b> , saturated at 4'.
6				Boring terminated at 5 feet.
7				
8				
9				
10				
11				
12				
13				
14				

**WELL CONSTRUCTION DETAILS (If Applicable)**

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:



# Apex Companies, LLC

## Boring Log

<b>Boring/Well No.:</b> P2-SB4a	<b>Site Name:</b> Parcel 2
<b>Date:</b> 6/7/18	<b>Location:</b> Whiteville, Columbus County, NC
<b>Job No.:</b> NCDOT-001	<b>Sample Method:</b> Hand Auger and Direct Push
<b>Apex Rep:</b> Thomas Fisher	<b>Drilling Method:</b> Hand Auger and Direct Push
<b>Drilling Company:</b> Carolina Soil Investigations	<b>Driller Name/Cert #:</b> Danny Summers/2579

**Remarks:**

Depth (ft) BLS)	FID Reading (ppm)	PID Reading (ppm)	Lab Sample ID	Soil/Lithologic Description
1	>26.4%	--		0-0.5' Asphalt
2				0.5'-2.5' Tan <b>SAND</b> .
3	>26.4%	--		2.5'-3' Gray <b>SAND</b> .
4				Boring terminated at 3 feet.
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

**WELL CONSTRUCTION DETAILS (If Applicable)**

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:



# Apex Companies, LLC

## Boring Log

<b>Boring/Well No.:</b> P2-SB4b	<b>Site Name:</b> Parcel 2
<b>Date:</b> 6/7/18	<b>Location:</b> Whiteville, Columbus County, NC
<b>Job No.:</b> NCDOT-001	<b>Sample Method:</b> Hand Auger and Direct Push
<b>Apex Rep:</b> Thomas Fisher	<b>Drilling Method:</b> Hand Auger and Direct Push
<b>Drilling Company:</b> Carolina Soil Investigations	<b>Driller Name/Cert #:</b> Danny Summers/2579

**Remarks:**

Depth (ft) BLS)	FID Reading (ppm)	PID Reading (ppm)	Lab Sample ID	Soil/Lithologic Description
1	2,020	--		0-0.5' Asphalt
2				0.5'-3' Black sandy <b>SILT</b> , odor.
3	709	--		
4				Boring terminated at 3 feet.
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

**WELL CONSTRUCTION DETAILS (If Applicable)**

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:



# Apex Companies, LLC

## Boring Log

<b>Boring/Well No.:</b> P2-SB4c	<b>Site Name:</b> Parcel 2
<b>Date:</b> 6/7/18	<b>Location:</b> Whiteville, Columbus County, NC
<b>Job No.:</b> NCDOT-001	<b>Sample Method:</b> Hand Auger and Direct Push
<b>Apex Rep:</b> Thomas Fisher	<b>Drilling Method:</b> Hand Auger and Direct Push
<b>Drilling Company:</b> Carolina Soil Investigations	<b>Driller Name/Cert #:</b> Danny Summers/2579

**Remarks:**

Depth (ft) BLS)	FID Reading (ppm)	PID Reading (ppm)	Lab Sample ID	Soil/Lithologic Description
1	320	--		0-0.5' Asphalt
2				0.5'-3' Black sandy <b>SILT</b> , odor.
3	2154	--		
4				Boring terminated at 3 feet.
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

**WELL CONSTRUCTION DETAILS (If Applicable)**

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:





# Apex Companies, LLC

## Boring Log

<b>Boring/Well No.:</b> P2-SB4d	<b>Site Name:</b> Parcel 2
<b>Date:</b> 6/7/18	<b>Location:</b> Whiteville, Columbus County, NC
<b>Job No.:</b> NCDOT-001	<b>Sample Method:</b> Hand Auger and Direct Push
<b>Apex Rep:</b> Thomas Fisher	<b>Drilling Method:</b> Hand Auger and Direct Push
<b>Drilling Company:</b> Carolina Soil Investigations	<b>Driller Name/Cert #:</b> Danny Summers/2579

**Remarks:**

Depth (ft) BLS)	FID Reading (ppm)	PID Reading (ppm)	Lab Sample ID	Soil/Lithologic Description
1	5,000	154		0-0.5' Asphalt
2				
3	>26.4%	--		
4				Boring terminated at 3 feet.
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

**WELL CONSTRUCTION DETAILS (If Applicable)**

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:



# Apex Companies, LLC

## Boring Log

<b>Boring/Well No.:</b> P2-SB4dd	<b>Site Name:</b> Parcel 2
<b>Date:</b> 6/7/18	<b>Location:</b> Whiteville, Columbus County, NC
<b>Job No.:</b> NCDOT-001	<b>Sample Method:</b> Hand Auger and Direct Push
<b>Apex Rep:</b> Thomas Fisher	<b>Drilling Method:</b> Hand Auger and Direct Push
<b>Drilling Company:</b> Carolina Soil Investigations	<b>Driller Name/Cert #:</b> Danny Summers/2579

**Remarks:**

Depth (ft) BLS)	FID Reading (ppm)	PID Reading (ppm)	Lab Sample ID	Soil/Lithologic Description
1	900	90		0-0.5' Asphalt
2				0.5'-3' Black sandy <b>SILT</b> , odor.
3				
4	3,000	219		
5				Boring terminated at 5 feet.
6				
7				
8				
9				
10				
11				
12				
13				
14				

**WELL CONSTRUCTION DETAILS (If Applicable)**

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:

**APPENDIX D**  
**GEOPHYSICAL REPORT**



PYRAMID GEOPHYSICAL SERVICES  
(PROJECT 2018-139)

# GEOPHYSICAL SURVEY

---

METALLIC UST INVESTIGATION:  
PARCEL 2  
NCDOT PROJECT R-5020B (41499.1.3)

416 S. JK POWELL BLVD., WHITEVILLE, NC

JUNE 20, 2018

Report prepared for: Katie Lippard  
Apex Companies, LLC  
1071 Pemberton Hill Rd., Suite 203  
Apex, NC 27502

Prepared by: \_\_\_\_\_

A handwritten signature in black ink, appearing to read "E. Cross".

Eric C. Cross, P.G.  
NC License #2181

Reviewed by: \_\_\_\_\_

A handwritten signature in black ink, appearing to read "Doug Canavello".

Douglas A. Canavello, P.G.  
NC License #1066

503 INDUSTRIAL AVENUE, GREENSBORO, NC 27406

P: 336.335.3174 F: 336.691.0648

C257: GEOLOGY C1251: ENGINEERING

**GEOPHYSICAL INVESTIGATION REPORT**  
**Parcel 2 – 416 S. JK Powell Blvd.**  
**Whiteville, Columbus County, North Carolina**

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- Figure 2 – Parcel 2 EM61 Results Contour Map
- Figure 3 – Parcel 2 GPR Transect Locations and Images
- Figure 4 – Overlay of Geophysical Survey Boundaries on NCDOT Engineering Plans

## LIST OF ACRONYMS

CADD .....	Computer Assisted Drafting and Design
DF .....	Dual Frequency
EM.....	Electromagnetic
GPR.....	Ground Penetrating Radar
GPS .....	Global Positioning System
NCDOT.....	North Carolina Department of Transportation
ROW .....	Right-of-Way
UST .....	Underground Storage Tank

## EXECUTIVE SUMMARY

---

**Project Description:** Pyramid Environmental conducted a geophysical investigation for Apex Companies, LLC at Parcel 2, located at 416 S. JK Powell Blvd., in Whiteville, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-5020B). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from May 30 – June 5, 2018, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

**Geophysical Results:** The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of six EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. One EM anomaly (Anomaly 5) was associated with suspected reinforced concrete and was investigated by GPR. GPR verified the presence of metal reinforcement within the concrete covered by asphalt. No evidence of larger structures such as USTs was observed beneath the reinforcement. Collectively, the geophysical data did not record any evidence of metallic USTs at Parcel 2.

## INTRODUCTION

---

Pyramid Environmental conducted a geophysical investigation for Apex Companies, LLC at Parcel 2, located at 416 S. JK Powell Blvd., in Whiteville, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-5020B). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from May 30 – June 5, 2018, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included an active gas station surrounded by reinforced concrete/asphalt surfaces and grass medians. An aerial photograph showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

## FIELD METHODOLOGY

---

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. Pyramid collected the EM data using a Geonics EM61 metal detector integrated with a Trimble AG-114 GPS antenna. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

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, generally parallel survey lines, spaced five feet apart. The data were downloaded to a



computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 15.0 software programs.

GPR data were acquired across select EM anomalies on June 5, 2018, using a Geophysical Survey Systems, Inc. (GSSI) UtilityScan DF unit equipped with a dual frequency 300/800 MHz antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. 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 6 feet, based on dielectric constants calculated by the DF unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the DF unit for post-processing and figure generation.

Pyramid’s classifications of USTs for the purposes of this report are based directly on the geophysical UST ratings provided by the NCDOT. These ratings are as follows:

Geophysical Surveys for Underground Storage Tanks on NCDOT Projects			
High Confidence	Intermediate Confidence	Low Confidence	No Confidence
<b>Known UST</b> Active tank - spatial location, orientation, and approximate depth determined by geophysics.	<b>Probable UST</b> Sufficient geophysical data from both magnetic and radar surveys that is characteristic of a tank. Interpretation may be supported by physical evidence such as fill/vent pipe, metal cover plate, asphalt/concrete patch, etc.	<b>Possible UST</b> Sufficient geophysical data from either magnetic or radar surveys that is characteristic of a tank. Additional data is not sufficient enough to confirm or deny the presence of a UST.	Anomaly noted but not characteristic of a UST. Should be noted in the text and may be called out in the figures at the geophysicist’s discretion.

**DISCUSSION OF RESULTS**

*Discussion of EM Results*

A contour plot of the EM61 results obtained across the survey area at the property is presented in **Figure 2**. Each EM anomaly is numbered for reference in the figure. The following table presents the list of EM anomalies and the cause of the metallic response, if known:

**LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY**

<b>Metallic Anomaly #</b>	<b>Cause of Anomaly</b>	<b>Investigated with GPR</b>
1	Vehicle	
2	Donation Box	
3	Manhole	
4	Storm Sewer	
5	Reinforced Concrete	☑
6	Utilities/Signs	

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface, including utilities, a vehicle, a donation box, a manhole, a storm sewer, and signs. GPR scans were performed in a grid-like fashion across the suspected reinforced concrete (Anomaly 5) to verify the presence of metal reinforcement and confirm that no other metal structures were present beneath the reinforcement.

*Discussion of GPR Results*

**Figure 3** presents the locations of the formal GPR transects performed at the property, as well as the transect images. A total of seven GPR transects were performed at the site. GPR Transects 1-7 were performed in a grid-like fashion across the reinforced concrete. These transects verified the presence of metal reinforcement in the concrete beneath the asphalt. No evidence of larger structures such as USTs was observed.

Collectively, the geophysical data did not record any evidence of metallic USTs at Parcel 2. **Figure 4** provides an overlay of the geophysical survey onto the NCDOT MicroStation engineering plans for reference.

## SUMMARY & CONCLUSIONS

---

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 2 in Whiteville, North Carolina, provides the following summary and conclusions:

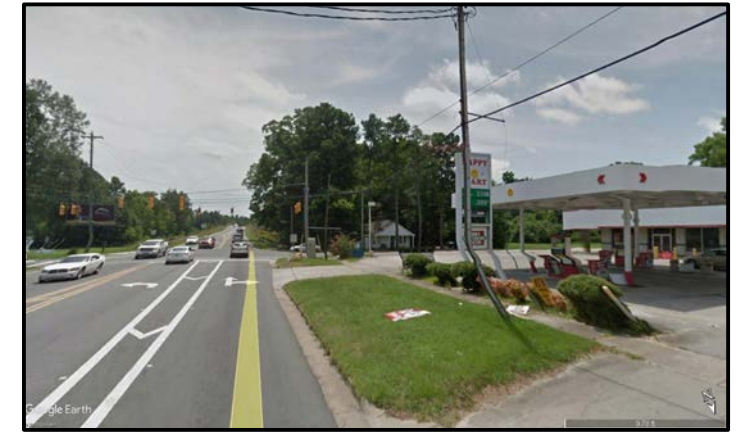
- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface.
- One EM anomaly (Anomaly 5) was associated with suspected reinforced concrete and was investigated by GPR.
- GPR verified the presence of metal reinforcement within the concrete covered by asphalt. No evidence of larger structures such as USTs was observed beneath the reinforcement.
- Collectively, the geophysical data did not record any evidence of metallic USTs at Parcel 2.

## LIMITATIONS

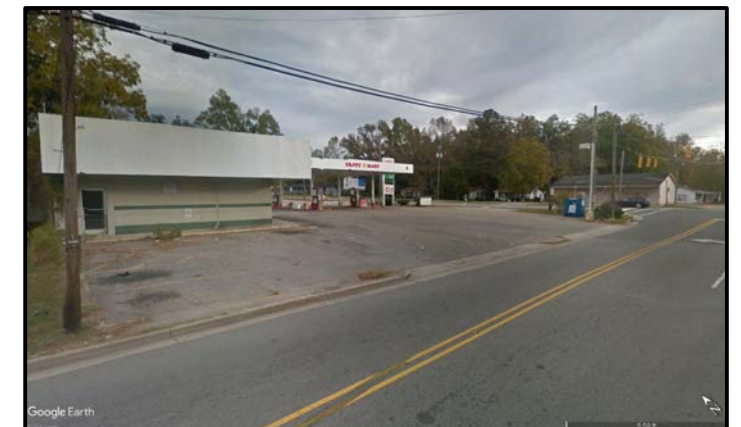
---

Geophysical surveys have been performed and this report was prepared for Apex Companies, LLC 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 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 GEOPHYSICAL SURVEY AREA



View of Survey Area  
(Facing Approximately Northwest)



View of Survey Area  
(Facing Approximately North)



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PROJECT  
PARCEL 2  
WHITEVILLE, NORTH CAROLINA  
NCDOT PROJECT R-5020B

TITLE  
PARCEL 2 - GEOPHYSICAL SURVEY  
BOUNDARIES AND SITE PHOTOGRAPHS

DATE 5/30/2018  
PYRAMID PROJECT #: 2018-139

CLIENT Apex Companies, LLC  
**FIGURE 1**

## EM61 METAL DETECTION RESULTS

**NO EVIDENCE OF UNKNOWN METALLIC USTs OBSERVED.**

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM61 data were collected on May 30, 2018, using a Geonics EM61 instrument. Verification GPR data were collected using a GSSI UtilityScan DF instrument with a dual frequency 300/800 MHz antenna on June 5, 2018.



**EM61 Metal Detection Response (millivolts)**



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PROJECT  
**PARCEL 2**  
WHITEVILLE, NORTH CAROLINA  
NCDOT PROJECT R-5020B

TITLE  
**PARCEL 2 - EM61 METAL DETECTION**  
CONTOUR MAP

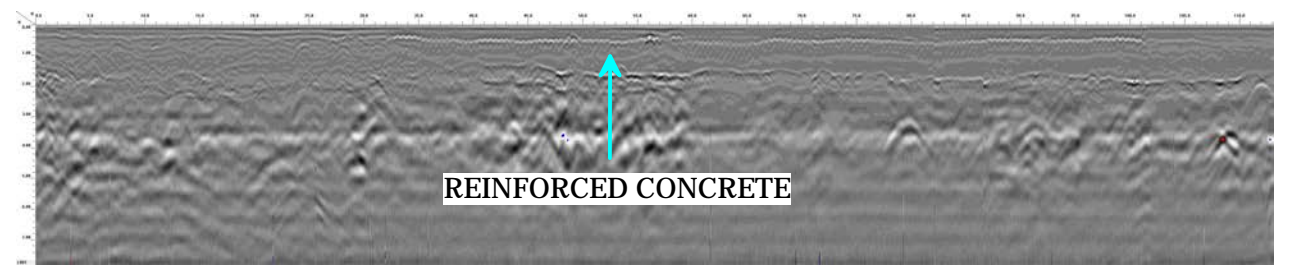
DATE  
5/30/2018

PYRAMID PROJECT #:  
2018-139

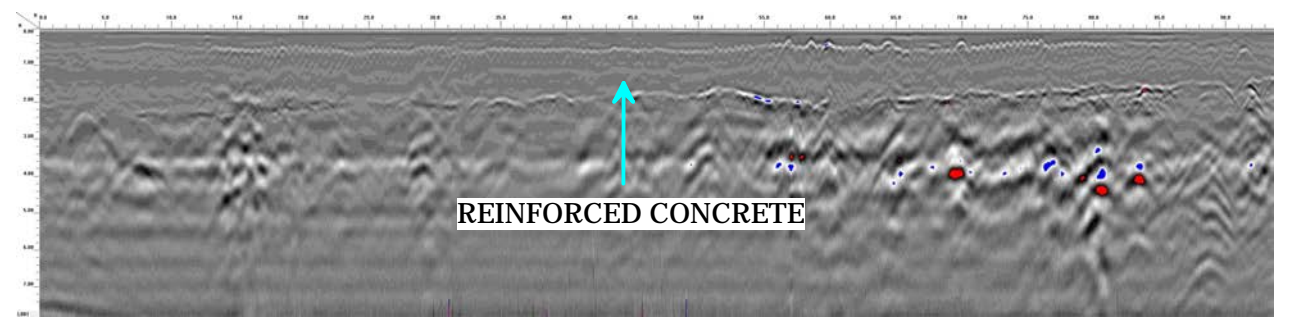
CLIENT  
Apex Companies, LLC

**FIGURE 2**

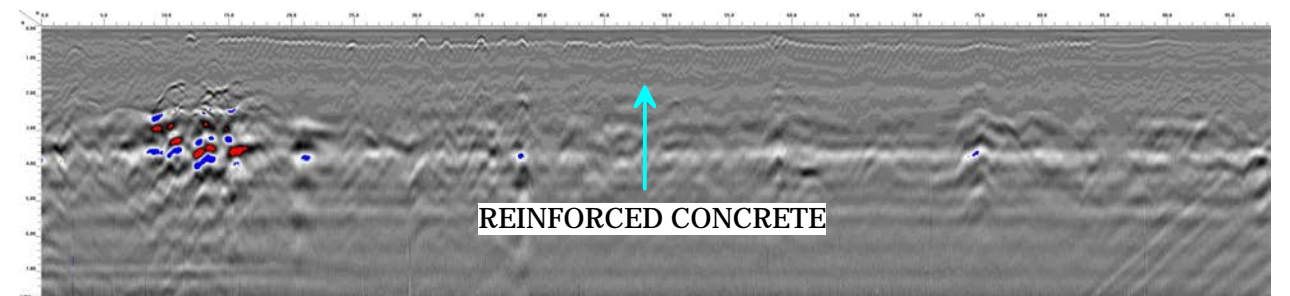
## LOCATIONS OF GPR TRANSECTS



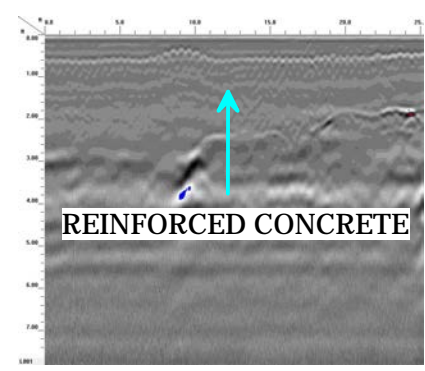
GPR TRANSECT 1 (T1)



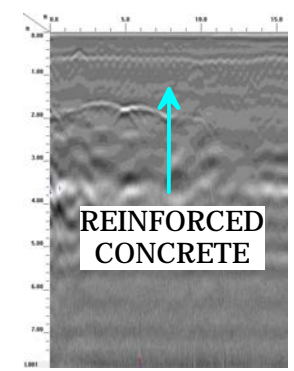
GPR TRANSECT 2 (T2)



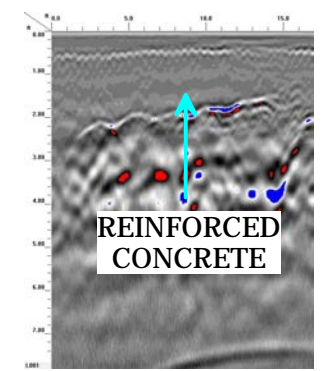
GPR TRANSECT 3 (T3)



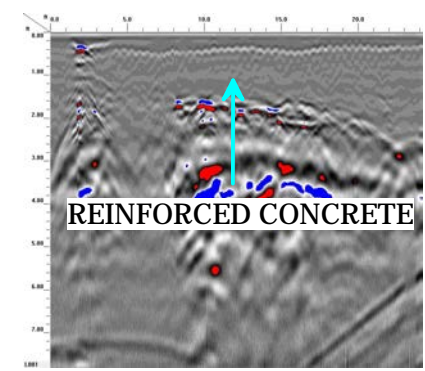
GPR TRANSECT 4 (T4)



GPR TRANSECT 5 (T5)



GPR TRANSECT 6 (T6)



GPR TRANSECT 7 (T7)



	503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	PROJECT PARCEL 2 WHITEVILLE, NORTH CAROLINA NCDOT PROJECT R-5020B	TITLE PARCEL 2 - GPR TRANSECT LOCATIONS AND IMAGES	DATE 6/5/2018	CLIENT Apex Companies, LLC
				PYRAMID PROJECT #: 2018-139	<b>FIGURE 3</b>



**APPENDIX E**  
**UVF HYDROCARBON ANALYSIS RESULTS AND PACE ANALYTICAL**  
**LABORATORY REPORT**





**Hydrocarbon Analysis Results**

**Client:** NCDOT  
**Address:** Parcel 2

**Samples taken** Thursday, June 7, 2018  
**Samples extracted** Thursday, June 7, 2018  
**Samples analysed** Thursday, June 7, 2018

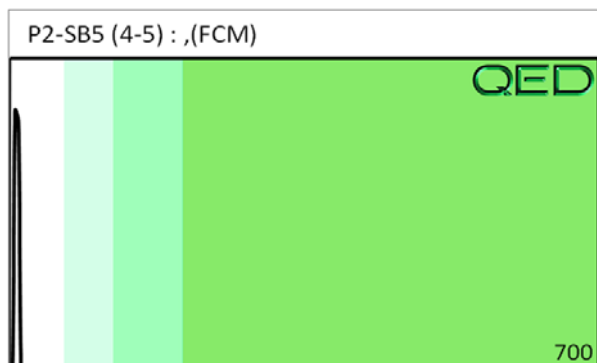
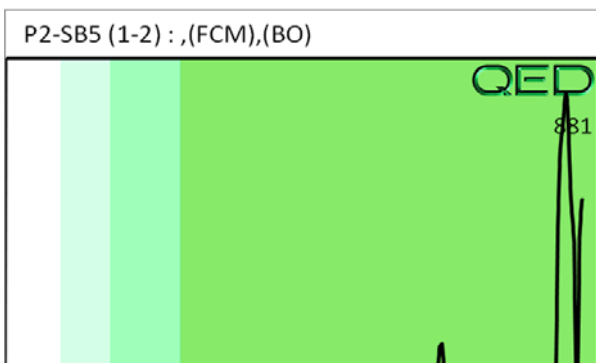
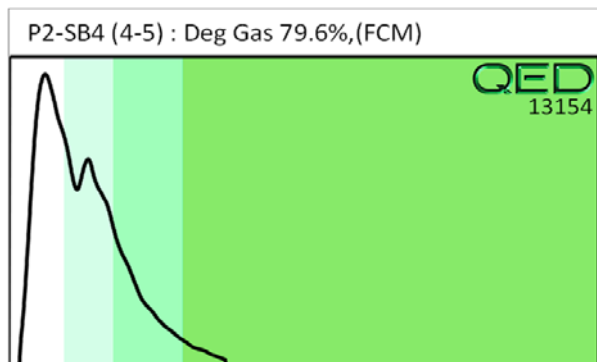
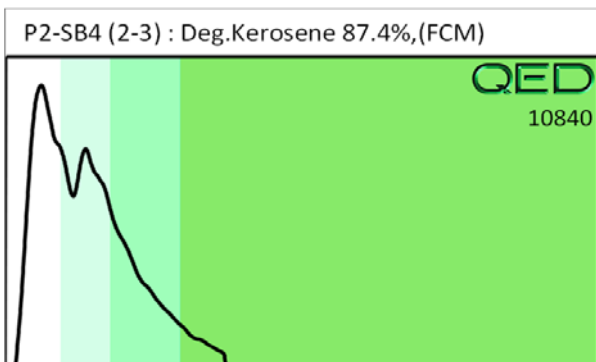
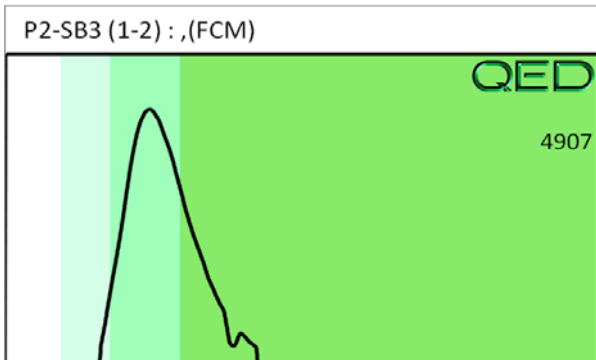
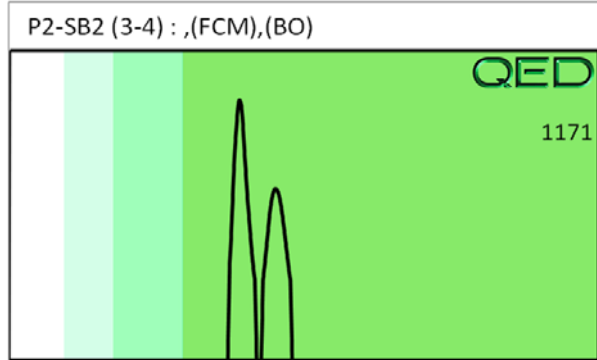
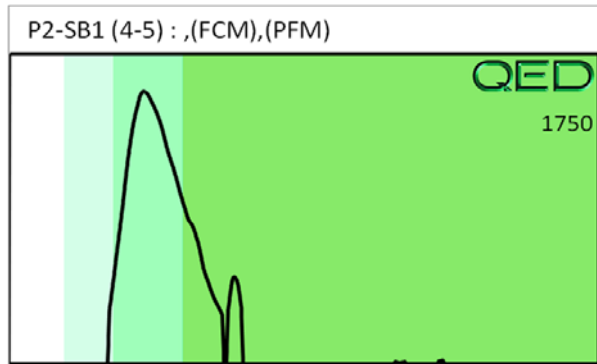
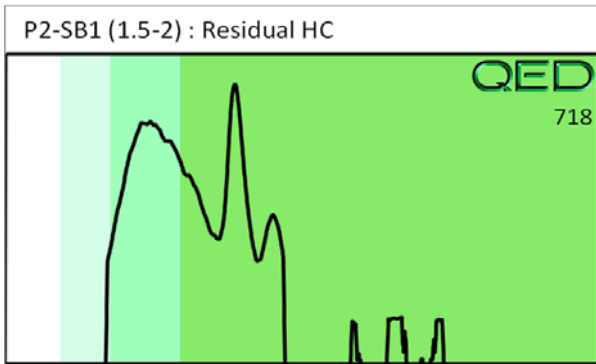
**Contact:** Craig Haden

**Operator** Troy L. Holzschuh

**Project:** R-5020B Whiteville

										F03640			
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	P2-SB1 (1.5-2)	19.3	<0.48	<0.48	0.48	0.48	0.3	<0.15	<0.019	0	90.9	9.1	Residual HC
s	P2-SB1 (4-5)	16.5	<0.41	<0.41	0.41	0.41	0.31	<0.13	<0.016	0	93	7	,(FCM),(PFM)
s	P2-SB2 (2-3)	23.2	<0.58	<0.58	<0.58	<0.58	<0.12	<0.19	<0.023	0	0	0	PHC not detected,(BO)
s	P2-SB2 (3-4)	11.0	<0.27	<0.27	<0.27	<0.27	<0.05	<0.09	<0.011	0	0	0	,(FCM),(BO)
s	P2-SB3 (1-2)	32.5	<0.81	<0.81	2.1	2.1	1.9	<0.26	<0.033	0	93.2	6.8	,(FCM)
s	P2-SB3 (3-4)	10.4	<0.26	<0.26	<0.26	<0.26	<0.05	<0.08	<0.01	0	0	0	,(FCM),(BO)
s	P2-SB4 (2-2.5)	117.0	106.9	719.9	792.2	1512.1	80	3.1	<0.12	99.5	0.5	0	Deg.Kerosene 87.4%,(FCM)
s	P2-SB4 (4-5)	106.0	<2.7	752.5	670.5	1423	75.9	3	<0.11	99.7	0.3	0	Deg Gas 79.6%,(FCM)
s	P2-SB5 (1-2)	10.5	<0.26	<0.26	<0.26	<0.26	<0.05	<0.08	<0.011	0	0	0	,(FCM),(BO)
s	P2-SB5 (4-5)	11.1	<0.28	<0.28	<0.28	<0.28	<0.06	<0.09	<0.011	0	0	0	,(FCM)
Initial Calibrator QC check			OK			Final FCM QC Check			OK			100.1 %	

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





**Hydrocarbon Analysis Results**

**Client:** NCDOT  
**Address:** Parcel 2

**Samples taken** Thursday, June 7, 2018  
**Samples extracted** Thursday, June 7, 2018  
**Samples analysed** Thursday, June 7, 2018

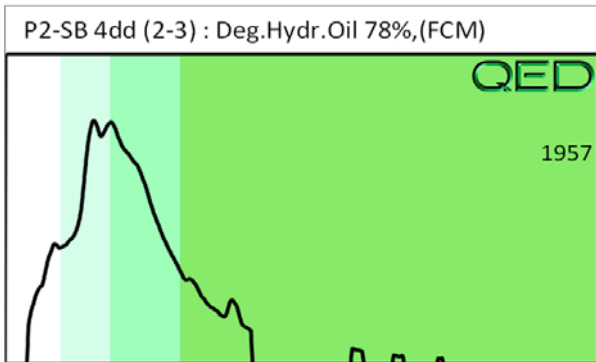
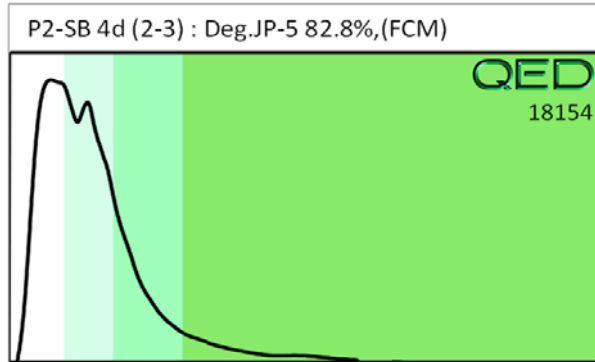
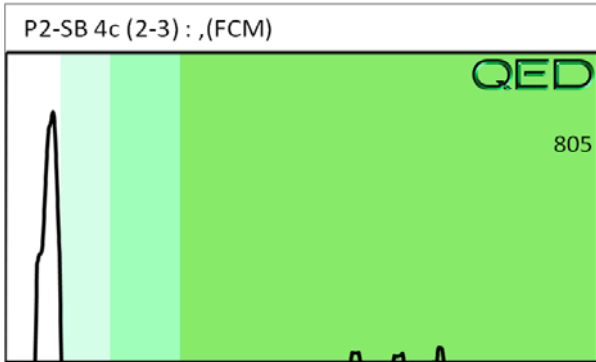
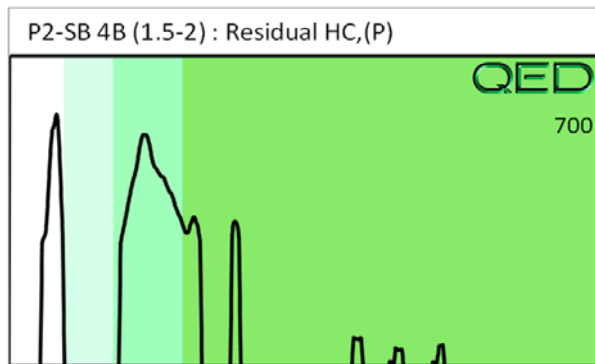
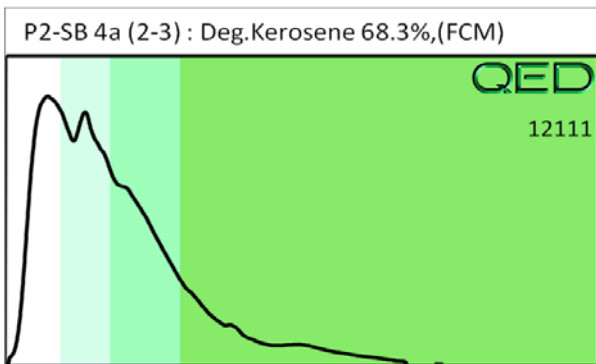
**Contact:** Craig Haden

**Operator** Troy Holzschuh

**Project:** R-5020B Whiteville

										F03640			
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	P2-SB 4a (2-2.5)	102.0	<2.5	697.2	728	1425.2	99.7	4	<0.1	98.9	1	0.1	Deg.Kerosene 68.3%,(FCM)
s	P2-SB 4B (1.5-2)	89.1	<2.2	<2.2	<2.2	<2.2	<0.45	<0.71	<0.089	0	100	0	Residual HC,(P)
s	P2-SB 4c (2-2.5)	101.0	<2.5	<2.5	<2.5	<2.5	<0.5	<0.81	<0.1	0	0	0	,(FCM)
s	P2-SB 4d (2-2.5)	114.0	<2.9	1216	4222	5438	120.8	4.7	<0.11	99.6	0.3	0	Deg.JP-5 82.8%,(FCM)
s	P2-SB 4dd (2-2.5)	80.3	<2	8.7	87.8	96.5	9.5	<0.64	<0.08	88.1	11.4	0.5	Deg.Hydr.Oil 78%,(FCM)
Initial Calibrator QC check										OK			97.8 %
Final FCM QC Check										OK			97.8 %

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





June 21, 2018

Katie Lippard  
APEX  
136 Fairview Rd  
 Mooresville, NC 28117

RE: Project: NCDOT -001 WBS 41499.1.3  
Pace Project No.: 92387844

Dear Katie Lippard:

Enclosed are the analytical results for sample(s) received by the laboratory on June 08, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Trey Carter  
treycarter@pacelabs.com  
(704)875-9092  
Project Manager

Enclosures

cc: Tim Besier, Apex Companies  
Chemical Testing Engineer, Materials and Tests Unit  
Troy Holzschuh, Apex



**REPORT OF LABORATORY ANALYSIS**

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## CERTIFICATIONS

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

---

### Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078

Louisiana/NELAP Certification # LA170028

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

Virginia/VELAP Certification #: 460221

---

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: NCDOT -001 WBS 41499.1.3  
Pace Project No.: 92387844

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92387844001	P-6-SB-3	Water	06/07/18 12:30	06/08/18 15:18
92387844002	P-2-SB-4	Water	06/07/18 16:15	06/08/18 15:18
92387844003	P-54-SB-2	Water	06/07/18 17:45	06/08/18 15:18

### REPORT OF LABORATORY ANALYSIS

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**SAMPLE ANALYTE COUNT**

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92387844001	P-6-SB-3	MADEP EPH	SEM	7	PASI-C
		MADEP VPH	CL	5	PASI-C
		EPA 8270	PKS	74	PASI-C
		EPA 8260	CAH	68	PASI-C
92387844002	P-2-SB-4	MADEP EPH	SEM	7	PASI-C
		MADEP VPH	CL	5	PASI-C
		EPA 8270	PKS	74	PASI-C
		EPA 8260	CAH	68	PASI-C
92387844003	P-54-SB-2	MADEP EPH	SEM	7	PASI-C
		MADEP VPH	CL	5	PASI-C
		EPA 8270	PKS	74	PASI-C
		EPA 8260	CAH	68	PASI-C

**REPORT OF LABORATORY ANALYSIS**

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## SUMMARY OF DETECTION

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>92387844001</b>	<b>P-6-SB-3</b>					
EPA 8270	Phenol	6.8J	ug/L	10.0	06/15/18 12:30	
EPA 8260	Acetone	21.8J	ug/L	25.0	06/15/18 02:22	
EPA 8260	Ethylbenzene	0.46J	ug/L	1.0	06/15/18 02:22	
EPA 8260	Naphthalene	0.42J	ug/L	1.0	06/15/18 02:22	
EPA 8260	Toluene	2.5	ug/L	1.0	06/15/18 02:22	
EPA 8260	1,2,4-Trimethylbenzene	0.82J	ug/L	1.0	06/15/18 02:22	
<b>92387844002</b>	<b>P-2-SB-4</b>					
MADEP EPH	Aliphatic (C09-C18)	63100000	ug/L	1000000	06/21/18 11:40	N2
MADEP EPH	Aromatic (C11-C22)	29400000	ug/L	20000	06/21/18 07:19	N2
MADEP VPH	Aliphatic (C05-C08)	37600	ug/L	6250	06/11/18 21:07	N2
MADEP VPH	Aliphatic (C09-C12)	62800	ug/L	6250	06/11/18 21:07	N2
MADEP VPH	Aromatic (C09-C10)	22200	ug/L	6250	06/11/18 21:07	N2
EPA 8270	1-Methylnaphthalene	120	ug/L	10.0	06/15/18 13:02	
EPA 8270	2-Methylnaphthalene	276	ug/L	50.0	06/15/18 14:11	
EPA 8270	Naphthalene	671	ug/L	50.0	06/15/18 14:11	
EPA 8260	Benzene	2510	ug/L	100	06/15/18 15:33	
EPA 8260	2-Butanone (MEK)	829	ug/L	500	06/15/18 15:33	
EPA 8260	Chloroethane	111	ug/L	100	06/15/18 15:33	
EPA 8260	Ethylbenzene	5400	ug/L	100	06/15/18 15:33	
EPA 8260	Isopropylbenzene (Cumene)	686	ug/L	100	06/15/18 15:33	
EPA 8260	4-Methyl-2-pentanone (MIBK)	97.4J	ug/L	500	06/15/18 15:33	
EPA 8260	Naphthalene	2320	ug/L	100	06/15/18 15:33	
EPA 8260	n-Propylbenzene	1870	ug/L	100	06/15/18 15:33	
EPA 8260	Toluene	13500	ug/L	100	06/15/18 15:33	
EPA 8260	1,2,4-Trimethylbenzene	12800	ug/L	100	06/15/18 15:33	
EPA 8260	1,3,5-Trimethylbenzene	4230	ug/L	100	06/15/18 15:33	
EPA 8260	Xylene (Total)	31600	ug/L	100	06/15/18 15:33	
<b>92387844003</b>	<b>P-54-SB-2</b>					
MADEP EPH	Aromatic (C11-C22)	361	ug/L	100	06/20/18 18:29	N2
MADEP VPH	Aliphatic (C05-C08)	1500	ug/L	250	06/11/18 18:45	N2
MADEP VPH	Aliphatic (C09-C12)	6830	ug/L	250	06/11/18 18:45	N2
MADEP VPH	Aromatic (C09-C10)	2290	ug/L	250	06/11/18 18:45	N2
EPA 8270	2,4-Dimethylphenol	7.4J	ug/L	8.3	06/15/18 13:34	
EPA 8270	1-Methylnaphthalene	11.5	ug/L	8.3	06/15/18 13:34	
EPA 8270	2-Methylnaphthalene	21.9	ug/L	8.3	06/15/18 13:34	
EPA 8270	Naphthalene	76.4	ug/L	8.3	06/15/18 13:34	
EPA 8260	Benzene	1.7J	ug/L	4.0	06/18/18 19:15	
EPA 8260	n-Butylbenzene	23.0	ug/L	4.0	06/18/18 19:15	
EPA 8260	sec-Butylbenzene	9.5	ug/L	4.0	06/18/18 19:15	
EPA 8260	Ethylbenzene	303	ug/L	4.0	06/18/18 19:15	
EPA 8260	Isopropylbenzene (Cumene)	30.1	ug/L	4.0	06/18/18 19:15	
EPA 8260	Methyl-tert-butyl ether	5.7	ug/L	4.0	06/18/18 19:15	
EPA 8260	Naphthalene	113	ug/L	4.0	06/18/18 19:15	
EPA 8260	n-Propylbenzene	95.9	ug/L	4.0	06/18/18 19:15	
EPA 8260	Toluene	122	ug/L	4.0	06/18/18 19:15	
EPA 8260	1,2,4-Trimethylbenzene	511	ug/L	4.0	06/18/18 19:15	

## REPORT OF LABORATORY ANALYSIS

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### SUMMARY OF DETECTION

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
<b>92387844003</b>	<b>P-54-SB-2</b>					
EPA 8260	1,3,5-Trimethylbenzene	161	ug/L	4.0	06/18/18 19:15	
EPA 8260	Xylene (Total)	1460	ug/L	4.0	06/18/18 19:15	

### REPORT OF LABORATORY ANALYSIS

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**ANALYTICAL RESULTS**

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

**Sample: P-6-SB-3**      **Lab ID: 92387844001**      Collected: 06/07/18 12:30      Received: 06/08/18 15:18      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>MADEP EPH NC Water</b>			Analytical Method: MADEP EPH      Preparation Method: MADEP EPH						
Aliphatic (C09-C18)	ND	ug/L	114	114	1	06/18/18 20:54	06/19/18 15:09		N2
Aliphatic (C19-C36)	ND	ug/L	114	114	1	06/18/18 20:54	06/19/18 15:09		N2
Aromatic (C11-C22)	ND	ug/L	114	114	1	06/18/18 20:54	06/19/18 15:09		N2
<b>Surrogates</b>									
Nonatriacontane (S)	91	%	40-140		1	06/18/18 20:54	06/19/18 15:09	7194-86-7	
o-Terphenyl (S)	77	%	40-140		1	06/18/18 20:54	06/19/18 15:09	84-15-1	
2-Fluorobiphenyl (S)	91	%	40-140		1	06/18/18 20:54	06/19/18 15:09	321-60-8	
2-Bromonaphthalene (S)	98	%	40-140		1	06/18/18 20:54	06/19/18 15:09	580-13-2	
<b>VPH NC Water</b>			Analytical Method: MADEP VPH						
Aliphatic (C05-C08)	ND	ug/L	50.0	50.0	1		06/11/18 16:21		N2
Aliphatic (C09-C12)	ND	ug/L	50.0	50.0	1		06/11/18 16:21		N2
Aromatic (C09-C10)	ND	ug/L	50.0	50.0	1		06/11/18 16:21		N2
<b>Surrogates</b>									
4-Bromofluorobenzene (FID) (S)	88	%	70-130		1		06/11/18 16:21	460-00-4	
4-Bromofluorobenzene (PID) (S)	86	%	70-130		1		06/11/18 16:21	460-00-4	
<b>8270 MSSV RVE Semivol Organic</b>			Analytical Method: EPA 8270      Preparation Method: EPA 3510						
Acenaphthene	ND	ug/L	10.0	3.4	1	06/14/18 20:46	06/15/18 12:30	83-32-9	
Acenaphthylene	ND	ug/L	10.0	3.0	1	06/14/18 20:46	06/15/18 12:30	208-96-8	
Aniline	ND	ug/L	10.0	3.1	1	06/14/18 20:46	06/15/18 12:30	62-53-3	L2
Anthracene	ND	ug/L	10.0	2.0	1	06/14/18 20:46	06/15/18 12:30	120-12-7	
Benzo(a)anthracene	ND	ug/L	10.0	1.3	1	06/14/18 20:46	06/15/18 12:30	56-55-3	
Benzo(a)pyrene	ND	ug/L	10.0	1.3	1	06/14/18 20:46	06/15/18 12:30	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	10.0	1.5	1	06/14/18 20:46	06/15/18 12:30	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	10.0	1.8	1	06/14/18 20:46	06/15/18 12:30	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	10.0	1.8	1	06/14/18 20:46	06/15/18 12:30	207-08-9	
Benzoic Acid	ND	ug/L	50.0	17.3	1	06/14/18 20:46	06/15/18 12:30	65-85-0	
Benzyl alcohol	ND	ug/L	20.0	7.0	1	06/14/18 20:46	06/15/18 12:30	100-51-6	
4-Bromophenylphenyl ether	ND	ug/L	10.0	2.7	1	06/14/18 20:46	06/15/18 12:30	101-55-3	
Butylbenzylphthalate	ND	ug/L	10.0	1.3	1	06/14/18 20:46	06/15/18 12:30	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	20.0	4.6	1	06/14/18 20:46	06/15/18 12:30	59-50-7	
4-Chloroaniline	ND	ug/L	20.0	6.8	1	06/14/18 20:46	06/15/18 12:30	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/L	10.0	3.0	1	06/14/18 20:46	06/15/18 12:30	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	10.0	3.1	1	06/14/18 20:46	06/15/18 12:30	111-44-4	
2-Chloronaphthalene	ND	ug/L	10.0	2.9	1	06/14/18 20:46	06/15/18 12:30	91-58-7	
2-Chlorophenol	ND	ug/L	10.0	2.9	1	06/14/18 20:46	06/15/18 12:30	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	10.0	2.9	1	06/14/18 20:46	06/15/18 12:30	7005-72-3	
Chrysene	ND	ug/L	10.0	1.3	1	06/14/18 20:46	06/15/18 12:30	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	10.0	1.9	1	06/14/18 20:46	06/15/18 12:30	53-70-3	
Dibenzofuran	ND	ug/L	10.0	3.4	1	06/14/18 20:46	06/15/18 12:30	132-64-9	
1,2-Dichlorobenzene	ND	ug/L	10.0	3.2	1	06/14/18 20:46	06/15/18 12:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	3.2	1	06/14/18 20:46	06/15/18 12:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	2.6	1	06/14/18 20:46	06/15/18 12:30	106-46-7	B
3,3'-Dichlorobenzidine	ND	ug/L	20.0	2.8	1	06/14/18 20:46	06/15/18 12:30	91-94-1	
2,4-Dichlorophenol	ND	ug/L	10.0	2.7	1	06/14/18 20:46	06/15/18 12:30	120-83-2	

**REPORT OF LABORATORY ANALYSIS**

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## ANALYTICAL RESULTS

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Sample: P-6-SB-3 Lab ID: 92387844001 Collected: 06/07/18 12:30 Received: 06/08/18 15:18 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV RVE Semivol Organic</b> Analytical Method: EPA 8270 Preparation Method: EPA 3510									
Diethylphthalate	ND	ug/L	10.0	2.0	1	06/14/18 20:46	06/15/18 12:30	84-66-2	
2,4-Dimethylphenol	ND	ug/L	10.0	1.9	1	06/14/18 20:46	06/15/18 12:30	105-67-9	
Dimethylphthalate	ND	ug/L	10.0	2.3	1	06/14/18 20:46	06/15/18 12:30	131-11-3	
Di-n-butylphthalate	ND	ug/L	10.0	1.2	1	06/14/18 20:46	06/15/18 12:30	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	20.0	4.4	1	06/14/18 20:46	06/15/18 12:30	534-52-1	
2,4-Dinitrophenol	ND	ug/L	50.0	10.1	1	06/14/18 20:46	06/15/18 12:30	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	10.0	2.4	1	06/14/18 20:46	06/15/18 12:30	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	10.0	2.9	1	06/14/18 20:46	06/15/18 12:30	606-20-2	
Di-n-octylphthalate	ND	ug/L	10.0	1.2	1	06/14/18 20:46	06/15/18 12:30	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	6.0	1.4	1	06/14/18 20:46	06/15/18 12:30	117-81-7	
Fluoranthene	ND	ug/L	10.0	1.7	1	06/14/18 20:46	06/15/18 12:30	206-44-0	
Fluorene	ND	ug/L	10.0	3.0	1	06/14/18 20:46	06/15/18 12:30	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	3.1	1	06/14/18 20:46	06/15/18 12:30	87-68-3	
Hexachlorobenzene	ND	ug/L	10.0	2.5	1	06/14/18 20:46	06/15/18 12:30	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	10.0	3.4	1	06/14/18 20:46	06/15/18 12:30	77-47-4	
Hexachloroethane	ND	ug/L	10.0	4.0	1	06/14/18 20:46	06/15/18 12:30	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	10.0	1.7	1	06/14/18 20:46	06/15/18 12:30	193-39-5	
Isophorone	ND	ug/L	10.0	2.7	1	06/14/18 20:46	06/15/18 12:30	78-59-1	
1-Methylnaphthalene	ND	ug/L	10.0	2.8	1	06/14/18 20:46	06/15/18 12:30	90-12-0	
2-Methylnaphthalene	ND	ug/L	10.0	2.8	1	06/14/18 20:46	06/15/18 12:30	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/L	10.0	3.6	1	06/14/18 20:46	06/15/18 12:30	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	10.0	2.4	1	06/14/18 20:46	06/15/18 12:30	15831-10-4	
Naphthalene	ND	ug/L	10.0	3.2	1	06/14/18 20:46	06/15/18 12:30	91-20-3	
2-Nitroaniline	ND	ug/L	50.0	5.5	1	06/14/18 20:46	06/15/18 12:30	88-74-4	
3-Nitroaniline	ND	ug/L	50.0	5.0	1	06/14/18 20:46	06/15/18 12:30	99-09-2	
4-Nitroaniline	ND	ug/L	20.0	3.6	1	06/14/18 20:46	06/15/18 12:30	100-01-6	
Nitrobenzene	ND	ug/L	10.0	3.4	1	06/14/18 20:46	06/15/18 12:30	98-95-3	
2-Nitrophenol	ND	ug/L	10.0	2.6	1	06/14/18 20:46	06/15/18 12:30	88-75-5	
4-Nitrophenol	ND	ug/L	50.0	7.8	1	06/14/18 20:46	06/15/18 12:30	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	10.0	2.8	1	06/14/18 20:46	06/15/18 12:30	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	10.0	2.6	1	06/14/18 20:46	06/15/18 12:30	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	10.0	2.0	1	06/14/18 20:46	06/15/18 12:30	86-30-6	
2,2'-Oxybis(1-chloropropane)	ND	ug/L	10.0	2.5	1	06/14/18 20:46	06/15/18 12:30	108-60-1	
Pentachlorophenol	ND	ug/L	25.0	3.1	1	06/14/18 20:46	06/15/18 12:30	87-86-5	
Phenanthrene	ND	ug/L	10.0	2.4	1	06/14/18 20:46	06/15/18 12:30	85-01-8	
Phenol	6.8J	ug/L	10.0	2.7	1	06/14/18 20:46	06/15/18 12:30	108-95-2	
Pyrene	ND	ug/L	10.0	1.2	1	06/14/18 20:46	06/15/18 12:30	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	10.0	2.6	1	06/14/18 20:46	06/15/18 12:30	120-82-1	
2,4,5-Trichlorophenol	ND	ug/L	10.0	2.3	1	06/14/18 20:46	06/15/18 12:30	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	10.0	2.8	1	06/14/18 20:46	06/15/18 12:30	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	78	%	40-121		1	06/14/18 20:46	06/15/18 12:30	4165-60-0	
2-Fluorobiphenyl (S)	82	%	45-139		1	06/14/18 20:46	06/15/18 12:30	321-60-8	
Terphenyl-d14 (S)	55	%	48-146		1	06/14/18 20:46	06/15/18 12:30	1718-51-0	
Phenol-d6 (S)	51	%	18-105		1	06/14/18 20:46	06/15/18 12:30	13127-88-3	
2-Fluorophenol (S)	49	%	13-118		1	06/14/18 20:46	06/15/18 12:30	367-12-4	

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## ANALYTICAL RESULTS

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Sample: P-6-SB-3 Lab ID: 92387844001 Collected: 06/07/18 12:30 Received: 06/08/18 15:18 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV RVE Semivol Organic</b>	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
<b>Surrogates</b>									
2,4,6-Tribromophenol (S)	79	%	31-170		1	06/14/18 20:46	06/15/18 12:30	118-79-6	
<b>8260 MSV Low Level</b>	Analytical Method: EPA 8260								
Acetone	<b>21.8J</b>	ug/L	25.0	10.0	1		06/15/18 02:22	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		06/15/18 02:22	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		06/15/18 02:22	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		06/15/18 02:22	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		06/15/18 02:22	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		06/15/18 02:22	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		06/15/18 02:22	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		06/15/18 02:22	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	0.41	1		06/15/18 02:22	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	0.38	1		06/15/18 02:22	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	0.40	1		06/15/18 02:22	98-06-6	L2
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		06/15/18 02:22	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		06/15/18 02:22	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		06/15/18 02:22	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		06/15/18 02:22	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		06/15/18 02:22	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		06/15/18 02:22	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		06/15/18 02:22	106-43-4	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		06/15/18 02:22	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		06/15/18 02:22	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		06/15/18 02:22	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		06/15/18 02:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		06/15/18 02:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		06/15/18 02:22	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		06/15/18 02:22	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		06/15/18 02:22	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		06/15/18 02:22	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		06/15/18 02:22	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		06/15/18 02:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		06/15/18 02:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		06/15/18 02:22	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		06/15/18 02:22	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		06/15/18 02:22	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		06/15/18 02:22	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		06/15/18 02:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		06/15/18 02:22	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		06/15/18 02:22	108-20-3	
1,4-Dioxane (p-Dioxane)	ND	ug/L	150	78.4	1		06/15/18 02:22	123-91-1	
Ethylbenzene	<b>0.46J</b>	ug/L	1.0	0.30	1		06/15/18 02:22	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		06/15/18 02:22	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		06/15/18 02:22	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	0.40	1		06/15/18 02:22	98-82-8	

## REPORT OF LABORATORY ANALYSIS

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**ANALYTICAL RESULTS**

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

**Sample: P-6-SB-3**      **Lab ID: 92387844001**      Collected: 06/07/18 12:30      Received: 06/08/18 15:18      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260 MSV Low Level</b> Analytical Method: EPA 8260									
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		06/15/18 02:22	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		06/15/18 02:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		06/15/18 02:22	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		06/15/18 02:22	1634-04-4	
Naphthalene	<b>0.42J</b>	ug/L	1.0	0.24	1		06/15/18 02:22	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	0.42	1		06/15/18 02:22	103-65-1	
Styrene	ND	ug/L	1.0	0.26	1		06/15/18 02:22	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		06/15/18 02:22	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		06/15/18 02:22	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		06/15/18 02:22	127-18-4	
Toluene	<b>2.5</b>	ug/L	1.0	0.26	1		06/15/18 02:22	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		06/15/18 02:22	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		06/15/18 02:22	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		06/15/18 02:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		06/15/18 02:22	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		06/15/18 02:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		06/15/18 02:22	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		06/15/18 02:22	96-18-4	
1,2,4-Trimethylbenzene	<b>0.82J</b>	ug/L	1.0	0.31	1		06/15/18 02:22	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	0.36	1		06/15/18 02:22	108-67-8	
Vinyl acetate	ND	ug/L	2.0	0.35	1		06/15/18 02:22	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		06/15/18 02:22	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1.0	1		06/15/18 02:22	1330-20-7	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	99	%	70-130		1		06/15/18 02:22	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		06/15/18 02:22	17060-07-0	
Toluene-d8 (S)	103	%	70-130		1		06/15/18 02:22	2037-26-5	

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## ANALYTICAL RESULTS

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Sample: P-2-SB-4									
Lab ID: 92387844002									
Collected: 06/07/18 16:15 Received: 06/08/18 15:18 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>MADEP EPH NC Water</b>									
Analytical Method: MADEP EPH Preparation Method: MADEP EPH									
Aliphatic (C09-C18)	63100000	ug/L	1000000	1000000	1000	06/18/18 20:54	06/21/18 11:40		N2
Aliphatic (C19-C36)	ND	ug/L	1000000	1000000	1000	06/18/18 20:54	06/21/18 11:40		N2
Aromatic (C11-C22)	2940000	ug/L	20000	20000	20	06/18/18 20:54	06/21/18 07:19		N2
<b>Surrogates</b>									
Nonatriacontane (S)	67900	%	40-140		1000	06/18/18 20:54	06/21/18 11:40	7194-86-7	S4
o-Terphenyl (S)	406	%	40-140		20	06/18/18 20:54	06/21/18 07:19	84-15-1	S4
2-Fluorobiphenyl (S)	952	%	40-140		20	06/18/18 20:54	06/21/18 07:19	321-60-8	S4
2-Bromonaphthalene (S)	2670	%	40-140		20	06/18/18 20:54	06/21/18 07:19	580-13-2	S4
<b>VPH NC Water</b>									
Analytical Method: MADEP VPH									
Aliphatic (C05-C08)	37600	ug/L	6250	6250	125		06/11/18 21:07		N2
Aliphatic (C09-C12)	62800	ug/L	6250	6250	125		06/11/18 21:07		N2
Aromatic (C09-C10)	22200	ug/L	6250	6250	125		06/11/18 21:07		N2
<b>Surrogates</b>									
4-Bromofluorobenzene (FID) (S)	89	%	70-130		125		06/11/18 21:07	460-00-4	
4-Bromofluorobenzene (PID) (S)	89	%	70-130		125		06/11/18 21:07	460-00-4	
<b>8270 MSSV RVE Semivol Organic</b>									
Analytical Method: EPA 8270 Preparation Method: EPA 3510									
Acenaphthene	ND	ug/L	10.0	3.4	1	06/14/18 20:46	06/15/18 13:02	83-32-9	
Acenaphthylene	ND	ug/L	10.0	3.0	1	06/14/18 20:46	06/15/18 13:02	208-96-8	
Aniline	ND	ug/L	10.0	3.1	1	06/14/18 20:46	06/15/18 13:02	62-53-3	L2
Anthracene	ND	ug/L	10.0	2.0	1	06/14/18 20:46	06/15/18 13:02	120-12-7	
Benzo(a)anthracene	ND	ug/L	10.0	1.3	1	06/14/18 20:46	06/15/18 13:02	56-55-3	
Benzo(a)pyrene	ND	ug/L	10.0	1.3	1	06/14/18 20:46	06/15/18 13:02	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	10.0	1.5	1	06/14/18 20:46	06/15/18 13:02	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	10.0	1.8	1	06/14/18 20:46	06/15/18 13:02	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	10.0	1.8	1	06/14/18 20:46	06/15/18 13:02	207-08-9	
Benzoic Acid	ND	ug/L	50.0	17.3	1	06/14/18 20:46	06/15/18 13:02	65-85-0	
Benzyl alcohol	ND	ug/L	20.0	7.0	1	06/14/18 20:46	06/15/18 13:02	100-51-6	
4-Bromophenylphenyl ether	ND	ug/L	10.0	2.7	1	06/14/18 20:46	06/15/18 13:02	101-55-3	
Butylbenzylphthalate	ND	ug/L	10.0	1.3	1	06/14/18 20:46	06/15/18 13:02	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	20.0	4.6	1	06/14/18 20:46	06/15/18 13:02	59-50-7	
4-Chloroaniline	ND	ug/L	20.0	6.8	1	06/14/18 20:46	06/15/18 13:02	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/L	10.0	3.0	1	06/14/18 20:46	06/15/18 13:02	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	10.0	3.1	1	06/14/18 20:46	06/15/18 13:02	111-44-4	
2-Chloronaphthalene	ND	ug/L	10.0	2.9	1	06/14/18 20:46	06/15/18 13:02	91-58-7	
2-Chlorophenol	ND	ug/L	10.0	2.9	1	06/14/18 20:46	06/15/18 13:02	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	10.0	2.9	1	06/14/18 20:46	06/15/18 13:02	7005-72-3	
Chrysene	ND	ug/L	10.0	1.3	1	06/14/18 20:46	06/15/18 13:02	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	10.0	1.9	1	06/14/18 20:46	06/15/18 13:02	53-70-3	
Dibenzofuran	ND	ug/L	10.0	3.4	1	06/14/18 20:46	06/15/18 13:02	132-64-9	
1,2-Dichlorobenzene	ND	ug/L	10.0	3.2	1	06/14/18 20:46	06/15/18 13:02	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	3.2	1	06/14/18 20:46	06/15/18 13:02	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	2.6	1	06/14/18 20:46	06/15/18 13:02	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/L	20.0	2.8	1	06/14/18 20:46	06/15/18 13:02	91-94-1	
2,4-Dichlorophenol	ND	ug/L	10.0	2.7	1	06/14/18 20:46	06/15/18 13:02	120-83-2	

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## ANALYTICAL RESULTS

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Sample: P-2-SB-4 Lab ID: 92387844002 Collected: 06/07/18 16:15 Received: 06/08/18 15:18 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV RVE Semivol Organic</b> Analytical Method: EPA 8270 Preparation Method: EPA 3510									
Diethylphthalate	ND	ug/L	10.0	2.0	1	06/14/18 20:46	06/15/18 13:02	84-66-2	
2,4-Dimethylphenol	ND	ug/L	10.0	1.9	1	06/14/18 20:46	06/15/18 13:02	105-67-9	
Dimethylphthalate	ND	ug/L	10.0	2.3	1	06/14/18 20:46	06/15/18 13:02	131-11-3	
Di-n-butylphthalate	ND	ug/L	10.0	1.2	1	06/14/18 20:46	06/15/18 13:02	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	20.0	4.4	1	06/14/18 20:46	06/15/18 13:02	534-52-1	
2,4-Dinitrophenol	ND	ug/L	50.0	10.1	1	06/14/18 20:46	06/15/18 13:02	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	10.0	2.4	1	06/14/18 20:46	06/15/18 13:02	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	10.0	2.9	1	06/14/18 20:46	06/15/18 13:02	606-20-2	
Di-n-octylphthalate	ND	ug/L	10.0	1.2	1	06/14/18 20:46	06/15/18 13:02	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	6.0	1.4	1	06/14/18 20:46	06/15/18 13:02	117-81-7	
Fluoranthene	ND	ug/L	10.0	1.7	1	06/14/18 20:46	06/15/18 13:02	206-44-0	
Fluorene	ND	ug/L	10.0	3.0	1	06/14/18 20:46	06/15/18 13:02	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	3.1	1	06/14/18 20:46	06/15/18 13:02	87-68-3	
Hexachlorobenzene	ND	ug/L	10.0	2.5	1	06/14/18 20:46	06/15/18 13:02	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	10.0	3.4	1	06/14/18 20:46	06/15/18 13:02	77-47-4	
Hexachloroethane	ND	ug/L	10.0	4.0	1	06/14/18 20:46	06/15/18 13:02	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	10.0	1.7	1	06/14/18 20:46	06/15/18 13:02	193-39-5	
Isophorone	ND	ug/L	10.0	2.7	1	06/14/18 20:46	06/15/18 13:02	78-59-1	
1-Methylnaphthalene	120	ug/L	10.0	2.8	1	06/14/18 20:46	06/15/18 13:02	90-12-0	
2-Methylnaphthalene	276	ug/L	50.0	14.2	5	06/14/18 20:46	06/15/18 14:11	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/L	10.0	3.6	1	06/14/18 20:46	06/15/18 13:02	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	10.0	2.4	1	06/14/18 20:46	06/15/18 13:02	15831-10-4	
Naphthalene	671	ug/L	50.0	16.2	5	06/14/18 20:46	06/15/18 14:11	91-20-3	
2-Nitroaniline	ND	ug/L	50.0	5.5	1	06/14/18 20:46	06/15/18 13:02	88-74-4	
3-Nitroaniline	ND	ug/L	50.0	5.0	1	06/14/18 20:46	06/15/18 13:02	99-09-2	
4-Nitroaniline	ND	ug/L	20.0	3.6	1	06/14/18 20:46	06/15/18 13:02	100-01-6	
Nitrobenzene	ND	ug/L	10.0	3.4	1	06/14/18 20:46	06/15/18 13:02	98-95-3	
2-Nitrophenol	ND	ug/L	10.0	2.6	1	06/14/18 20:46	06/15/18 13:02	88-75-5	
4-Nitrophenol	ND	ug/L	50.0	7.8	1	06/14/18 20:46	06/15/18 13:02	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	10.0	2.8	1	06/14/18 20:46	06/15/18 13:02	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	10.0	2.6	1	06/14/18 20:46	06/15/18 13:02	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	10.0	2.0	1	06/14/18 20:46	06/15/18 13:02	86-30-6	
2,2'-Oxybis(1-chloropropane)	ND	ug/L	10.0	2.5	1	06/14/18 20:46	06/15/18 13:02	108-60-1	
Pentachlorophenol	ND	ug/L	25.0	3.1	1	06/14/18 20:46	06/15/18 13:02	87-86-5	
Phenanthrene	ND	ug/L	10.0	2.4	1	06/14/18 20:46	06/15/18 13:02	85-01-8	
Phenol	ND	ug/L	10.0	2.7	1	06/14/18 20:46	06/15/18 13:02	108-95-2	
Pyrene	ND	ug/L	10.0	1.2	1	06/14/18 20:46	06/15/18 13:02	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	10.0	2.6	1	06/14/18 20:46	06/15/18 13:02	120-82-1	
2,4,5-Trichlorophenol	ND	ug/L	10.0	2.3	1	06/14/18 20:46	06/15/18 13:02	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	10.0	2.8	1	06/14/18 20:46	06/15/18 13:02	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	72	%	40-121		1	06/14/18 20:46	06/15/18 13:02	4165-60-0	
2-Fluorobiphenyl (S)	79	%	45-139		1	06/14/18 20:46	06/15/18 13:02	321-60-8	
Terphenyl-d14 (S)	55	%	48-146		1	06/14/18 20:46	06/15/18 13:02	1718-51-0	
Phenol-d6 (S)	61	%	18-105		1	06/14/18 20:46	06/15/18 13:02	13127-88-3	
2-Fluorophenol (S)	66	%	13-118		1	06/14/18 20:46	06/15/18 13:02	367-12-4	

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## ANALYTICAL RESULTS

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Sample: P-2-SB-4 Lab ID: 92387844002 Collected: 06/07/18 16:15 Received: 06/08/18 15:18 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV RVE Semivol Organic</b>	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
<b>Surrogates</b>									
2,4,6-Tribromophenol (S)	99	%	31-170		1	06/14/18 20:46	06/15/18 13:02	118-79-6	
<b>8260 MSV Low Level</b>	Analytical Method: EPA 8260								
Acetone	ND	ug/L	2500	1000	100		06/15/18 15:33	67-64-1	
Benzene	<b>2510</b>	ug/L	100	25.0	100		06/15/18 15:33	71-43-2	
Bromobenzene	ND	ug/L	100	30.0	100		06/15/18 15:33	108-86-1	
Bromochloromethane	ND	ug/L	100	17.0	100		06/15/18 15:33	74-97-5	
Bromodichloromethane	ND	ug/L	100	18.0	100		06/15/18 15:33	75-27-4	
Bromoform	ND	ug/L	100	26.0	100		06/15/18 15:33	75-25-2	
Bromomethane	ND	ug/L	200	29.0	100		06/15/18 15:33	74-83-9	
2-Butanone (MEK)	<b>829</b>	ug/L	500	96.0	100		06/15/18 15:33	78-93-3	
n-Butylbenzene	ND	ug/L	100	41.0	100		06/15/18 15:33	104-51-8	
sec-Butylbenzene	ND	ug/L	100	38.0	100		06/15/18 15:33	135-98-8	
tert-Butylbenzene	ND	ug/L	100	40.0	100		06/15/18 15:33	98-06-6	
Carbon tetrachloride	ND	ug/L	100	25.0	100		06/15/18 15:33	56-23-5	
Chlorobenzene	ND	ug/L	100	23.0	100		06/15/18 15:33	108-90-7	
Chloroethane	<b>111</b>	ug/L	100	54.0	100		06/15/18 15:33	75-00-3	
Chloroform	ND	ug/L	100	14.0	100		06/15/18 15:33	67-66-3	
Chloromethane	ND	ug/L	100	11.0	100		06/15/18 15:33	74-87-3	
2-Chlorotoluene	ND	ug/L	100	35.0	100		06/15/18 15:33	95-49-8	
4-Chlorotoluene	ND	ug/L	100	31.0	100		06/15/18 15:33	106-43-4	
Dibromochloromethane	ND	ug/L	100	21.0	100		06/15/18 15:33	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	100	27.0	100		06/15/18 15:33	106-93-4	
Dibromomethane	ND	ug/L	100	21.0	100		06/15/18 15:33	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	100	30.0	100		06/15/18 15:33	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	100	24.0	100		06/15/18 15:33	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	100	33.0	100		06/15/18 15:33	106-46-7	
Dichlorodifluoromethane	ND	ug/L	100	21.0	100		06/15/18 15:33	75-71-8	
1,1-Dichloroethane	ND	ug/L	100	32.0	100		06/15/18 15:33	75-34-3	
1,2-Dichloroethane	ND	ug/L	100	24.0	100		06/15/18 15:33	107-06-2	
1,1-Dichloroethene	ND	ug/L	100	56.0	100		06/15/18 15:33	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	100	19.0	100		06/15/18 15:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	100	49.0	100		06/15/18 15:33	156-60-5	
1,2-Dichloropropane	ND	ug/L	100	27.0	100		06/15/18 15:33	78-87-5	
1,3-Dichloropropane	ND	ug/L	100	28.0	100		06/15/18 15:33	142-28-9	
2,2-Dichloropropane	ND	ug/L	100	13.0	100		06/15/18 15:33	594-20-7	
1,1-Dichloropropene	ND	ug/L	100	49.0	100		06/15/18 15:33	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	100	13.0	100		06/15/18 15:33	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	100	26.0	100		06/15/18 15:33	10061-02-6	
Diisopropyl ether	ND	ug/L	100	12.0	100		06/15/18 15:33	108-20-3	
1,4-Dioxane (p-Dioxane)	ND	ug/L	15000	7840	100		06/15/18 15:33	123-91-1	
Ethylbenzene	<b>5400</b>	ug/L	100	30.0	100		06/15/18 15:33	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	100	71.0	100		06/15/18 15:33	87-68-3	
2-Hexanone	ND	ug/L	500	46.0	100		06/15/18 15:33	591-78-6	
Isopropylbenzene (Cumene)	<b>686</b>	ug/L	100	40.0	100		06/15/18 15:33	98-82-8	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Sample: P-2-SB-4 Lab ID: 92387844002 Collected: 06/07/18 16:15 Received: 06/08/18 15:18 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260 MSV Low Level</b>									
Analytical Method: EPA 8260									
p-Isopropyltoluene	ND	ug/L	100	31.0	100		06/15/18 15:33	99-87-6	
Methylene Chloride	ND	ug/L	200	97.0	100		06/15/18 15:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	<b>97.4J</b>	ug/L	500	33.0	100		06/15/18 15:33	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	100	21.0	100		06/15/18 15:33	1634-04-4	
Naphthalene	<b>2320</b>	ug/L	100	24.0	100		06/15/18 15:33	91-20-3	
n-Propylbenzene	<b>1870</b>	ug/L	100	42.0	100		06/15/18 15:33	103-65-1	
Styrene	ND	ug/L	100	26.0	100		06/15/18 15:33	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	100	33.0	100		06/15/18 15:33	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	100	40.0	100		06/15/18 15:33	79-34-5	
Tetrachloroethene	ND	ug/L	100	46.0	100		06/15/18 15:33	127-18-4	
Toluene	<b>13500</b>	ug/L	100	26.0	100		06/15/18 15:33	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	100	33.0	100		06/15/18 15:33	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	100	35.0	100		06/15/18 15:33	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	100	48.0	100		06/15/18 15:33	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	100	29.0	100		06/15/18 15:33	79-00-5	
Trichloroethene	ND	ug/L	100	47.0	100		06/15/18 15:33	79-01-6	
Trichlorofluoromethane	ND	ug/L	100	20.0	100		06/15/18 15:33	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	100	41.0	100		06/15/18 15:33	96-18-4	
1,2,4-Trimethylbenzene	<b>12800</b>	ug/L	100	31.0	100		06/15/18 15:33	95-63-6	
1,3,5-Trimethylbenzene	<b>4230</b>	ug/L	100	36.0	100		06/15/18 15:33	108-67-8	
Vinyl acetate	ND	ug/L	200	35.0	100		06/15/18 15:33	108-05-4	
Vinyl chloride	ND	ug/L	100	62.0	100		06/15/18 15:33	75-01-4	
Xylene (Total)	<b>31600</b>	ug/L	100	100	100		06/15/18 15:33	1330-20-7	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	101	%	70-130		100		06/15/18 15:33	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		100		06/15/18 15:33	17060-07-0	
Toluene-d8 (S)	100	%	70-130		100		06/15/18 15:33	2037-26-5	

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## ANALYTICAL RESULTS

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Sample: P-54-SB-2 Lab ID: 92387844003 Collected: 06/07/18 17:45 Received: 06/08/18 15:18 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>MADEP EPH NC Water</b>									
Analytical Method: MADEP EPH					Preparation Method: MADEP EPH				
Aliphatic (C09-C18)	ND	ug/L	100	100	1	06/18/18 20:54	06/20/18 18:29		N2
Aliphatic (C19-C36)	ND	ug/L	100	100	1	06/18/18 20:54	06/20/18 18:29		N2
Aromatic (C11-C22)	361	ug/L	100	100	1	06/18/18 20:54	06/20/18 18:29		N2
<b>Surrogates</b>									
Nonatriacontane (S)	58	%	40-140		1	06/18/18 20:54	06/20/18 18:29	7194-86-7	
o-Terphenyl (S)	44	%	40-140		1	06/18/18 20:54	06/20/18 18:29	84-15-1	
2-Fluorobiphenyl (S)	62	%	40-140		1	06/18/18 20:54	06/20/18 18:29	321-60-8	
2-Bromonaphthalene (S)	66	%	40-140		1	06/18/18 20:54	06/20/18 18:29	580-13-2	
<b>VPH NC Water</b>									
Analytical Method: MADEP VPH									
Aliphatic (C05-C08)	1500	ug/L	250	250	5		06/11/18 18:45		N2
Aliphatic (C09-C12)	6830	ug/L	250	250	5		06/11/18 18:45		N2
Aromatic (C09-C10)	2290	ug/L	250	250	5		06/11/18 18:45		N2
<b>Surrogates</b>									
4-Bromofluorobenzene (FID) (S)	93	%	70-130		5		06/11/18 18:45	460-00-4	
4-Bromofluorobenzene (PID) (S)	92	%	70-130		5		06/11/18 18:45	460-00-4	
<b>8270 MSSV RVE Semivol Organic</b>									
Analytical Method: EPA 8270					Preparation Method: EPA 3510				
Acenaphthene	ND	ug/L	8.3	2.8	1	06/14/18 20:46	06/15/18 13:34	83-32-9	
Acenaphthylene	ND	ug/L	8.3	2.5	1	06/14/18 20:46	06/15/18 13:34	208-96-8	
Aniline	ND	ug/L	8.3	2.6	1	06/14/18 20:46	06/15/18 13:34	62-53-3	L2
Anthracene	ND	ug/L	8.3	1.7	1	06/14/18 20:46	06/15/18 13:34	120-12-7	
Benzo(a)anthracene	ND	ug/L	8.3	1.1	1	06/14/18 20:46	06/15/18 13:34	56-55-3	
Benzo(a)pyrene	ND	ug/L	8.3	1.1	1	06/14/18 20:46	06/15/18 13:34	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	8.3	1.2	1	06/14/18 20:46	06/15/18 13:34	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	8.3	1.5	1	06/14/18 20:46	06/15/18 13:34	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	8.3	1.5	1	06/14/18 20:46	06/15/18 13:34	207-08-9	
Benzoic Acid	ND	ug/L	41.7	14.4	1	06/14/18 20:46	06/15/18 13:34	65-85-0	
Benzyl alcohol	ND	ug/L	16.7	5.8	1	06/14/18 20:46	06/15/18 13:34	100-51-6	
4-Bromophenylphenyl ether	ND	ug/L	8.3	2.2	1	06/14/18 20:46	06/15/18 13:34	101-55-3	
Butylbenzylphthalate	ND	ug/L	8.3	1.1	1	06/14/18 20:46	06/15/18 13:34	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	16.7	3.8	1	06/14/18 20:46	06/15/18 13:34	59-50-7	
4-Chloroaniline	ND	ug/L	16.7	5.6	1	06/14/18 20:46	06/15/18 13:34	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/L	8.3	2.5	1	06/14/18 20:46	06/15/18 13:34	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	8.3	2.6	1	06/14/18 20:46	06/15/18 13:34	111-44-4	
2-Chloronaphthalene	ND	ug/L	8.3	2.5	1	06/14/18 20:46	06/15/18 13:34	91-58-7	
2-Chlorophenol	ND	ug/L	8.3	2.4	1	06/14/18 20:46	06/15/18 13:34	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	8.3	2.4	1	06/14/18 20:46	06/15/18 13:34	7005-72-3	
Chrysene	ND	ug/L	8.3	1.1	1	06/14/18 20:46	06/15/18 13:34	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	8.3	1.6	1	06/14/18 20:46	06/15/18 13:34	53-70-3	
Dibenzofuran	ND	ug/L	8.3	2.8	1	06/14/18 20:46	06/15/18 13:34	132-64-9	
1,2-Dichlorobenzene	ND	ug/L	8.3	2.7	1	06/14/18 20:46	06/15/18 13:34	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	8.3	2.7	1	06/14/18 20:46	06/15/18 13:34	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	8.3	2.1	1	06/14/18 20:46	06/15/18 13:34	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/L	16.7	2.3	1	06/14/18 20:46	06/15/18 13:34	91-94-1	
2,4-Dichlorophenol	ND	ug/L	8.3	2.3	1	06/14/18 20:46	06/15/18 13:34	120-83-2	

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## ANALYTICAL RESULTS

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Sample: P-54-SB-2 Lab ID: 92387844003 Collected: 06/07/18 17:45 Received: 06/08/18 15:18 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV RVE Semivol Organic</b>			Analytical Method: EPA 8270 Preparation Method: EPA 3510						
Diethylphthalate	ND	ug/L	8.3	1.7	1	06/14/18 20:46	06/15/18 13:34	84-66-2	
2,4-Dimethylphenol	<b>7.4J</b>	ug/L	8.3	1.6	1	06/14/18 20:46	06/15/18 13:34	105-67-9	
Dimethylphthalate	ND	ug/L	8.3	1.9	1	06/14/18 20:46	06/15/18 13:34	131-11-3	
Di-n-butylphthalate	ND	ug/L	8.3	1.0	1	06/14/18 20:46	06/15/18 13:34	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	16.7	3.6	1	06/14/18 20:46	06/15/18 13:34	534-52-1	
2,4-Dinitrophenol	ND	ug/L	41.7	8.4	1	06/14/18 20:46	06/15/18 13:34	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	8.3	2.0	1	06/14/18 20:46	06/15/18 13:34	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	8.3	2.4	1	06/14/18 20:46	06/15/18 13:34	606-20-2	
Di-n-octylphthalate	ND	ug/L	8.3	1.0	1	06/14/18 20:46	06/15/18 13:34	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	5.0	1.2	1	06/14/18 20:46	06/15/18 13:34	117-81-7	
Fluoranthene	ND	ug/L	8.3	1.4	1	06/14/18 20:46	06/15/18 13:34	206-44-0	
Fluorene	ND	ug/L	8.3	2.5	1	06/14/18 20:46	06/15/18 13:34	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	8.3	2.6	1	06/14/18 20:46	06/15/18 13:34	87-68-3	
Hexachlorobenzene	ND	ug/L	8.3	2.0	1	06/14/18 20:46	06/15/18 13:34	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	8.3	2.8	1	06/14/18 20:46	06/15/18 13:34	77-47-4	
Hexachloroethane	ND	ug/L	8.3	3.3	1	06/14/18 20:46	06/15/18 13:34	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	8.3	1.4	1	06/14/18 20:46	06/15/18 13:34	193-39-5	
Isophorone	ND	ug/L	8.3	2.3	1	06/14/18 20:46	06/15/18 13:34	78-59-1	
1-Methylnaphthalene	<b>11.5</b>	ug/L	8.3	2.3	1	06/14/18 20:46	06/15/18 13:34	90-12-0	
2-Methylnaphthalene	<b>21.9</b>	ug/L	8.3	2.4	1	06/14/18 20:46	06/15/18 13:34	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/L	8.3	3.0	1	06/14/18 20:46	06/15/18 13:34	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	8.3	2.0	1	06/14/18 20:46	06/15/18 13:34	15831-10-4	
Naphthalene	<b>76.4</b>	ug/L	8.3	2.7	1	06/14/18 20:46	06/15/18 13:34	91-20-3	
2-Nitroaniline	ND	ug/L	41.7	4.6	1	06/14/18 20:46	06/15/18 13:34	88-74-4	
3-Nitroaniline	ND	ug/L	41.7	4.2	1	06/14/18 20:46	06/15/18 13:34	99-09-2	
4-Nitroaniline	ND	ug/L	16.7	3.0	1	06/14/18 20:46	06/15/18 13:34	100-01-6	
Nitrobenzene	ND	ug/L	8.3	2.8	1	06/14/18 20:46	06/15/18 13:34	98-95-3	
2-Nitrophenol	ND	ug/L	8.3	2.2	1	06/14/18 20:46	06/15/18 13:34	88-75-5	
4-Nitrophenol	ND	ug/L	41.7	6.5	1	06/14/18 20:46	06/15/18 13:34	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	8.3	2.3	1	06/14/18 20:46	06/15/18 13:34	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	8.3	2.2	1	06/14/18 20:46	06/15/18 13:34	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	8.3	1.7	1	06/14/18 20:46	06/15/18 13:34	86-30-6	
2,2'-Oxybis(1-chloropropane)	ND	ug/L	8.3	2.1	1	06/14/18 20:46	06/15/18 13:34	108-60-1	
Pentachlorophenol	ND	ug/L	20.8	2.6	1	06/14/18 20:46	06/15/18 13:34	87-86-5	
Phenanthrene	ND	ug/L	8.3	2.0	1	06/14/18 20:46	06/15/18 13:34	85-01-8	
Phenol	ND	ug/L	8.3	2.3	1	06/14/18 20:46	06/15/18 13:34	108-95-2	
Pyrene	ND	ug/L	8.3	1.0	1	06/14/18 20:46	06/15/18 13:34	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	8.3	2.1	1	06/14/18 20:46	06/15/18 13:34	120-82-1	
2,4,5-Trichlorophenol	ND	ug/L	8.3	1.9	1	06/14/18 20:46	06/15/18 13:34	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	8.3	2.4	1	06/14/18 20:46	06/15/18 13:34	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	79	%	40-121		1	06/14/18 20:46	06/15/18 13:34	4165-60-0	
2-Fluorobiphenyl (S)	80	%	45-139		1	06/14/18 20:46	06/15/18 13:34	321-60-8	
Terphenyl-d14 (S)	59	%	48-146		1	06/14/18 20:46	06/15/18 13:34	1718-51-0	
Phenol-d6 (S)	59	%	18-105		1	06/14/18 20:46	06/15/18 13:34	13127-88-3	
2-Fluorophenol (S)	63	%	13-118		1	06/14/18 20:46	06/15/18 13:34	367-12-4	

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## ANALYTICAL RESULTS

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Sample: P-54-SB-2 Lab ID: 92387844003 Collected: 06/07/18 17:45 Received: 06/08/18 15:18 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV RVE Semivol Organic</b>	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
<b>Surrogates</b>									
2,4,6-Tribromophenol (S)	98	%	31-170		1	06/14/18 20:46	06/15/18 13:34	118-79-6	
<b>8260 MSV Low Level</b>	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	40.0	4		06/18/18 19:15	67-64-1	
Benzene	1.7J	ug/L	4.0	1.0	4		06/18/18 19:15	71-43-2	
Bromobenzene	ND	ug/L	4.0	1.2	4		06/18/18 19:15	108-86-1	
Bromochloromethane	ND	ug/L	4.0	0.68	4		06/18/18 19:15	74-97-5	
Bromodichloromethane	ND	ug/L	4.0	0.72	4		06/18/18 19:15	75-27-4	
Bromoform	ND	ug/L	4.0	1.0	4		06/18/18 19:15	75-25-2	
Bromomethane	ND	ug/L	8.0	1.2	4		06/18/18 19:15	74-83-9	
2-Butanone (MEK)	ND	ug/L	20.0	3.8	4		06/18/18 19:15	78-93-3	
n-Butylbenzene	23.0	ug/L	4.0	1.6	4		06/18/18 19:15	104-51-8	
sec-Butylbenzene	9.5	ug/L	4.0	1.5	4		06/18/18 19:15	135-98-8	
tert-Butylbenzene	ND	ug/L	4.0	1.6	4		06/18/18 19:15	98-06-6	
Carbon tetrachloride	ND	ug/L	4.0	1.0	4		06/18/18 19:15	56-23-5	
Chlorobenzene	ND	ug/L	4.0	0.92	4		06/18/18 19:15	108-90-7	
Chloroethane	ND	ug/L	4.0	2.2	4		06/18/18 19:15	75-00-3	
Chloroform	ND	ug/L	4.0	0.56	4		06/18/18 19:15	67-66-3	
Chloromethane	ND	ug/L	4.0	0.44	4		06/18/18 19:15	74-87-3	
2-Chlorotoluene	ND	ug/L	4.0	1.4	4		06/18/18 19:15	95-49-8	
4-Chlorotoluene	ND	ug/L	4.0	1.2	4		06/18/18 19:15	106-43-4	
Dibromochloromethane	ND	ug/L	4.0	0.84	4		06/18/18 19:15	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	4.0	1.1	4		06/18/18 19:15	106-93-4	
Dibromomethane	ND	ug/L	4.0	0.84	4		06/18/18 19:15	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	4.0	1.2	4		06/18/18 19:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	4.0	0.96	4		06/18/18 19:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	4.0	1.3	4		06/18/18 19:15	106-46-7	
Dichlorodifluoromethane	ND	ug/L	4.0	0.84	4		06/18/18 19:15	75-71-8	
1,1-Dichloroethane	ND	ug/L	4.0	1.3	4		06/18/18 19:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	4.0	0.96	4		06/18/18 19:15	107-06-2	
1,1-Dichloroethene	ND	ug/L	4.0	2.2	4		06/18/18 19:15	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	4.0	0.76	4		06/18/18 19:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	4.0	2.0	4		06/18/18 19:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	4.0	1.1	4		06/18/18 19:15	78-87-5	
1,3-Dichloropropane	ND	ug/L	4.0	1.1	4		06/18/18 19:15	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	0.52	4		06/18/18 19:15	594-20-7	
1,1-Dichloropropene	ND	ug/L	4.0	2.0	4		06/18/18 19:15	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	0.52	4		06/18/18 19:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	1.0	4		06/18/18 19:15	10061-02-6	
Diisopropyl ether	ND	ug/L	4.0	0.48	4		06/18/18 19:15	108-20-3	
1,4-Dioxane (p-Dioxane)	ND	ug/L	600	313	4		06/18/18 19:15	123-91-1	
Ethylbenzene	303	ug/L	4.0	1.2	4		06/18/18 19:15	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	2.8	4		06/18/18 19:15	87-68-3	
2-Hexanone	ND	ug/L	20.0	1.8	4		06/18/18 19:15	591-78-6	
Isopropylbenzene (Cumene)	30.1	ug/L	4.0	1.6	4		06/18/18 19:15	98-82-8	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Sample: P-54-SB-2 Lab ID: 92387844003 Collected: 06/07/18 17:45 Received: 06/08/18 15:18 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260 MSV Low Level</b>									
Analytical Method: EPA 8260									
p-Isopropyltoluene	ND	ug/L	4.0	1.2	4		06/18/18 19:15	99-87-6	
Methylene Chloride	ND	ug/L	8.0	3.9	4		06/18/18 19:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	20.0	1.3	4		06/18/18 19:15	108-10-1	
Methyl-tert-butyl ether	5.7	ug/L	4.0	0.84	4		06/18/18 19:15	1634-04-4	
Naphthalene	113	ug/L	4.0	0.96	4		06/18/18 19:15	91-20-3	
n-Propylbenzene	95.9	ug/L	4.0	1.7	4		06/18/18 19:15	103-65-1	
Styrene	ND	ug/L	4.0	1.0	4		06/18/18 19:15	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	4.0	1.3	4		06/18/18 19:15	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	4.0	1.6	4		06/18/18 19:15	79-34-5	
Tetrachloroethene	ND	ug/L	4.0	1.8	4		06/18/18 19:15	127-18-4	
Toluene	122	ug/L	4.0	1.0	4		06/18/18 19:15	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	4.0	1.3	4		06/18/18 19:15	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	4.0	1.4	4		06/18/18 19:15	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	4.0	1.9	4		06/18/18 19:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	4.0	1.2	4		06/18/18 19:15	79-00-5	
Trichloroethene	ND	ug/L	4.0	1.9	4		06/18/18 19:15	79-01-6	
Trichlorofluoromethane	ND	ug/L	4.0	0.80	4		06/18/18 19:15	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1.6	4		06/18/18 19:15	96-18-4	
1,2,4-Trimethylbenzene	511	ug/L	4.0	1.2	4		06/18/18 19:15	95-63-6	
1,3,5-Trimethylbenzene	161	ug/L	4.0	1.4	4		06/18/18 19:15	108-67-8	
Vinyl acetate	ND	ug/L	8.0	1.4	4		06/18/18 19:15	108-05-4	
Vinyl chloride	ND	ug/L	4.0	2.5	4		06/18/18 19:15	75-01-4	
Xylene (Total)	1460	ug/L	4.0	4.0	4		06/18/18 19:15	1330-20-7	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	96	%	70-130		4		06/18/18 19:15	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-130		4		06/18/18 19:15	17060-07-0	
Toluene-d8 (S)	104	%	70-130		4		06/18/18 19:15	2037-26-5	

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: NCDOT -001 WBS 41499.1.3  
 Pace Project No.: 92387844

QC Batch: 414279 Analysis Method: MADEP VPH  
 QC Batch Method: MADEP VPH Analysis Description: VPH NC Water  
 Associated Lab Samples: 92387844001, 92387844002, 92387844003

METHOD BLANK: 2297276 Matrix: Water  
 Associated Lab Samples: 92387844001, 92387844002, 92387844003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aliphatic (C05-C08)	ug/L	ND	50.0	50.0	06/11/18 15:24	N2
Aliphatic (C09-C12)	ug/L	ND	50.0	50.0	06/11/18 15:24	N2
Aromatic (C09-C10)	ug/L	ND	50.0	50.0	06/11/18 15:24	N2
4-Bromofluorobenzene (FID) (S)	%	90	70-130		06/11/18 15:24	
4-Bromofluorobenzene (PID) (S)	%	88	70-130		06/11/18 15:24	

LABORATORY CONTROL SAMPLE & LCSD: 2297277

Parameter	Units	2297278							RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits				
Aliphatic (C05-C08)	ug/L	300	324	317	108	106	70-130	2	25	N2	
Aliphatic (C09-C12)	ug/L	300	302	304	101	101	30-130	1	25	N2	
Aromatic (C09-C10)	ug/L	100	104	102	104	102	70-130	2	25	N2	
4-Bromofluorobenzene (FID) (S)	%				105	105	70-130				
4-Bromofluorobenzene (PID) (S)	%				104	104	70-130				

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**QUALITY CONTROL DATA**

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

QC Batch: 415295

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV Low Level

Associated Lab Samples: 92387844001

METHOD BLANK: 2303142

Matrix: Water

Associated Lab Samples: 92387844001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	0.33	06/14/18 23:23	
1,1,1-Trichloroethane	ug/L	ND	1.0	0.48	06/14/18 23:23	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.40	06/14/18 23:23	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.29	06/14/18 23:23	
1,1-Dichloroethane	ug/L	ND	1.0	0.32	06/14/18 23:23	
1,1-Dichloroethene	ug/L	ND	1.0	0.56	06/14/18 23:23	
1,1-Dichloropropene	ug/L	ND	1.0	0.49	06/14/18 23:23	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	0.33	06/14/18 23:23	
1,2,3-Trichloropropane	ug/L	ND	1.0	0.41	06/14/18 23:23	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	0.35	06/14/18 23:23	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	0.31	06/14/18 23:23	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	0.27	06/14/18 23:23	
1,2-Dichlorobenzene	ug/L	ND	1.0	0.30	06/14/18 23:23	
1,2-Dichloroethane	ug/L	ND	1.0	0.24	06/14/18 23:23	
1,2-Dichloropropane	ug/L	ND	1.0	0.27	06/14/18 23:23	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	0.36	06/14/18 23:23	
1,3-Dichlorobenzene	ug/L	ND	1.0	0.24	06/14/18 23:23	
1,3-Dichloropropane	ug/L	ND	1.0	0.28	06/14/18 23:23	
1,4-Dichlorobenzene	ug/L	ND	1.0	0.33	06/14/18 23:23	
1,4-Dioxane (p-Dioxane)	ug/L	ND	150	78.4	06/14/18 23:23	
2,2-Dichloropropane	ug/L	ND	1.0	0.13	06/14/18 23:23	
2-Butanone (MEK)	ug/L	ND	5.0	0.96	06/14/18 23:23	
2-Chlorotoluene	ug/L	ND	1.0	0.35	06/14/18 23:23	
2-Hexanone	ug/L	ND	5.0	0.46	06/14/18 23:23	
4-Chlorotoluene	ug/L	ND	1.0	0.31	06/14/18 23:23	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	0.33	06/14/18 23:23	
Acetone	ug/L	ND	25.0	10.0	06/14/18 23:23	
Benzene	ug/L	ND	1.0	0.25	06/14/18 23:23	
Bromobenzene	ug/L	ND	1.0	0.30	06/14/18 23:23	
Bromochloromethane	ug/L	ND	1.0	0.17	06/14/18 23:23	
Bromodichloromethane	ug/L	ND	1.0	0.18	06/14/18 23:23	
Bromoform	ug/L	ND	1.0	0.26	06/14/18 23:23	
Bromomethane	ug/L	ND	2.0	0.29	06/14/18 23:23	
Carbon tetrachloride	ug/L	ND	1.0	0.25	06/14/18 23:23	
Chlorobenzene	ug/L	ND	1.0	0.23	06/14/18 23:23	
Chloroethane	ug/L	ND	1.0	0.54	06/14/18 23:23	
Chloroform	ug/L	ND	1.0	0.14	06/14/18 23:23	
Chloromethane	ug/L	0.14J	1.0	0.11	06/14/18 23:23	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.19	06/14/18 23:23	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.13	06/14/18 23:23	
Dibromochloromethane	ug/L	ND	1.0	0.21	06/14/18 23:23	

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### QUALITY CONTROL DATA

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

METHOD BLANK: 2303142

Matrix: Water

Associated Lab Samples: 92387844001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dibromomethane	ug/L	ND	1.0	0.21	06/14/18 23:23	
Dichlorodifluoromethane	ug/L	ND	1.0	0.21	06/14/18 23:23	
Diisopropyl ether	ug/L	ND	1.0	0.12	06/14/18 23:23	
Ethylbenzene	ug/L	ND	1.0	0.30	06/14/18 23:23	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	0.71	06/14/18 23:23	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	0.40	06/14/18 23:23	
Methyl-tert-butyl ether	ug/L	ND	1.0	0.21	06/14/18 23:23	
Methylene Chloride	ug/L	ND	2.0	0.97	06/14/18 23:23	
n-Butylbenzene	ug/L	ND	1.0	0.41	06/14/18 23:23	
n-Propylbenzene	ug/L	ND	1.0	0.42	06/14/18 23:23	
Naphthalene	ug/L	ND	1.0	0.24	06/14/18 23:23	
p-Isopropyltoluene	ug/L	ND	1.0	0.31	06/14/18 23:23	
sec-Butylbenzene	ug/L	ND	1.0	0.38	06/14/18 23:23	
Styrene	ug/L	ND	1.0	0.26	06/14/18 23:23	
tert-Butylbenzene	ug/L	ND	1.0	0.40	06/14/18 23:23	
Tetrachloroethene	ug/L	ND	1.0	0.46	06/14/18 23:23	
Toluene	ug/L	ND	1.0	0.26	06/14/18 23:23	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.49	06/14/18 23:23	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.26	06/14/18 23:23	
Trichloroethene	ug/L	ND	1.0	0.47	06/14/18 23:23	
Trichlorofluoromethane	ug/L	ND	1.0	0.20	06/14/18 23:23	
Vinyl acetate	ug/L	ND	2.0	0.35	06/14/18 23:23	
Vinyl chloride	ug/L	ND	1.0	0.62	06/14/18 23:23	
Xylene (Total)	ug/L	ND	1.0	1.0	06/14/18 23:23	
1,2-Dichloroethane-d4 (S)	%	102	70-130		06/14/18 23:23	
4-Bromofluorobenzene (S)	%	102	70-130		06/14/18 23:23	
Toluene-d8 (S)	%	103	70-130		06/14/18 23:23	

LABORATORY CONTROL SAMPLE: 2303143

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	44.5	89	80-125	
1,1,1-Trichloroethane	ug/L	50	45.0	90	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	44.4	89	79-124	
1,1,2-Trichloroethane	ug/L	50	43.2	86	85-125	
1,1-Dichloroethane	ug/L	50	43.5	87	73-126	
1,1-Dichloroethene	ug/L	50	45.2	90	66-135	
1,1-Dichloropropene	ug/L	50	45.0	90	74-135	
1,2,3-Trichlorobenzene	ug/L	50	44.3	89	73-135	
1,2,3-Trichloropropane	ug/L	50	45.1	90	75-130	
1,2,4-Trichlorobenzene	ug/L	50	45.8	92	75-134	
1,2,4-Trimethylbenzene	ug/L	50	42.3	85	79-125	
1,2-Dibromoethane (EDB)	ug/L	50	45.4	91	83-124	
1,2-Dichlorobenzene	ug/L	50	43.3	87	80-133	

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### QUALITY CONTROL DATA

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

LABORATORY CONTROL SAMPLE: 2303143

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	42.5	85	67-128	
1,2-Dichloropropane	ug/L	50	42.0	84	75-132	
1,3,5-Trimethylbenzene	ug/L	50	43.7	87	79-123	
1,3-Dichlorobenzene	ug/L	50	42.6	85	77-130	
1,3-Dichloropropane	ug/L	50	44.6	89	76-131	
1,4-Dichlorobenzene	ug/L	50	43.0	86	78-130	
1,4-Dioxane (p-Dioxane)	ug/L	1000	1020	102	71-125	
2,2-Dichloropropane	ug/L	50	50.2	100	40-160	
2-Butanone (MEK)	ug/L	100	91.8	92	61-144	
2-Chlorotoluene	ug/L	50	42.5	85	74-132	
2-Hexanone	ug/L	100	95.1	95	68-143	
4-Chlorotoluene	ug/L	50	43.1	86	76-133	
4-Methyl-2-pentanone (MIBK)	ug/L	100	91.9	92	72-135	
Acetone	ug/L	100	88.1	88	48-146	
Benzene	ug/L	50	42.5	85	80-125	
Bromobenzene	ug/L	50	43.6	87	75-125	
Bromochloromethane	ug/L	50	44.9	90	71-125	
Bromodichloromethane	ug/L	50	44.9	90	78-124	
Bromoform	ug/L	50	49.0	98	71-128	
Bromomethane	ug/L	50	41.6	83	40-160	
Carbon tetrachloride	ug/L	50	45.0	90	69-131	
Chlorobenzene	ug/L	50	42.9	86	81-122	
Chloroethane	ug/L	50	37.2	74	39-148	
Chloroform	ug/L	50	45.8	92	73-127	
Chloromethane	ug/L	50	38.9	78	44-146	
cis-1,2-Dichloroethene	ug/L	50	44.0	88	74-124	
cis-1,3-Dichloropropene	ug/L	50	45.3	91	72-132	
Dibromochloromethane	ug/L	50	46.9	94	78-125	
Dibromomethane	ug/L	50	43.1	86	82-120	
Dichlorodifluoromethane	ug/L	50	35.8	72	34-157	
Diisopropyl ether	ug/L	50	44.5	89	69-135	
Ethylbenzene	ug/L	50	42.8	86	79-121	
Hexachloro-1,3-butadiene	ug/L	50	46.7	93	72-131	
Isopropylbenzene (Cumene)	ug/L	50	44.8	90	81-132	
Methyl-tert-butyl ether	ug/L	50	44.2	88	74-131	
Methylene Chloride	ug/L	50	39.7	79	64-133	
n-Butylbenzene	ug/L	50	45.9	92	78-127	
n-Propylbenzene	ug/L	50	44.4	89	78-130	
Naphthalene	ug/L	50	45.4	91	73-133	
p-Isopropyltoluene	ug/L	50	44.5	89	80-131	
sec-Butylbenzene	ug/L	50	44.4	89	80-133	
Styrene	ug/L	50	44.3	89	84-126	
tert-Butylbenzene	ug/L	50	38.0	76	77-133 L2	
Tetrachloroethene	ug/L	50	44.2	88	78-122	
Toluene	ug/L	50	42.3	85	80-121	
trans-1,2-Dichloroethene	ug/L	50	44.3	89	71-127	
trans-1,3-Dichloropropene	ug/L	50	46.0	92	69-141	

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## QUALITY CONTROL DATA

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

LABORATORY CONTROL SAMPLE: 2303143

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	50	43.5	87	78-122	
Trichlorofluoromethane	ug/L	50	43.2	86	53-137	
Vinyl acetate	ug/L	100	101	101	40-160	
Vinyl chloride	ug/L	50	42.1	84	50-150	
Xylene (Total)	ug/L	150	133	89	81-126	
1,2-Dichloroethane-d4 (S)	%			102	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE &amp; MATRIX SPIKE DUPLICATE: 2303482 2303483

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92387799001 Result	Spike Conc.	Spike Conc.	MSD Result								
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	19.0	19.3	95	96	70-130	2	30		
1,1,1-Trichloroethane	ug/L	ND	20	20	19.6	19.7	98	99	70-130	0	30		
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	18.5	18.7	93	94	70-130	1	30		
1,1,2-Trichloroethane	ug/L	ND	20	20	18.5	19.4	93	97	70-130	4	30		
1,1-Dichloroethane	ug/L	ND	20	20	19.1	19.3	95	97	70-130	1	30		
1,1-Dichloroethene	ug/L	ND	20	20	21.0	21.5	105	108	70-166	3	30		
1,1-Dichloropropene	ug/L	ND	20	20	20.0	20.3	100	101	70-130	2	30		
1,2,3-Trichlorobenzene	ug/L	ND	20	20	18.5	18.7	92	94	70-130	1	30		
1,2,3-Trichloropropane	ug/L	ND	20	20	18.6	19.1	93	95	70-130	3	30		
1,2,4-Trichlorobenzene	ug/L	ND	20	20	19.1	19.4	95	97	70-130	2	30		
1,2,4-Trimethylbenzene	ug/L	ND	20	20	19.0	19.2	95	96	70-130	1	30		
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	19.3	19.4	96	97	70-130	1	30		
1,2-Dichlorobenzene	ug/L	ND	20	20	18.8	19.0	94	95	70-130	1	30		
1,2-Dichloroethane	ug/L	ND	20	20	17.9	18.4	90	92	70-130	3	30		
1,2-Dichloropropane	ug/L	ND	20	20	19.2	18.9	96	94	70-130	2	30		
1,3,5-Trimethylbenzene	ug/L	ND	20	20	19.6	19.8	98	99	70-130	1	30		
1,3-Dichlorobenzene	ug/L	ND	20	20	18.7	18.8	93	94	70-130	1	30		
1,3-Dichloropropane	ug/L	ND	20	20	19.3	19.6	96	98	70-130	2	30		
1,4-Dichlorobenzene	ug/L	ND	20	20	19.0	19.0	95	95	70-130	0	30		
1,4-Dioxane (p-Dioxane)	ug/L	ND	400	400	398	413	100	103	70-130	4	30		
2,2-Dichloropropane	ug/L	ND	20	20	22.6	22.7	113	113	70-130	0	30		
2-Butanone (MEK)	ug/L	ND	40	40	40.0	43.0	100	107	70-130	7	30		
2-Chlorotoluene	ug/L	ND	20	20	19.2	19.1	96	95	70-130	1	30		
2-Hexanone	ug/L	ND	40	40	39.0	40.3	98	101	70-130	3	30		
4-Chlorotoluene	ug/L	ND	20	20	19.3	19.5	96	97	70-130	1	30		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	40	38.6	39.9	96	100	70-130	3	30		
Acetone	ug/L	ND	40	40	41.1	47.1	56	72	70-130	14	30 M1		
Benzene	ug/L	ND	20	20	19.6	20.0	98	100	70-148	2	30		
Bromobenzene	ug/L	ND	20	20	19.3	19.2	97	96	70-130	1	30		
Bromochloromethane	ug/L	ND	20	20	19.5	19.2	98	96	70-130	1	30		
Bromodichloromethane	ug/L	ND	20	20	19.3	19.8	96	99	70-130	3	30		

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Parameter	Units	2303482		2303483		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92387799001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Bromoform	ug/L	ND	20	20	19.2	19.5	96	97	70-130	1	30		
Bromomethane	ug/L	ND	20	20	18.6	19.1	93	96	70-130	3	30		
Carbon tetrachloride	ug/L	ND	20	20	20.8	21.3	104	107	70-130	2	30		
Chlorobenzene	ug/L	ND	20	20	19.0	19.2	95	96	70-146	1	30		
Chloroethane	ug/L	ND	20	20	18.7	18.8	93	94	70-130	1	30		
Chloroform	ug/L	ND	20	20	18.7	19.0	94	95	70-130	1	30		
Chloromethane	ug/L	ND	20	20	18.4	19.4	92	97	70-130	5	30		
cis-1,2-Dichloroethene	ug/L	ND	20	20	19.8	20.2	99	101	70-130	2	30		
cis-1,3-Dichloropropene	ug/L	ND	20	20	19.9	20.1	99	101	70-130	1	30		
Dibromochloromethane	ug/L	ND	20	20	19.0	19.4	95	97	70-130	2	30		
Dibromomethane	ug/L	ND	20	20	19.0	19.8	95	99	70-130	4	30		
Dichlorodifluoromethane	ug/L	ND	20	20	22.3	22.8	112	114	70-130	2	30		
Diisopropyl ether	ug/L	ND	20	20	19.1	19.2	95	96	70-130	1	30		
Ethylbenzene	ug/L	ND	20	20	19.3	19.5	96	98	70-130	1	30		
Hexachloro-1,3-butadiene	ug/L	ND	20	20	20.0	19.8	100	99	70-130	1	30		
Isopropylbenzene (Cumene)	ug/L	ND	20	20	19.9	20.0	100	100	70-130	0	30		
Methyl-tert-butyl ether	ug/L	ND	20	20	18.3	18.9	92	95	70-130	3	30		
Methylene Chloride	ug/L	ND	20	20	11.2	11.2	56	56	70-130	0	30	M1	
n-Butylbenzene	ug/L	ND	20	20	20.0	20.0	100	100	70-130	0	30		
n-Propylbenzene	ug/L	ND	20	20	20.2	20.0	101	100	70-130	1	30		
Naphthalene	ug/L	ND	20	20	18.8	19.0	94	95	70-130	1	30		
p-Isopropyltoluene	ug/L	ND	20	20	19.7	19.6	98	98	70-130	0	30		
sec-Butylbenzene	ug/L	ND	20	20	20.0	19.9	100	100	70-130	1	30		
Styrene	ug/L	ND	20	20	19.3	19.4	96	97	70-130	1	30		
tert-Butylbenzene	ug/L	ND	20	20	17.1	16.7	85	84	70-130	2	30		
Tetrachloroethene	ug/L	ND	20	20	20.5	20.2	102	101	70-130	1	30		
Toluene	ug/L	ND	20	20	19.3	19.6	96	98	70-155	1	30		
trans-1,2-Dichloroethene	ug/L	ND	20	20	20.2	20.0	101	100	70-130	1	30		
trans-1,3-Dichloropropene	ug/L	ND	20	20	19.5	20.1	97	100	70-130	3	30		
Trichloroethene	ug/L	ND	20	20	19.5	19.6	97	98	69-151	1	30		
Trichlorofluoromethane	ug/L	ND	20	20	21.4	21.1	107	106	70-130	1	30		
Vinyl acetate	ug/L	ND	40	40	42.1	42.5	105	106	70-130	1	30		
Vinyl chloride	ug/L	ND	20	20	20.8	20.6	104	103	70-130	1	30		
Xylene (Total)	ug/L	ND	60	60	59.0	59.2	98	99	70-130	0	30		
1,2-Dichloroethane-d4 (S)	%						96	99	70-130				
4-Bromofluorobenzene (S)	%						99	101	70-130				
Toluene-d8 (S)	%						99	101	70-130				

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## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

QC Batch: 415385

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV Low Level

Associated Lab Samples: 92387844002

METHOD BLANK: 2303519

Matrix: Water

Associated Lab Samples: 92387844002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	0.33	06/15/18 12:01	
1,1,1-Trichloroethane	ug/L	ND	1.0	0.48	06/15/18 12:01	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.40	06/15/18 12:01	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.29	06/15/18 12:01	
1,1-Dichloroethane	ug/L	ND	1.0	0.32	06/15/18 12:01	
1,1-Dichloroethene	ug/L	ND	1.0	0.56	06/15/18 12:01	
1,1-Dichloropropene	ug/L	ND	1.0	0.49	06/15/18 12:01	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	0.33	06/15/18 12:01	
1,2,3-Trichloropropane	ug/L	ND	1.0	0.41	06/15/18 12:01	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	0.35	06/15/18 12:01	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	0.31	06/15/18 12:01	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	0.27	06/15/18 12:01	
1,2-Dichlorobenzene	ug/L	ND	1.0	0.30	06/15/18 12:01	
1,2-Dichloroethane	ug/L	ND	1.0	0.24	06/15/18 12:01	
1,2-Dichloropropane	ug/L	ND	1.0	0.27	06/15/18 12:01	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	0.36	06/15/18 12:01	
1,3-Dichlorobenzene	ug/L	ND	1.0	0.24	06/15/18 12:01	
1,3-Dichloropropane	ug/L	ND	1.0	0.28	06/15/18 12:01	
1,4-Dichlorobenzene	ug/L	ND	1.0	0.33	06/15/18 12:01	
1,4-Dioxane (p-Dioxane)	ug/L	ND	150	78.4	06/15/18 12:01	
2,2-Dichloropropane	ug/L	ND	1.0	0.13	06/15/18 12:01	
2-Butanone (MEK)	ug/L	ND	5.0	0.96	06/15/18 12:01	
2-Chlorotoluene	ug/L	ND	1.0	0.35	06/15/18 12:01	
2-Hexanone	ug/L	ND	5.0	0.46	06/15/18 12:01	
4-Chlorotoluene	ug/L	ND	1.0	0.31	06/15/18 12:01	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	0.33	06/15/18 12:01	
Acetone	ug/L	ND	25.0	10.0	06/15/18 12:01	
Benzene	ug/L	ND	1.0	0.25	06/15/18 12:01	
Bromobenzene	ug/L	ND	1.0	0.30	06/15/18 12:01	
Bromochloromethane	ug/L	ND	1.0	0.17	06/15/18 12:01	
Bromodichloromethane	ug/L	ND	1.0	0.18	06/15/18 12:01	
Bromoform	ug/L	ND	1.0	0.26	06/15/18 12:01	
Bromomethane	ug/L	ND	2.0	0.29	06/15/18 12:01	
Carbon tetrachloride	ug/L	ND	1.0	0.25	06/15/18 12:01	
Chlorobenzene	ug/L	ND	1.0	0.23	06/15/18 12:01	
Chloroethane	ug/L	ND	1.0	0.54	06/15/18 12:01	
Chloroform	ug/L	ND	1.0	0.14	06/15/18 12:01	
Chloromethane	ug/L	ND	1.0	0.11	06/15/18 12:01	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.19	06/15/18 12:01	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.13	06/15/18 12:01	
Dibromochloromethane	ug/L	ND	1.0	0.21	06/15/18 12:01	

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**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL DATA**

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

METHOD BLANK: 2303519

Matrix: Water

Associated Lab Samples: 92387844002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dibromomethane	ug/L	ND	1.0	0.21	06/15/18 12:01	
Dichlorodifluoromethane	ug/L	ND	1.0	0.21	06/15/18 12:01	
Diisopropyl ether	ug/L	ND	1.0	0.12	06/15/18 12:01	
Ethylbenzene	ug/L	ND	1.0	0.30	06/15/18 12:01	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	0.71	06/15/18 12:01	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	0.40	06/15/18 12:01	
Methyl-tert-butyl ether	ug/L	ND	1.0	0.21	06/15/18 12:01	
Methylene Chloride	ug/L	ND	2.0	0.97	06/15/18 12:01	
n-Butylbenzene	ug/L	ND	1.0	0.41	06/15/18 12:01	
n-Propylbenzene	ug/L	ND	1.0	0.42	06/15/18 12:01	
Naphthalene	ug/L	ND	1.0	0.24	06/15/18 12:01	
p-Isopropyltoluene	ug/L	ND	1.0	0.31	06/15/18 12:01	
sec-Butylbenzene	ug/L	ND	1.0	0.38	06/15/18 12:01	
Styrene	ug/L	ND	1.0	0.26	06/15/18 12:01	
tert-Butylbenzene	ug/L	ND	1.0	0.40	06/15/18 12:01	
Tetrachloroethene	ug/L	ND	1.0	0.46	06/15/18 12:01	
Toluene	ug/L	ND	1.0	0.26	06/15/18 12:01	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.49	06/15/18 12:01	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.26	06/15/18 12:01	
Trichloroethene	ug/L	ND	1.0	0.47	06/15/18 12:01	
Trichlorofluoromethane	ug/L	ND	1.0	0.20	06/15/18 12:01	
Vinyl acetate	ug/L	ND	2.0	0.35	06/15/18 12:01	
Vinyl chloride	ug/L	ND	1.0	0.62	06/15/18 12:01	
Xylene (Total)	ug/L	ND	1.0	1.0	06/15/18 12:01	
1,2-Dichloroethane-d4 (S)	%	103	70-130		06/15/18 12:01	
4-Bromofluorobenzene (S)	%	98	70-130		06/15/18 12:01	
Toluene-d8 (S)	%	100	70-130		06/15/18 12:01	

LABORATORY CONTROL SAMPLE: 2303520

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	47.4	95	80-125	
1,1,1-Trichloroethane	ug/L	50	47.7	95	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	46.2	92	79-124	
1,1,2-Trichloroethane	ug/L	50	44.9	90	85-125	
1,1-Dichloroethane	ug/L	50	47.9	96	73-126	
1,1-Dichloroethene	ug/L	50	48.4	97	66-135	
1,1-Dichloropropene	ug/L	50	46.8	94	74-135	
1,2,3-Trichlorobenzene	ug/L	50	47.9	96	73-135	
1,2,3-Trichloropropane	ug/L	50	45.0	90	75-130	
1,2,4-Trichlorobenzene	ug/L	50	48.6	97	75-134	
1,2,4-Trimethylbenzene	ug/L	50	44.5	89	79-125	
1,2-Dibromoethane (EDB)	ug/L	50	47.8	96	83-124	
1,2-Dichlorobenzene	ug/L	50	46.0	92	80-133	

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**QUALITY CONTROL DATA**

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

LABORATORY CONTROL SAMPLE: 2303520

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	44.9	90	67-128	
1,2-Dichloropropane	ug/L	50	44.7	89	75-132	
1,3,5-Trimethylbenzene	ug/L	50	46.4	93	79-123	
1,3-Dichlorobenzene	ug/L	50	45.0	90	77-130	
1,3-Dichloropropane	ug/L	50	46.9	94	76-131	
1,4-Dichlorobenzene	ug/L	50	45.6	91	78-130	
1,4-Dioxane (p-Dioxane)	ug/L	1000	1020	102	71-125	
2,2-Dichloropropane	ug/L	50	55.2	110	40-160	
2-Butanone (MEK)	ug/L	100	95.3	95	61-144	
2-Chlorotoluene	ug/L	50	43.9	88	74-132	
2-Hexanone	ug/L	100	98.7	99	68-143	
4-Chlorotoluene	ug/L	50	45.3	91	76-133	
4-Methyl-2-pentanone (MIBK)	ug/L	100	93.8	94	72-135	
Acetone	ug/L	100	94.4	94	48-146	
Benzene	ug/L	50	44.9	90	80-125	
Bromobenzene	ug/L	50	46.0	92	75-125	
Bromochloromethane	ug/L	50	48.8	98	71-125	
Bromodichloromethane	ug/L	50	47.9	96	78-124	
Bromoform	ug/L	50	51.2	102	71-128	
Bromomethane	ug/L	50	39.1	78	40-160	
Carbon tetrachloride	ug/L	50	47.9	96	69-131	
Chlorobenzene	ug/L	50	45.2	90	81-122	
Chloroethane	ug/L	50	41.9	84	39-148	
Chloroform	ug/L	50	48.2	96	73-127	
Chloromethane	ug/L	50	44.9	90	44-146	
cis-1,2-Dichloroethene	ug/L	50	49.2	98	74-124	
cis-1,3-Dichloropropene	ug/L	50	48.6	97	72-132	
Dibromochloromethane	ug/L	50	49.4	99	78-125	
Dibromomethane	ug/L	50	46.0	92	82-120	
Dichlorodifluoromethane	ug/L	50	51.4	103	34-157	
Diisopropyl ether	ug/L	50	50.3	101	69-135	
Ethylbenzene	ug/L	50	45.4	91	79-121	
Hexachloro-1,3-butadiene	ug/L	50	49.6	99	72-131	
Isopropylbenzene (Cumene)	ug/L	50	47.3	95	81-132	
Methyl-tert-butyl ether	ug/L	50	47.3	95	74-131	
Methylene Chloride	ug/L	50	42.6	85	64-133	
n-Butylbenzene	ug/L	50	48.7	97	78-127	
n-Propylbenzene	ug/L	50	46.7	93	78-130	
Naphthalene	ug/L	50	48.0	96	73-133	
p-Isopropyltoluene	ug/L	50	46.6	93	80-131	
sec-Butylbenzene	ug/L	50	46.9	94	80-133	
Styrene	ug/L	50	46.7	93	84-126	
tert-Butylbenzene	ug/L	50	39.8	80	77-133	
Tetrachloroethene	ug/L	50	46.9	94	78-122	
Toluene	ug/L	50	44.7	89	80-121	
trans-1,2-Dichloroethene	ug/L	50	48.2	96	71-127	
trans-1,3-Dichloropropene	ug/L	50	49.0	98	69-141	

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## QUALITY CONTROL DATA

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

LABORATORY CONTROL SAMPLE: 2303520

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	50	45.8	92	78-122	
Trichlorofluoromethane	ug/L	50	48.5	97	53-137	
Vinyl acetate	ug/L	100	113	113	40-160	
Vinyl chloride	ug/L	50	49.4	99	50-150	
Xylene (Total)	ug/L	150	139	93	81-126	
1,2-Dichloroethane-d4 (S)	%			99	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE &amp; MATRIX SPIKE DUPLICATE: 2303521 2303522

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		92387546049 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1,2-Tetrachloroethane	ug/L	ND	500	500	480	498	96	100	70-130	4	30	
1,1,1-Trichloroethane	ug/L	ND	500	500	524	524	105	105	70-130	0	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	500	500	470	461	94	92	70-130	2	30	
1,1,2-Trichloroethane	ug/L	ND	500	500	472	478	94	96	70-130	1	30	
1,1-Dichloroethane	ug/L	ND	500	500	519	532	104	106	70-130	2	30	
1,1-Dichloroethene	ug/L	ND	500	500	567	562	113	112	70-166	1	30	
1,1-Dichloropropene	ug/L	ND	500	500	535	537	107	107	70-130	0	30	
1,2,3-Trichlorobenzene	ug/L	ND	500	500	482	509	96	102	70-130	5	30	
1,2,3-Trichloropropane	ug/L	ND	500	500	467	442	93	88	70-130	5	30	
1,2,4-Trichlorobenzene	ug/L	ND	500	500	491	520	98	104	70-130	6	30	
1,2,4-Trimethylbenzene	ug/L	ND	500	500	491	506	98	101	70-130	3	30	
1,2-Dibromoethane (EDB)	ug/L	ND	500	500	497	484	99	97	70-130	3	30	
1,2-Dichlorobenzene	ug/L	ND	500	500	479	502	96	100	70-130	5	30	
1,2-Dichloroethane	ug/L	ND	500	500	487	494	95	97	70-130	1	30	
1,2-Dichloropropane	ug/L	ND	500	500	494	494	99	99	70-130	0	30	
1,3,5-Trimethylbenzene	ug/L	ND	500	500	505	534	101	107	70-130	6	30	
1,3-Dichlorobenzene	ug/L	ND	500	500	473	500	95	100	70-130	6	30	
1,3-Dichloropropane	ug/L	ND	500	500	496	490	99	98	70-130	1	30	
1,4-Dichlorobenzene	ug/L	ND	500	500	487	504	97	101	70-130	4	30	
1,4-Dioxane (p-Dioxane)	ug/L	ND	10000	10000	10400	10700	104	107	70-130	3	30	
2,2-Dichloropropane	ug/L	ND	500	500	588	572	118	114	70-130	3	30	
2-Butanone (MEK)	ug/L	ND	1000	1000	991	980	99	98	70-130	1	30	
2-Chlorotoluene	ug/L	ND	500	500	481	506	96	101	70-130	5	30	
2-Hexanone	ug/L	ND	1000	1000	998	1020	100	102	70-130	3	30	
4-Chlorotoluene	ug/L	ND	500	500	492	520	98	104	70-130	6	30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1000	1000	1060	966	106	97	70-130	9	30	
Acetone	ug/L	ND	1000	1000	873	846	87	85	70-130	3	30	
Benzene	ug/L	ND	500	500	524	526	100	101	70-148	0	30	
Bromobenzene	ug/L	ND	500	500	488	515	98	103	70-130	6	30	
Bromochloromethane	ug/L	ND	500	500	513	508	103	102	70-130	1	30	
Bromodichloromethane	ug/L	ND	500	500	488	507	98	101	70-130	4	30	

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Parameter	Units	2303521		2303522		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		92387546049 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Bromoform	ug/L	ND	500	500	469	469	94	94	70-130	0	30		
Bromomethane	ug/L	ND	500	500	347	377	69	75	70-130	8	30	M1	
Carbon tetrachloride	ug/L	ND	500	500	524	542	105	108	70-130	3	30		
Chlorobenzene	ug/L	ND	500	500	490	497	98	99	70-146	1	30		
Chloroethane	ug/L	ND	500	500	497	497	99	99	70-130	0	30		
Chloroform	ug/L	57.8	500	500	547	553	98	99	70-130	1	30		
Chloromethane	ug/L	ND	500	500	417	433	83	87	70-130	4	30		
cis-1,2-Dichloroethene	ug/L	ND	500	500	535	515	107	103	70-130	4	30		
cis-1,3-Dichloropropene	ug/L	ND	500	500	500	514	100	103	70-130	3	30		
Dibromochloromethane	ug/L	ND	500	500	483	469	97	94	70-130	3	30		
Dibromomethane	ug/L	ND	500	500	487	493	97	99	70-130	1	30		
Dichlorodifluoromethane	ug/L	ND	500	500	601	608	120	122	70-130	1	30		
Diisopropyl ether	ug/L	48.8	500	500	560	587	102	108	70-130	5	30		
Ethylbenzene	ug/L	ND	500	500	504	507	101	101	70-130	1	30		
Hexachloro-1,3-butadiene	ug/L	ND	500	500	521	540	104	108	70-130	3	30		
Isopropylbenzene (Cumene)	ug/L	ND	500	500	520	509	104	102	70-130	2	30		
Methyl-tert-butyl ether	ug/L	4040	500	500	4450	4490	83	90	70-130	1	30		
Methylene Chloride	ug/L	ND	500	500	359	370	72	74	70-130	3	30		
n-Butylbenzene	ug/L	ND	500	500	514	543	103	109	70-130	6	30		
n-Propylbenzene	ug/L	ND	500	500	513	537	103	107	70-130	5	30		
Naphthalene	ug/L	ND	500	500	477	501	95	100	70-130	5	30		
p-Isopropyltoluene	ug/L	ND	500	500	502	530	100	106	70-130	5	30		
sec-Butylbenzene	ug/L	ND	500	500	508	536	102	107	70-130	5	30		
Styrene	ug/L	ND	500	500	496	488	99	98	70-130	2	30		
tert-Butylbenzene	ug/L	ND	500	500	430	455	86	91	70-130	5	30		
Tetrachloroethene	ug/L	ND	500	500	527	507	105	101	70-130	4	30		
Toluene	ug/L	ND	500	500	506	506	101	101	70-155	0	30		
trans-1,2-Dichloroethene	ug/L	ND	500	500	536	545	107	109	70-130	2	30		
trans-1,3-Dichloropropene	ug/L	ND	500	500	500	498	100	100	70-130	1	30		
Trichloroethene	ug/L	ND	500	500	506	507	101	101	69-151	0	30		
Trichlorofluoromethane	ug/L	ND	500	500	572	582	114	116	70-130	2	30		
Vinyl acetate	ug/L	ND	1000	1000	1160	1160	116	116	70-130	0	30		
Vinyl chloride	ug/L	ND	500	500	548	555	110	111	70-130	1	30		
Xylene (Total)	ug/L	ND	1500	1500	1540	1540	102	103	70-130	0	30		
1,2-Dichloroethane-d4 (S)	%						100	97	70-130				
4-Bromofluorobenzene (S)	%						100	97	70-130				
Toluene-d8 (S)	%						100	100	70-130				

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## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

QC Batch: 415620 Analysis Method: EPA 8260  
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 92387844003

METHOD BLANK: 2304743 Matrix: Water

Associated Lab Samples: 92387844003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	1.0	0.24	06/18/18 12:18	
Benzene	ug/L	ND	1.0	0.25	06/18/18 12:18	
Ethylbenzene	ug/L	ND	1.0	0.30	06/18/18 12:18	
Methyl-tert-butyl ether	ug/L	ND	1.0	0.21	06/18/18 12:18	
Naphthalene	ug/L	ND	1.0	0.24	06/18/18 12:18	
Toluene	ug/L	ND	1.0	0.26	06/18/18 12:18	
Xylene (Total)	ug/L	ND	1.0	1.0	06/18/18 12:18	
1,2-Dichloroethane-d4 (S)	%	104	70-130		06/18/18 12:18	
4-Bromofluorobenzene (S)	%	98	70-130		06/18/18 12:18	
Toluene-d8 (S)	%	98	70-130		06/18/18 12:18	

LABORATORY CONTROL SAMPLE: 2304744

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	43.5	87	67-128	
Benzene	ug/L	50	44.8	90	80-125	
Ethylbenzene	ug/L	50	44.3	89	79-121	
Methyl-tert-butyl ether	ug/L	50	43.3	87	74-131	
Naphthalene	ug/L	50	46.6	93	73-133	
Toluene	ug/L	50	43.8	88	80-121	
Xylene (Total)	ug/L	150	136	91	81-126	
1,2-Dichloroethane-d4 (S)	%			101	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2304745 2304746

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92387695003 Result	Spike Conc.	Spike Conc.	MS Result						
1,2-Dichloroethane	ug/L	ND	1000	1000	956	947	96	95	70-130	1	30
Benzene	ug/L	337	1000	1000	1320	1310	98	97	70-148	1	30
Ethylbenzene	ug/L	544	1000	1000	1530	1570	99	102	70-130	2	30
Methyl-tert-butyl ether	ug/L	ND	1000	1000	989	995	99	100	70-130	1	30
Naphthalene	ug/L	226	1000	1000	1260	1290	103	106	70-130	2	30
Toluene	ug/L	6200	1000	1000	7460	7550	126	135	70-155	1	30
Xylene (Total)	ug/L	3750	3000	3000	7050	7020	110	109	70-130	0	30
1,2-Dichloroethane-d4 (S)	%						104	103	70-130		
4-Bromofluorobenzene (S)	%						103	99	70-130		

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**QUALITY CONTROL DATA**

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2304745		2304746									
Parameter	Units	92387695003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Toluene-d8 (S)	%						101	99	70-130				

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**QUALITY CONTROL DATA**

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

QC Batch: 415300

Analysis Method: EPA 8270

QC Batch Method: EPA 3510

Analysis Description: 8270 Water MSSV RVE

Associated Lab Samples: 92387844001, 92387844002, 92387844003

METHOD BLANK: 2303164

Matrix: Water

Associated Lab Samples: 92387844001, 92387844002, 92387844003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	10.0	2.6	06/15/18 11:58	
1,2-Dichlorobenzene	ug/L	ND	10.0	3.2	06/15/18 11:58	
1,3-Dichlorobenzene	ug/L	ND	10.0	3.2	06/15/18 11:58	
1,4-Dichlorobenzene	ug/L	5.0J	10.0	2.6	06/15/18 11:58	
1-Methylnaphthalene	ug/L	ND	10.0	2.8	06/15/18 11:58	
2,2'-Oxybis(1-chloropropane)	ug/L	ND	10.0	2.5	06/15/18 11:58	
2,4,5-Trichlorophenol	ug/L	ND	10.0	2.3	06/15/18 11:58	
2,4,6-Trichlorophenol	ug/L	ND	10.0	2.8	06/15/18 11:58	
2,4-Dichlorophenol	ug/L	ND	10.0	2.7	06/15/18 11:58	
2,4-Dimethylphenol	ug/L	ND	10.0	1.9	06/15/18 11:58	
2,4-Dinitrophenol	ug/L	ND	50.0	10.1	06/15/18 11:58	
2,4-Dinitrotoluene	ug/L	ND	10.0	2.4	06/15/18 11:58	
2,6-Dinitrotoluene	ug/L	ND	10.0	2.9	06/15/18 11:58	
2-Chloronaphthalene	ug/L	ND	10.0	2.9	06/15/18 11:58	
2-Chlorophenol	ug/L	ND	10.0	2.9	06/15/18 11:58	
2-Methylnaphthalene	ug/L	ND	10.0	2.8	06/15/18 11:58	
2-Methylphenol(o-Cresol)	ug/L	ND	10.0	3.6	06/15/18 11:58	
2-Nitroaniline	ug/L	ND	50.0	5.5	06/15/18 11:58	
2-Nitrophenol	ug/L	ND	10.0	2.6	06/15/18 11:58	
3&4-Methylphenol(m&p Cresol)	ug/L	ND	10.0	2.4	06/15/18 11:58	
3,3'-Dichlorobenzidine	ug/L	ND	20.0	2.8	06/15/18 11:58	
3-Nitroaniline	ug/L	ND	50.0	5.0	06/15/18 11:58	
4,6-Dinitro-2-methylphenol	ug/L	ND	20.0	4.4	06/15/18 11:58	
4-Bromophenylphenyl ether	ug/L	ND	10.0	2.7	06/15/18 11:58	
4-Chloro-3-methylphenol	ug/L	ND	20.0	4.6	06/15/18 11:58	
4-Chloroaniline	ug/L	ND	20.0	6.8	06/15/18 11:58	
4-Chlorophenylphenyl ether	ug/L	ND	10.0	2.9	06/15/18 11:58	
4-Nitroaniline	ug/L	ND	20.0	3.6	06/15/18 11:58	
4-Nitrophenol	ug/L	ND	50.0	7.8	06/15/18 11:58	
Acenaphthene	ug/L	ND	10.0	3.4	06/15/18 11:58	
Acenaphthylene	ug/L	ND	10.0	3.0	06/15/18 11:58	
Aniline	ug/L	ND	10.0	3.1	06/15/18 11:58	
Anthracene	ug/L	ND	10.0	2.0	06/15/18 11:58	
Benzo(a)anthracene	ug/L	ND	10.0	1.3	06/15/18 11:58	
Benzo(a)pyrene	ug/L	ND	10.0	1.3	06/15/18 11:58	
Benzo(b)fluoranthene	ug/L	ND	10.0	1.5	06/15/18 11:58	
Benzo(g,h,i)perylene	ug/L	ND	10.0	1.8	06/15/18 11:58	
Benzo(k)fluoranthene	ug/L	ND	10.0	1.8	06/15/18 11:58	
Benzoic Acid	ug/L	ND	50.0	17.3	06/15/18 11:58	
Benzyl alcohol	ug/L	ND	20.0	7.0	06/15/18 11:58	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	3.0	06/15/18 11:58	

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## QUALITY CONTROL DATA

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

METHOD BLANK: 2303164

Matrix: Water

Associated Lab Samples: 92387844001, 92387844002, 92387844003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
bis(2-Chloroethyl) ether	ug/L	ND	10.0	3.1	06/15/18 11:58	
bis(2-Ethylhexyl)phthalate	ug/L	ND	6.0	1.4	06/15/18 11:58	
Butylbenzylphthalate	ug/L	ND	10.0	1.3	06/15/18 11:58	
Chrysene	ug/L	ND	10.0	1.3	06/15/18 11:58	
Di-n-butylphthalate	ug/L	ND	10.0	1.2	06/15/18 11:58	
Di-n-octylphthalate	ug/L	ND	10.0	1.2	06/15/18 11:58	
Dibenz(a,h)anthracene	ug/L	ND	10.0	1.9	06/15/18 11:58	
Dibenzofuran	ug/L	ND	10.0	3.4	06/15/18 11:58	
Diethylphthalate	ug/L	ND	10.0	2.0	06/15/18 11:58	
Dimethylphthalate	ug/L	ND	10.0	2.3	06/15/18 11:58	
Fluoranthene	ug/L	ND	10.0	1.7	06/15/18 11:58	
Fluorene	ug/L	ND	10.0	3.0	06/15/18 11:58	
Hexachloro-1,3-butadiene	ug/L	3.5J	10.0	3.1	06/15/18 11:58	
Hexachlorobenzene	ug/L	ND	10.0	2.5	06/15/18 11:58	
Hexachlorocyclopentadiene	ug/L	ND	10.0	3.4	06/15/18 11:58	
Hexachloroethane	ug/L	ND	10.0	4.0	06/15/18 11:58	
Indeno(1,2,3-cd)pyrene	ug/L	ND	10.0	1.7	06/15/18 11:58	
Isophorone	ug/L	ND	10.0	2.7	06/15/18 11:58	
N-Nitroso-di-n-propylamine	ug/L	ND	10.0	2.6	06/15/18 11:58	
N-Nitrosodimethylamine	ug/L	ND	10.0	2.8	06/15/18 11:58	
N-Nitrosodiphenylamine	ug/L	ND	10.0	2.0	06/15/18 11:58	
Naphthalene	ug/L	ND	10.0	3.2	06/15/18 11:58	
Nitrobenzene	ug/L	ND	10.0	3.4	06/15/18 11:58	
Pentachlorophenol	ug/L	ND	25.0	3.1	06/15/18 11:58	
Phenanthrene	ug/L	ND	10.0	2.4	06/15/18 11:58	
Phenol	ug/L	ND	10.0	2.7	06/15/18 11:58	
Pyrene	ug/L	ND	10.0	1.2	06/15/18 11:58	
2,4,6-Tribromophenol (S)	%	34	31-170		06/15/18 11:58	
2-Fluorobiphenyl (S)	%	98	45-139		06/15/18 11:58	
2-Fluorophenol (S)	%	16	13-118		06/15/18 11:58	
Nitrobenzene-d5 (S)	%	87	40-121		06/15/18 11:58	
Phenol-d6 (S)	%	22	18-105		06/15/18 11:58	
Terphenyl-d14 (S)	%	74	48-146		06/15/18 11:58	

LABORATORY CONTROL SAMPLE &amp; LCSD: 2303165

2303166

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	29.3	31.8	59	64	31-120	8	30	
1,2-Dichlorobenzene	ug/L	50	28.7	31.6	57	63	38-120	10	30	
1,3-Dichlorobenzene	ug/L	50	27.9	30.0	56	60	30-122	7	30	
1,4-Dichlorobenzene	ug/L	50	30.5	33.4	61	67	37-120	9	30	
1-Methylnaphthalene	ug/L	50	34.2	37.3	68	75	34-113	9	30	
2,2'-Oxybis(1-chloropropane)	ug/L	50	21.4	23.2	43	46	18-120	8	30	
2,4,5-Trichlorophenol	ug/L	50	35.9	39.9	72	80	43-113	10	30	

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## QUALITY CONTROL DATA

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

LABORATORY CONTROL SAMPLE & LCSD: 2303165		2303166								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
2,4,6-Trichlorophenol	ug/L	50	34.9	38.4	70	77	42-120	9	30	
2,4-Dichlorophenol	ug/L	50	39.3	42.5	79	85	30-120	8	30	
2,4-Dimethylphenol	ug/L	50	34.8	37.8	70	76	29-111	8	30	
2,4-Dinitrophenol	ug/L	250	188	209	75	84	19-132	11	30	
2,4-Dinitrotoluene	ug/L	50	40.3	44.2	81	88	58-128	9	30	
2,6-Dinitrotoluene	ug/L	50	38.1	41.9	76	84	54-129	9	30	
2-Chloronaphthalene	ug/L	50	32.3	36.1	65	72	43-117	11	30	
2-Chlorophenol	ug/L	50	35.4	38.0	71	76	37-120	7	30	
2-Methylnaphthalene	ug/L	50	35.2	38.2	70	76	33-120	8	30	
2-Methylphenol(o-Cresol)	ug/L	50	36.4	40.4	73	81	31-120	10	30	
2-Nitroaniline	ug/L	100	62.4	70.4	62	70	48-121	12	30	
2-Nitrophenol	ug/L	50	34.5	38.3	69	77	25-116	10	30	
3&4-Methylphenol(m&p Cresol)	ug/L	50	35.7	39.2	71	78	23-120	9	30	
3,3'-Dichlorobenzidine	ug/L	100	61.6	53.5	62	54	10-154	14	30	
3-Nitroaniline	ug/L	100	74.5	81.2	75	81	43-115	9	30	
4,6-Dinitro-2-methylphenol	ug/L	100	88.3	101	88	101	44-124	14	30	
4-Bromophenylphenyl ether	ug/L	50	40.6	45.7	81	91	34-113	12	30	
4-Chloro-3-methylphenol	ug/L	100	76.3	82.4	76	82	31-110	8	30	
4-Chloroaniline	ug/L	100	69.9	65.1	70	65	20-120	7	30	
4-Chlorophenylphenyl ether	ug/L	50	38.4	42.3	77	85	34-116	10	30	
4-Nitroaniline	ug/L	100	77.3	84.1	77	84	46-128	8	30	
4-Nitrophenol	ug/L	250	152	162	61	65	11-120	7	30	
Acenaphthene	ug/L	50	37.1	41.9	74	84	48-114	12	30	
Acenaphthylene	ug/L	50	36.6	41.1	73	82	48-112	12	30	
Aniline	ug/L	50	12.6	8.7J	25	17	26-120		30	L2
Anthracene	ug/L	50	42.0	47.3	84	95	57-118	12	30	
Benzo(a)anthracene	ug/L	50	39.2	42.4	78	85	56-121	8	30	
Benzo(a)pyrene	ug/L	50	40.1	44.1	80	88	55-127	10	30	
Benzo(b)fluoranthene	ug/L	50	38.5	42.5	77	85	53-128	10	30	
Benzo(g,h,i)perylene	ug/L	50	40.1	46.1	80	92	54-125	14	30	
Benzo(k)fluoranthene	ug/L	50	44.0	48.0	88	96	51-123	9	30	
Benzoic Acid	ug/L	250	141	143	56	57	10-120	2	30	
Benzyl alcohol	ug/L	100	80.0	87.6	80	88	27-120	9	30	
bis(2-Chloroethoxy)methane	ug/L	50	38.4	41.4	77	83	32-120	8	30	
bis(2-Chloroethyl) ether	ug/L	50	35.1	37.3	70	75	33-111	6	30	
bis(2-Ethylhexyl)phthalate	ug/L	50	34.8	37.0	70	74	50-145	6	30	
Butylbenzylphthalate	ug/L	50	32.4	35.1	65	70	54-138	8	30	
Chrysene	ug/L	50	39.4	43.1	79	86	58-127	9	30	
Di-n-butylphthalate	ug/L	50	38.6	43.2	77	86	56-125	11	30	
Di-n-octylphthalate	ug/L	50	31.1	33.2	62	66	50-134	6	30	
Dibenz(a,h)anthracene	ug/L	50	41.3	47.4	83	95	53-129	14	30	
Dibenzofuran	ug/L	50	38.8	43.4	78	87	45-120	11	30	
Diethylphthalate	ug/L	50	37.2	40.3	74	81	53-120	8	30	
Dimethylphthalate	ug/L	50	37.9	41.2	76	82	55-116	8	30	
Fluoranthene	ug/L	50	43.0	48.2	86	96	57-125	12	30	
Fluorene	ug/L	50	39.8	43.5	80	87	53-118	9	30	
Hexachloro-1,3-butadiene	ug/L	50	28.4	29.6	57	59	23-120	4	30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Parameter	Units	2303165		2303166		% Rec	LCS	LCS	% Rec	Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCS Result	LCS % Rec								
Hexachlorobenzene	ug/L	50	42.2	46.5	84	93	49-116	10	30				
Hexachlorocyclopentadiene	ug/L	50	25.1	27.3	50	55	26-158	8	30				
Hexachloroethane	ug/L	50	29.2	30.6	58	61	30-114	4	30				
Indeno(1,2,3-cd)pyrene	ug/L	50	40.6	46.3	81	93	55-128	13	30				
Isophorone	ug/L	50	33.9	35.7	68	71	31-118	5	30				
N-Nitroso-di-n-propylamine	ug/L	50	41.3	44.6	83	89	32-119	8	30				
N-Nitrosodimethylamine	ug/L	50	31.4	33.7	63	67	13-120	7	30				
N-Nitrosodiphenylamine	ug/L	50	40.5	45.1	81	90	43-120	11	30				
Naphthalene	ug/L	50	33.9	37.0	68	74	32-120	9	30				
Nitrobenzene	ug/L	50	38.5	41.3	77	83	33-110	7	30				
Pentachlorophenol	ug/L	100	75.7	85.4	76	85	10-137	12	30				
Phenanthrene	ug/L	50	41.7	46.9	83	94	57-117	12	30				
Phenol	ug/L	50	25.7	26.7	51	53	10-120	4	30				
Pyrene	ug/L	50	36.2	39.0	72	78	55-122	7	30				
2,4,6-Tribromophenol (S)	%				91	98	31-170						
2-Fluorobiphenyl (S)	%				82	88	45-139						
2-Fluorophenol (S)	%				60	63	13-118						
Nitrobenzene-d5 (S)	%				79	84	40-121						
Phenol-d6 (S)	%				53	55	18-105						
Terphenyl-d14 (S)	%				53	55	48-146						

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**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL DATA**

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

QC Batch: 415699 Analysis Method: MADEP EPH  
 QC Batch Method: MADEP EPH Analysis Description: MADEP EPH NC Water  
 Associated Lab Samples: 92387844001, 92387844002, 92387844003

METHOD BLANK: 2305074 Matrix: Water

Associated Lab Samples: 92387844001, 92387844002, 92387844003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aliphatic (C09-C18)	ug/L	ND	100	100	06/19/18 14:41	N2
Aliphatic (C19-C36)	ug/L	ND	100	100	06/19/18 14:41	N2
Aromatic (C11-C22)	ug/L	ND	100	100	06/19/18 14:41	N2
2-Bromonaphthalene (S)	%	96	40-140		06/19/18 14:41	
2-Fluorobiphenyl (S)	%	94	40-140		06/19/18 14:41	
Nonatriacontane (S)	%	97	40-140		06/19/18 14:41	
o-Terphenyl (S)	%	88	40-140		06/19/18 14:41	

LABORATORY CONTROL SAMPLE &amp; LCSD: 2305075

2305076

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C09-C18)	ug/L	300	130	125	43	42	40-140	4	50	N2
Aliphatic (C19-C36)	ug/L	400	271	223	68	56	40-140	19	50	N2
Aromatic (C11-C22)	ug/L	850	530	546	62	64	40-140	3	50	N2
2-Bromonaphthalene (S)	%				63	76	40-140			
2-Fluorobiphenyl (S)	%				63	62	40-140			
Nonatriacontane (S)	%				79	64	40-140			
o-Terphenyl (S)	%				70	82	40-140			

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**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

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.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-C Pace Analytical Services - Charlotte

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter.

S4 Surrogate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NCDOT -001 WBS 41499.1.3

Pace Project No.: 92387844

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92387844001	P-6-SB-3	MADEP EPH	415699	MADEP EPH	415942
92387844002	P-2-SB-4	MADEP EPH	415699	MADEP EPH	415942
92387844003	P-54-SB-2	MADEP EPH	415699	MADEP EPH	415942
92387844001	P-6-SB-3	MADEP VPH	414279		
92387844002	P-2-SB-4	MADEP VPH	414279		
92387844003	P-54-SB-2	MADEP VPH	414279		
92387844001	P-6-SB-3	EPA 3510	415300	EPA 8270	415391
92387844002	P-2-SB-4	EPA 3510	415300	EPA 8270	415391
92387844003	P-54-SB-2	EPA 3510	415300	EPA 8270	415391
92387844001	P-6-SB-3	EPA 8260	415295		
92387844002	P-2-SB-4	EPA 8260	415385		
92387844003	P-54-SB-2	EPA 8260	415620		

### REPORT OF LABORATORY ANALYSIS

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Laboratory receiving samples:

Asheville  Eden  Greenwood  Huntersville  Raleigh  Mechanicsville

Sample Condition Upon Receipt

Client Name:

Project

WO#: 92387844



Courier:  Fed Ex  UPS  USPS  Client  
 Commercial  Pace  Other: \_\_\_\_\_

Custody Seal Present?  Yes  No Seals Intact?  Yes  No

Date/Initials Person Examining Contents: MD 6/8/14

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Biological Tissue Frozen?  
 Yes  No  N/A

Thermometer:  IR Gun ID: 92T040 Type of Ice:  Wet  Blue  None

Cooler Temp (°C): 4.3 Correction Factor: Add/Subtract (°C) +0.4

Temp should be above freezing to 6°C  
 Samples out of temp criteria. Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 4.7

USDA Regulated Soil ( N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?  
 Yes  No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)?  Yes  No

			Comments/Discrepancy:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Short Hold Time Analysis (<72 hr.)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.	
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Dissolved analysis: Samples Field Filtered?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	8.	
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>			
Headspace in VOA Vials (>5-6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		

Field Data Required?  Yes  No

COMMENTS/SAMPLE DISCREPANCY

One AG-1H for sample P-2-SB-4 B out of PH Rxyz

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Project Manager SCURF Review: TC

Date: 6/12/18

Project Manager SRF Review: TC

Date: 6/12/18

Project

WO#: 92387844

PM: RWC

Due Date: 06/15/18

CLIENT: 92-APEX MOOR

\*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

\*\*Bottom half of box is to list number of bottle

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (C-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (C-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (C-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (C-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (C-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Schtillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)		
1	/	/	/	/	/	/	/	/	/	/	2	2	2	2	2	2										2			
2	/	/	/	/	/	/	/	/	/	/	2	2	2	2	2	2										2			
3	/	/	/	/	/	/	/	/	/	/	2	2	2	2	2	2										2			
4	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/										/	/	/	/
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11	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/										/	/	/	/
12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/										/	/	/	/

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #
P-2-SB4	HCl	6	6.8.18	17:00	2ml	4117070

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).

