ENVIRONMENTAL SERVICES, INC.
4901 Trademark Drive
Raleigh, North Carolina 27615
919-212-1760/ Facsimile 919-212-1707

www.environmentalservicesinc.com

MEMORANDUM

TO:	NCDOT Division 12 P.O. Box 47 Shelby, North Carolina 28151-0047
FROM:	Don Barfield
DATE:	28 April 2017
RE:	Hazardous Materials Evaluation US Highway 21 Improvements (R-5711) Iredell County, North Carolina

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Environmental Services, Inc. has completed a Hazardous Materials Evaluation report for NCDOT. The report has the following components:

Hazardous Materials Report

Appendix

Please let me know if you have any questions or concerns regarding the report.

Don Barfield
Senior Manager
Environmental Services, Inc.

Hazardous Materials Report

Introduction

The North Carolina Department of Transportation (NCDOT) is proposing to make improvements to S. Main Street (US Highway 21) (TIP No. R-5711), in Iredell County, North Carolina. The study area is approximately 0.4 miles in length which includes portions of S. Main Street from the intersection with Ostwalt Amity Road in the north to the intersection with Flower House Loop to the south.

Methodology and Qualifications

This report presents the results of hazardous materials evaluation conducted on the above referenced project. The main purpose of this evaluation is to identify properties within the project study area as well as properties outside the study area which may be contaminated and have the potential to impact the project study area. The possibility of contamination would result in increased project costs and future liability for the North Carolina Department of Transportation (NCDOT).

The assessment consisted of a site reconnaissance, review of historical aerial photographs, and research of environmental records provided by GeoSearch and other available environmental databases.

The principal personnel contributing to this document were:

Principal Investigator:	Mr. Don Barfield
Education:	B.S. in Biology, 2005
	Masters in Business Administration, 2011
Experience:	Senior Manager, Environmental Services, Inc. 2005-Present
Responsibilities:	Mr. Barfield's responsibilities include technical guidance for all Phase I and Phase II environmental site assessments, contamination assessments, remedial projects, and regulatory coordination.

Findings

Site Number	Site Name	Potential Concern	Risk	Database Information
1	**Haneline Country Store**	**Former USTs/UST spill**	**High**	**Incident # 23340**
2	**Yeti Coolers/U.S. Propeller Service**	**Marine repair**	**Low**	**N/A**
3	**Crossroads Service Center**	**Automotive repair activities**	**Low**	**N/A**
4	**CNG Fueling Station**	**Alternative fueling station**	**Low**	**N/A**

Hazardous Waste Sites

Based on our study no Hazardous Waste Sites were identified within the project study area or in the adjoining properties.

Landfills

Based on our study no current or per-regulatory landfills were identified within in the project study area or in any of the adjoining properties.

Anticipated Impacts

A total of four (4) sites of potential concern were identified within the project study area. These sites are expected to have a low to high risk impact for the project.

Potential Environmental Impact Sites

1.

Property Name: Haneline Country Store (former)

Address: 870 S. Main Street, Troutman, NC 28166

Incident Phase: Current



This site is located at 870 S. Main Street and now currently occupied by Crossroads Service Center. The site is listed in the UST database (Facility ID #00-0-0000010647) and in the LUST database with the incident # 23340. According to regulatory record information, a total of four (4) USTs were removed from the site and included one (1) 550-gallon used oil UST, one (1) 8,000-gallon gasoline UST, one (1) 8,000-gallon gasoline UST, and one (1) 4,000-gallon gasoline UST. In June 2001, a petroleum release was reported at this facility with follow-up assessment activities confirming soil and groundwater impacts, with free product detected within two (2) onsite monitoring wells. The responsible party for the release was unable to finance additional assessment activities for the site, but additional assessment activities for the site are warranted. This facility, including a suspected former fuel dispenser island, are located in the immediate proximity of S. Main Street. **This site is anticipated to have high geoenvironmental impacts on the project.**

Potential Environmental Impact Sites

2.

Property Name: Yeti Coolers/US Propeller Service

Address: 844 S. Main Street, Troutman, NC 28166

Incident Phase: N/A



This site is located at 844 S. Main Street. This facility currently operates as a boat repair and parts sales facility, with no environmental regulatory record information documented for the site. No evidence of hazardous wastes or petroleum product releases were observed at this location. **This site is anticipated to have low geoenvironmental impacts on the project.**

Potential Environmental Impact Sites

3.

Property Name: Crossroads Service Center

Address: 870 S. Main Street, Troutman, NC 28166

Incident Phase: N/A



This site is located at 870 S. Main Street. This facility currently operates as an automotive repair facility, with no environmental regulatory record information documented for the site as a hazardous waste generator but this site is believed to be the former location of the Haneline Country Store (Site #1) where petroleum contamination was reported. No evidence of hazardous wastes or petroleum product releases were observed at this location, but a petroleum Aboveground Storage Tank (AST) in secondary containment was located adjacent to the structure. **Current automotive repair activities are anticipated to have low geoenvironmental impacts on the project.**

Potential Environmental Impact Sites

4.

Property Name: CNG Fueling Station

Address: N/A

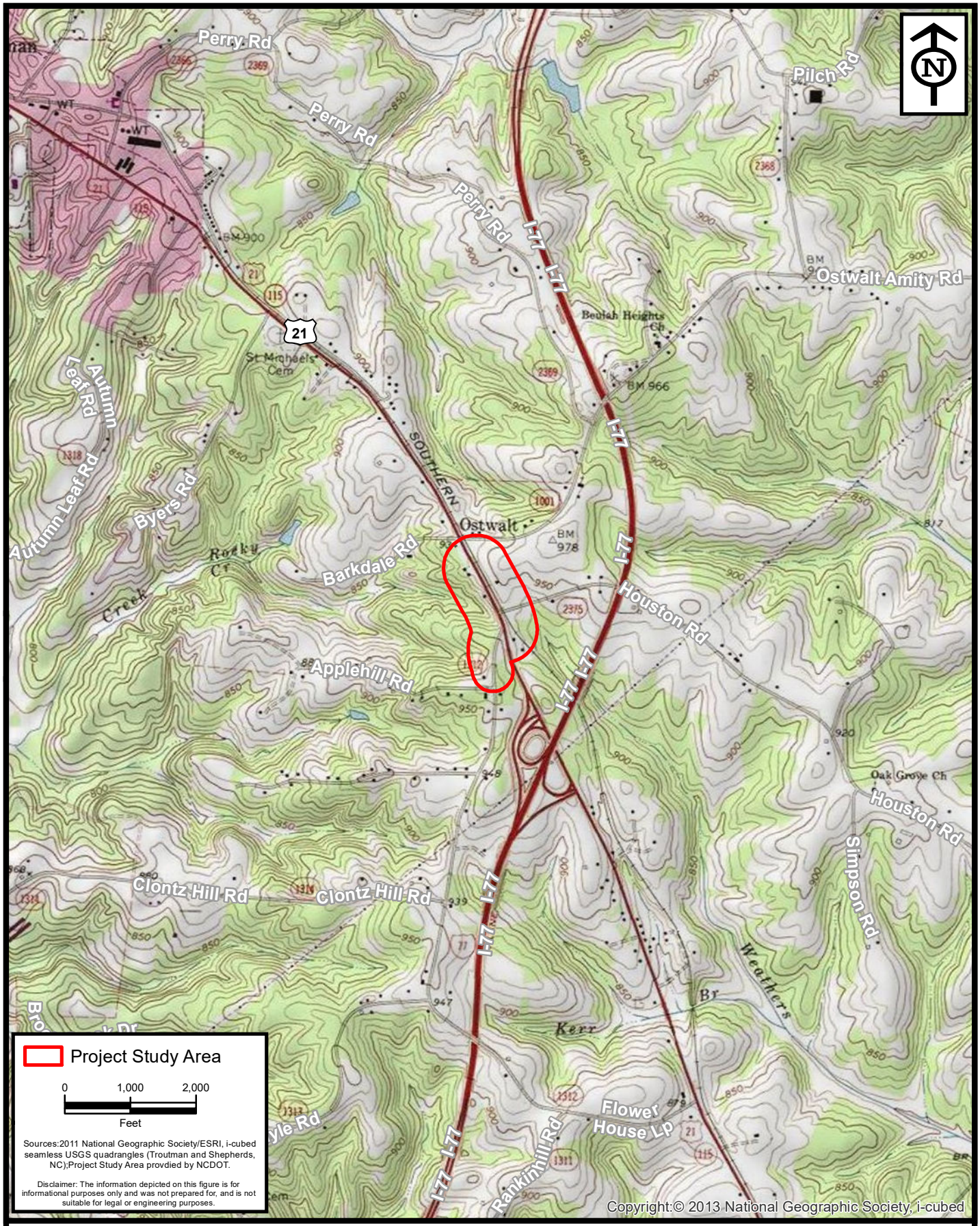
Incident Phase: N/A



This facility currently operates as an alternative fuel service station, with no environmental regulatory record information documented for the site. No evidence of hazardous wastes or petroleum product releases were observed at this location. **This site is anticipated to have low geoenvironmental impacts on the project.**

APPENDIX A

Project Location



Project Location

Realignment of US 21 and SR2375 (Houston Road)/ SR1312 (Flower House Road)

Iredell County, North Carolina

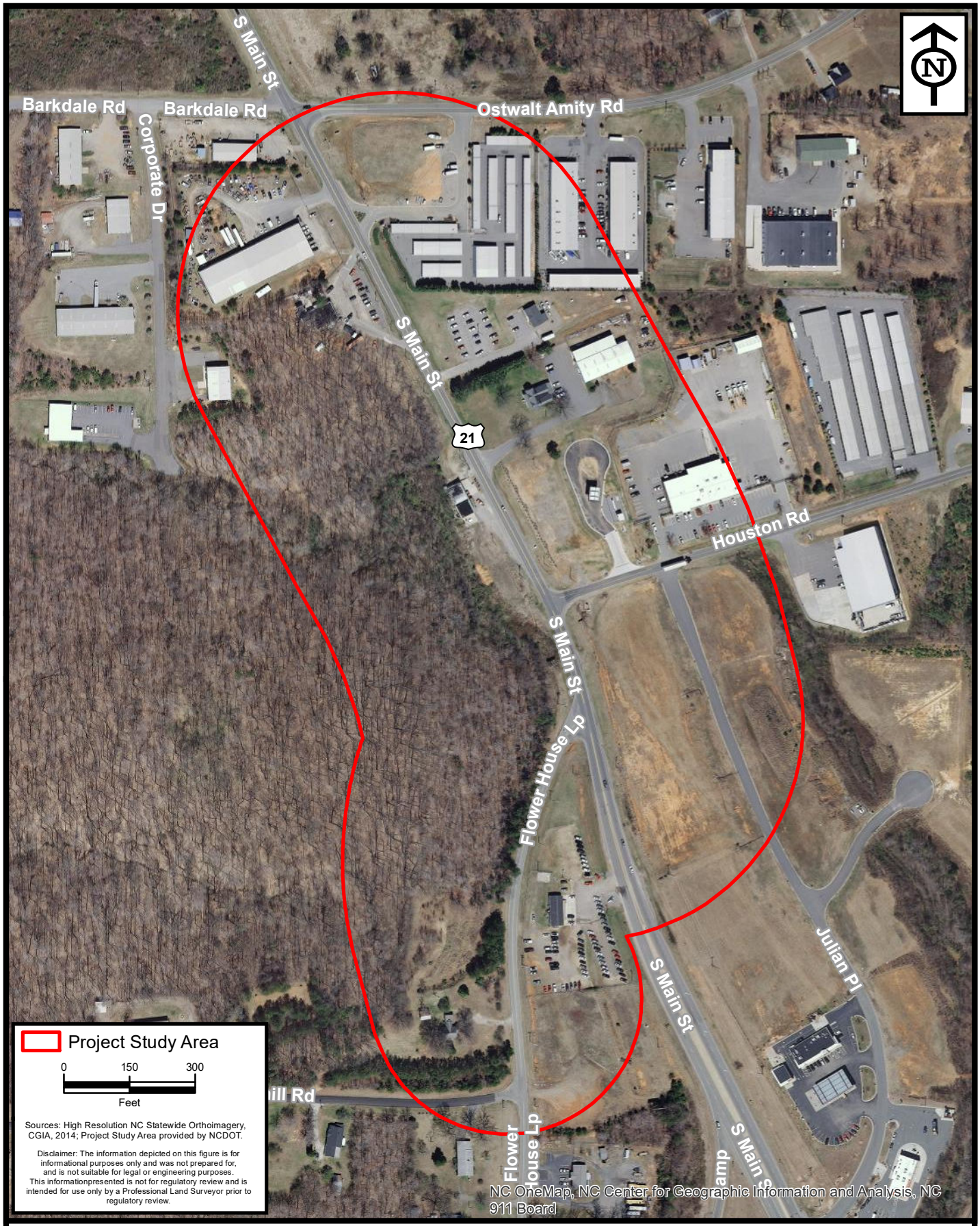
T.I.P. No. R-5711

Project:	AR15155.00
Date:	Mar 2017
Drwn/Chkd:	KT/RT
Figure:	1

Path: P:\GeoGra\Projects\2015\155\GIS\fig_R5711__topo.mxd Date: 3/2/2017 9:34:12 AM

APPENDIX B

Aerial Photograph



Aerial

Realignment of US 21 and SR2375 (Houston Road)/ SR1312 (Flower House Road)

Iredell County, North Carolina

T.I.P. No. R-5711

Project:	AR15155.00
Date:	Mar 2017
Drwn/Chkd:	KT/RT
Figure:	3

Path: P:\GeoGra\Projects\2015\155\GIS\fig_R5711_aerial.mxd Date: 3/2/2017 1:17:55 PM

July 5, 2018

DRMP, Inc.
5950 Fairview Road, Suite 320
Charlotte, NC 28210

Attention: Mr. Mike Hage, P.E.

Reference: **Limited Site Assessment**
State Highway Project No.: 50207.1.1 (R-5711)
Intersection Improvements at US 21 and SR 1312 (Flower House Loop) / SR 2375 (Houston Road)
870 S. Main Street
Troutman, Iredell County, North Carolina
S&ME Project No. 6235-18-013

Dear Mr. Hage:

S&ME, Inc. (S&ME) submits this Limited Site Assessment Report for the above-referenced property. Our services were performed in accordance with DRMP Design Phase Scope of Services dated May 19, 2017.

♦ Background

This site is located at 870 S. Main Street and is currently occupied by Crossroads Service Center. The site is listed in the North Carolina Department of Environmental Quality (NCDEQ) underground storage tank (UST) database (Facility ID #00-0-0000010647) and in the NCDEQ leaking underground storage tank (LUST) database with the incident # 23340 (Haneline Country Store). According to regulatory record information, four (4) USTs were removed from the site and included one (1) 550-gallon used oil UST, one (1) 8,000-gallon gasoline UST, one (1) 8,000-gallon gasoline UST, and one (1) 4,000-gallon gasoline UST. In June 2001, a petroleum release was reported at this facility with follow-up assessment activities confirming soil and groundwater impacts, with free product detected within two (2) onsite monitoring wells. The responsible party for the release was unable to finance additional assessment activities for the site, but additional assessment activities for the site are warranted. This facility, including a suspected former fuel dispenser island, are located in the immediate proximity of S. Main Street.

♦ Scope of Services

S&ME performed a geophysical survey of the areas of the two sites that are accessible and without obstruction (e.g., building locations, foundations and surface debris) to identify potential USTs. The geophysical survey was conducted using time-domain electromagnetics (TDEM) and ground penetrating radar (GPR).

Based on the results of the geophysical survey, S&ME advanced four soil borings to 10 feet below ground surface (ft-bgs). Soils were classified on-site by S&ME personnel and screened with a photo-ionized detector (PID) at approximately two foot intervals to measure relative headspace concentrations of volatile organic compounds (VOCs). The soil samples stored in the cooler with the highest level of VOCs detected with the PID in the

corresponding bagged portion within each soil boring were shipped under standard chain-of-custody procedures to a North Carolina certified laboratory.

Selected soil samples were analyzed by Pace Labs (Pace), a North Carolina certified laboratory, for total petroleum hydrocarbons (TPH), gasoline range organics (GRO) and diesel range organics (DRO) by EPA Methods 8015/5030 and 3550 and for VOCs by EPA Method 8260B.

Groundwater was not encountered in the borings so groundwater sampling was not performed as part of this assessment.

Health and Safety Plan & Utility Locating

S&ME prepared a site-specific Health and Safety Plan (HASP) in general accordance with 29 CFR 1910.120, which addressed the contaminants known or suspected to be present on-site, personal protective equipment, monitoring performed during the field activities, and response actions to be taken in the event monitoring thresholds are exceeded. To mitigate the potential for damage to underground utilities, S&ME contacted NC One Call and contracted a private utility locator in an effort to avoid damaging underground utilities at the boring locations.

Geophysical Methodology, Field Services, and Data Processing

On May 7, 2018, S&ME completed time domain electromagnetic (TDEM) and ground penetrating radar (GPR) surveys within the accessible portions of the requested survey area (**Figure 2**). Brief descriptions of these complementary geophysical techniques are presented in the following paragraphs.

Time Domain Electromagnetics (TDEM)

The TDEM method measures the electrical conductivity of subsurface materials and discriminates between moderately conductive earth materials and very conductive metallic targets within a maximum depth of about 8 feet below ground surface (bgs). The conductivity is determined by transmitting a time-varying magnetic pulse into the subsurface and measuring the amplitude and phase shift of the secondary magnetic field. The secondary magnetic field is created when the conductive materials become an inductor as the primary magnetic field is passed through them. TDEM data are acquired continuously at a walking pace typically along a series of parallel or perpendicular lines. The system generates audible and visual indications when metallic targets are encountered. We used a Geonics Limited EM-61 MK2 TDEM system in general accordance with ASTM D6820-02 (2007) "*Standard Guide for Use of the Time Domain Electromagnetic Method for Subsurface Investigation.*" Data was collected along lines spaced approximately 5 feet apart.

Ground Penetrating Radar (GPR)

GPR transmits electromagnetic waves into the subsurface from an antenna at a specific frequency and measures the time for wave reflections to be received by interfaces between materials with differing material properties (e.g. soil/metal, etc.). The intensity of the reflected GPR wave is a function of the contrast in the material properties (i.e. dielectric permittivity) at the interface, the conductivity of the material that the wave is traveling through, and the frequency of the signal. We used a Geophysical Survey Systems, Inc. (GSSI) SIR® 3000 GPR system equipped with

a 400 MHz antenna in general accordance with ASTM D6432-11 "*Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation*". A total of twenty-three GPR profiles (Lines 1 through 23) were collected for documentation (**Figure 2**). Data was post-processed using the GSSI Radan® 7 GPR software program for additional analysis.

Geophysical Results

Two anomalous subsurface features were identified in the geophysical data sets collected within the requested survey area (Anomalies A and B; **Figures 2 and 3**); Anomaly A is located adjacent to the existing building and Anomaly B is located in the grass within the northern portion of the survey site. Anomaly A is approximately 3 feet by 4 feet, located about 1.5 feet below ground surface (bgs), and indicative of a potential UST. Anomaly B is approximately 2 feet by 2 feet, located about 1 foot or less bgs, and likely associated with an isolated buried metallic target. Example GPR profiles are presented in **Figures 4 and 5**.

Geophysical Limitations

The geophysical methods used for this survey have inherent limitations. Site metallic features (e.g., buildings, reinforced concrete, vehicles, etc.) and overhead transmission lines can produce a false electromagnetic response and may mask subsurface features. The depth of exploration of the GPR signal is highly site specific, and is greatly limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities such as clay soils, and lowest in relatively low conductivity materials such as unsaturated sand. For this project location, the GPR data sets appear to have a maximum depth of penetration of about 4 feet bgs.

Regardless of the thoroughness of a geophysical study, there is always a possibility that actual conditions may not match the interpretations. The results should be considered accurate only to the degree implied by the methods used and the method's limitations and data coverage. Accordingly, the possibility exists that not all features at a project site will be located due to either subsurface soil conditions or the occurrence of features outside the lateral limits and below the depth of penetration of the methods used. As with most surface geophysical methods, resolution of the subsurface will also decrease with depth. As such, the size and/or contrast of features compared to the imaged subsurface media must be significant enough to produce the anticipated response. The location and/or determination (or the lack thereof) of potential buried features is based on our review of the provided information and of the geophysical survey. Under no circumstances does S&ME assume any responsibility for damages resulting from the presence of subsurface features that may exist but were not identified by our survey.

Soil Sampling

On June 8, 2018, S&ME was onsite to observe and document the soil sampling activities by an S&ME subcontracted North Carolina licensed driller. The driller utilizing an AMS Power Probe 9500 track mounted drill rig to perform the direct push borings and collect the soil samples. The driller utilized 2 ¼ -inch diameter steel rods to perform the borings. The borings were advanced to a depth of 10 feet below ground surface (bgs).

S&ME completed four soil borings utilizing direct push technology to 10 feet below ground surface within the right-of-way of the former Haneline Country Store. Soil samples were continuously collected in five-foot long

disposable acetate-plastic sleeves that line the hollow stainless steel macro core that are advanced by the Geoprobe. Soil recovered in the tubes were classified on-site by S&ME personnel and screened with a PID at approximately two foot intervals to measure relative headspace concentrations of VOCs. VOC headspace readings were obtained from an aliquot of each soil sample that is placed in a re-sealable bag. Another portion of the sample will be placed in a laboratory-supplied container and stored in an insulated container with ice for possible laboratory analyses. After waiting approximately 15 minutes to allow the sample to reach ambient temperature and headspace equilibrium, a photo-ionization detector (PID) probe was inserted into the bag to obtain a headspace reading. The soil samples stored in the cooler with the highest level of VOCs detected with the PID in the corresponding bagged portion within each soil boring were shipped under standard chain-of-custody procedures to a North Carolina certified laboratory. The sample locations are depicted on **Figure 7** in **Attachment I**. The field notes and field sampling forms are included in **Attachment III** and photographs are included in **Attachment IV**.

The follow table depicts the field screening concentrations. Samples selected for laboratory analysis are shown as highlighted.

Boring ID	PID Readings in Parts Per Million (PPM)				
	0-2 feet bgs	2-4 feet bgs	4-6 feet bgs	6-8 feet bgs	8-10 feet bgs
SB-1	1.9	2.4	4.7	5.1	4.6
SB-2	7.7	3.5	4.2	4.4	13.5
SB-3	2.1	4.3	4.1	4.1	4.0
SB-4	1.1	3.8	3.9	4.0	3.4

Groundwater was not encountered during soil borings so a groundwater sample was not collected. Samples were submitted to Pace Analytical Laboratory for analysis for diesel range total petroleum hydrocarbons (TPH-DRO), for gasoline range total petroleum hydrocarbons (TPH-GRO) and for VOCs by EPA Method 8260. The soil sample locations are shown in **Figure 7** in **Attachment I**.

Soil Sampling Results

The analytical results of the groundwater samples collected at the site were compared to the North Carolina Department of Environmental Quality (NCDEQ) Action Levels for TPH-DRO and TPH-GRO as well as Soil-To-Groundwater Maximum Soil Contaminant Concentrations (MSCCs), Residential Soil Cleanup Levels and Industrial/Commercial Soil Cleanup Levels. The summary of the analytical results of the soil samples are depicted on **Figure 8** in **Attachment I** and included in **Table 1** in **Attachment II**.

Based on the laboratory analytical results, methylene chloride was reported in SB-1 above Soil-To-Groundwater MSCC but below industrial/commercial cleanup goals. Methylene Chloride is a common laboratory contaminant, and may have been introduced into the sample in the laboratory. Acetone was reported in sample SB-2 at a concentration above the method detection limit but below Soil-to-Groundwater MSCCs. TPH-DRO and TPH-GRO

were not detected in the samples collected. No other VOCs were detected in the soil samples at a concentration above their respective method detection limits.

♦ Conclusions

Based on the environmental assessment results from the May 2018 sampling event, the following conclusions are presented:

- S&ME observed and documented the completion of four soil sampling points. Following the boring, S&ME field screened the soil profiles in two foot intervals for VOC. Based on the analytical results, methylene chloride was detected in soil sample SB-1, but below industrial/commercial cleanup levels.
- The TDEM and GPR surveys identified a suspect UST immediately adjacent to the Crossroads Service Center building.

♦ Closure

If you have questions regarding this report or require additional information, please feel free to contact us at (919) 872-2660.

Sincerely,

S&ME, Inc.

Darren Cox
Staff Professional
dcox@smeinc.com

Wayne Watterson, P.E.
Senior Engineer
wwatterson@smeinc.com

Enclosures: Attachment I - Figures
Attachment II – Tables
Attachment III – Field Notes and Field Sampling Forms
Attachment IV – Site Photographs
Attachment V – Laboratory Analytical Report

Attachments

Attachment I– Figures

REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED AUGUST, 2 2017)





SITE VICINITY MAP

NCDOT – US 21 INTERSECTION (R-57711)
870 SOUTH MAIN STREET
TROUTMAN, IREDALE COUNTY, NORTH CAROLINA

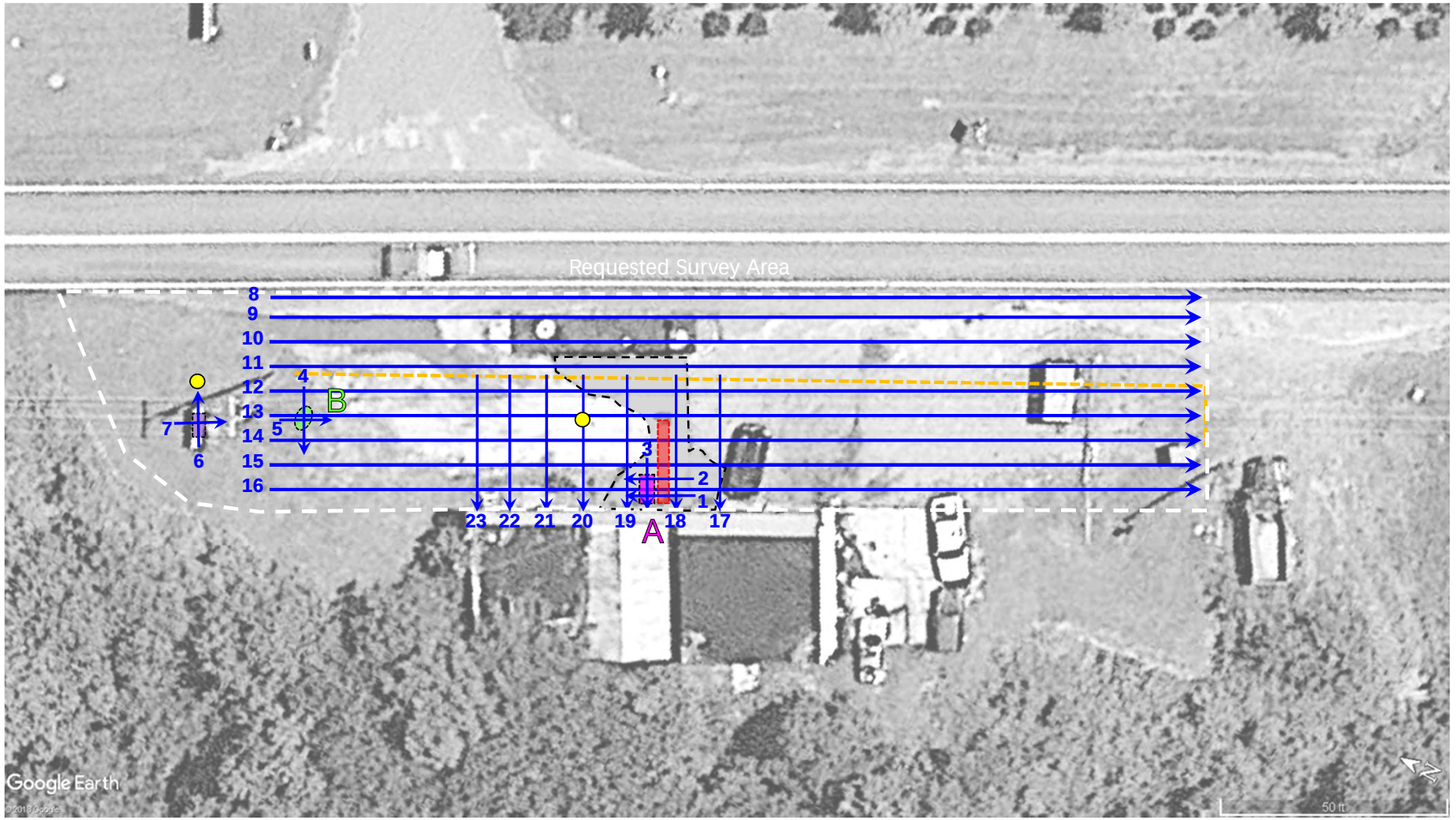
SCALE:
NOT TO SCALE

DATE:
6/28/2018

PROJECT NUMBER
6235-18-013

FIGURE NO.
1

REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED AUGUST, 2 2017)



LEGEND

- Approximate Location of Potential UST
- Approximate Location of EM Anomaly
- Approximate Location of Utility Bank
- Approximate Location of Concrete Pad
- Approximate Location of Cable Fence
- Approximate Location of Metal Cover
- Approximate Location of Reinforced Concrete
- Approximate Location of GPR Profile

GEOPHYSICAL SURVEY LOCATION PLAN

NCDOT – US 21 INTERSECTION (R-57711)
870 SOUTH MAIN STREET
TROUTMAN, IREDALE COUNTY, NORTH CAROLINA

SCALE: AS SHOWN
DATE: 6/28/2018
PROJECT NUMBER: 6235-18-013
FIGURE NO.: 2

REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED AUGUST, 2 2017)



LEGEND

- Approximate Location of Potential UST
- Approximate Location of EM Anomaly
- Approximate Location of Utility Bank
- Approximate Location of Concrete Pad
- Approximate Location of Cable Fence
- Approximate Location of Metal Cover
- Approximate Location of Reinforced Concrete

GEOPHYSICAL ANOMALY LOCATION PLAN

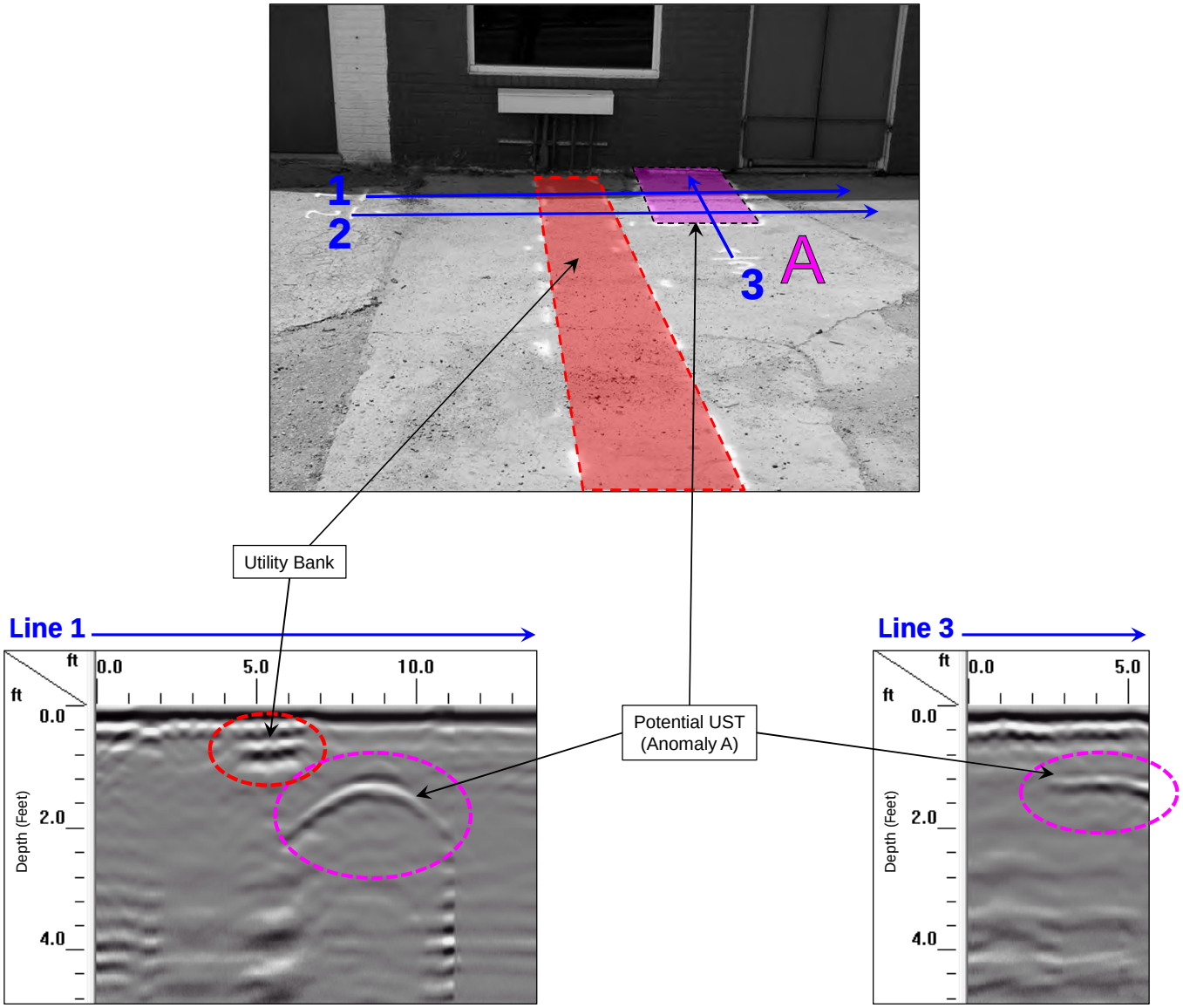
NCDOT – US 21 INTERSECTION (R-57711)
870 SOUTH MAIN STREET
TROUTMAN, IREDALE COUNTY, NORTH CAROLINA

SCALE: AS SHOWN

DATE: 6/28/2018

PROJECT NUMBER 6235-18-013

FIGURE NO. **3**

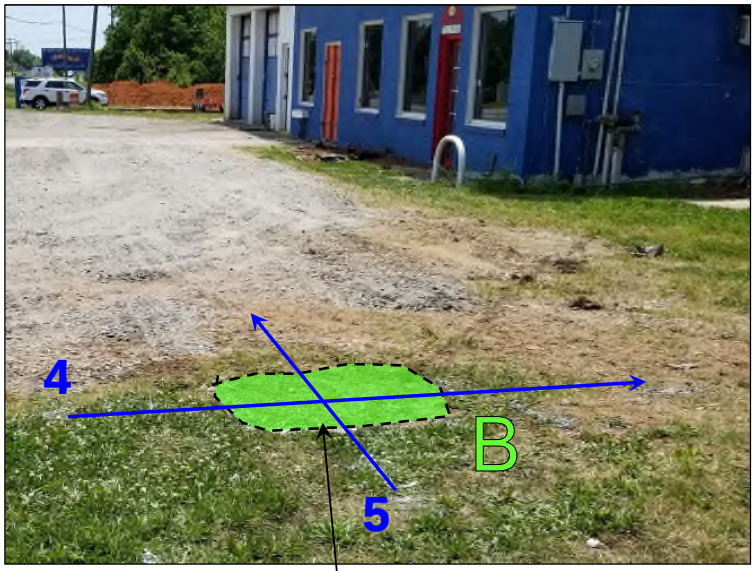


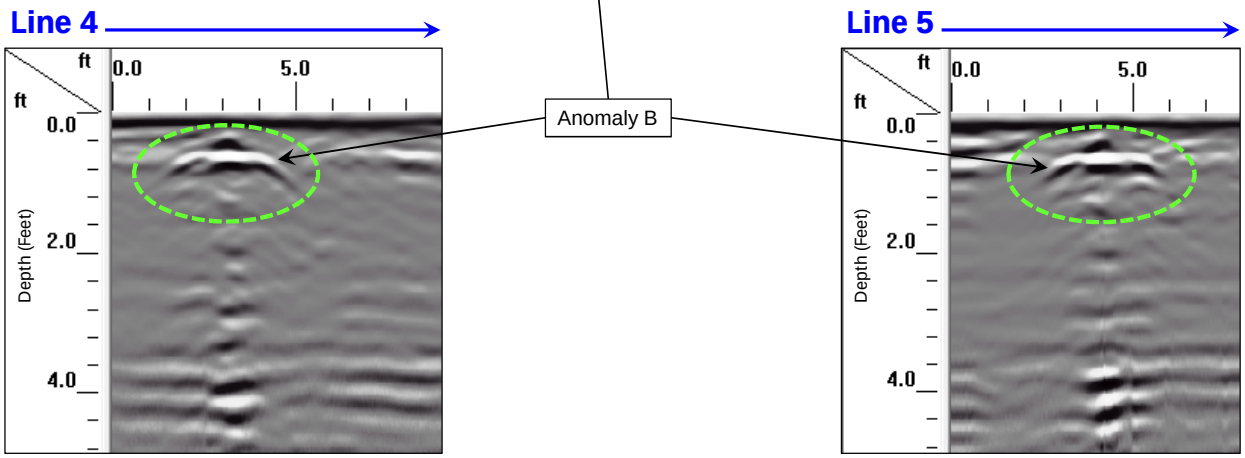
Note: Presented depths are based on an assumed average dielectric and should be considered approximate

EXAMPLE GPR DATA – LINES 1 AND 3 (ANOMALY A)

NCDOT – US 21 INTERSECTION (R-57711)
870 SOUTH MAIN STREET
TROUTMAN, IREDALE COUNTY, NORTH CAROLINA

SCALE:	AS SHOWN
DATE:	6/28/2018
PROJECT NUMBER	6235-18-013
FIGURE NO.	4





Note: Presented depths are based on an assumed average dielectric and should be considered approximate

EXAMPLE GPR DATA – LINES 4 AND 5 (ANOMALY B)

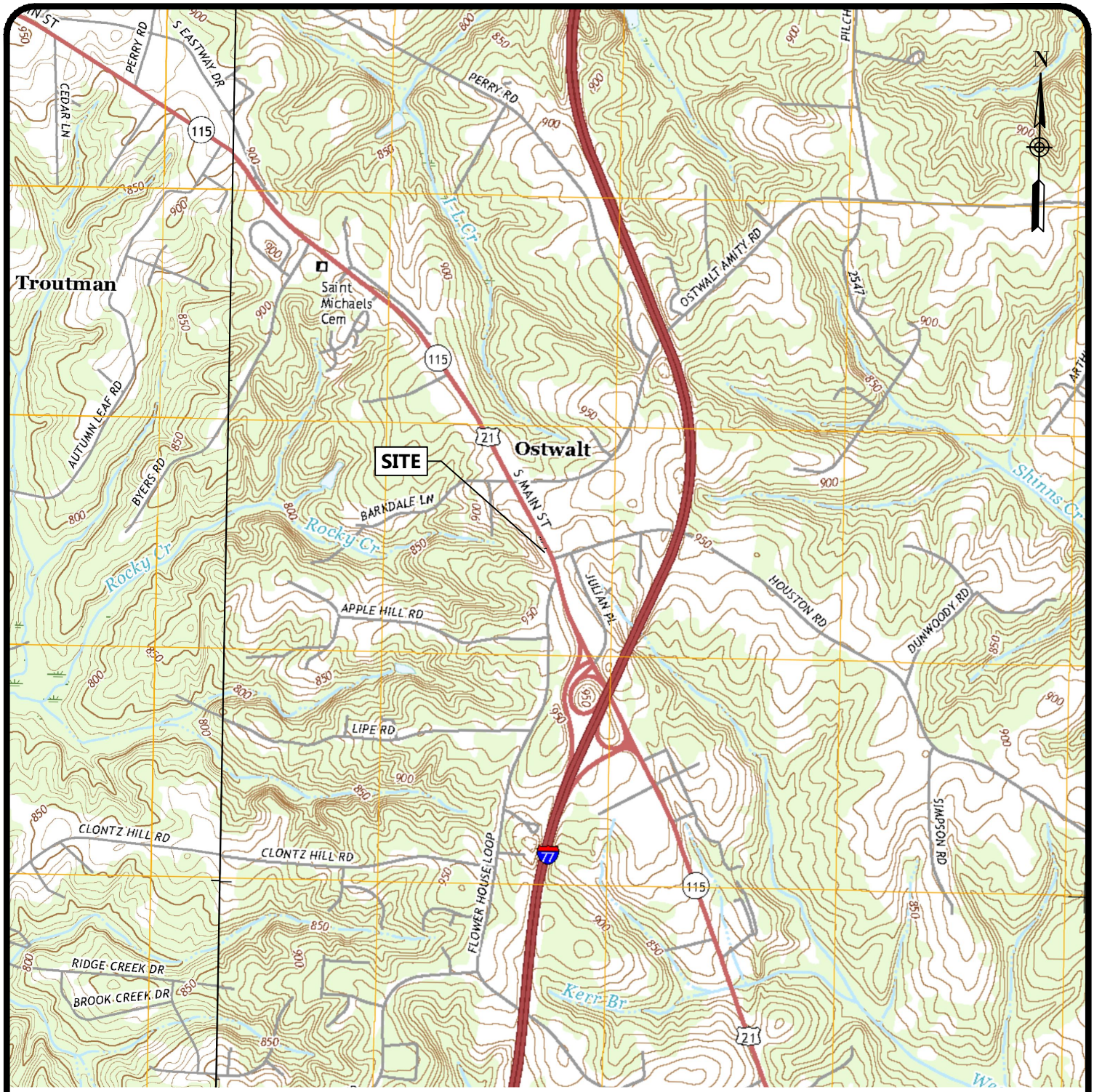
NCDOT – US 21 INTERSECTION (R-57711)
870 SOUTH MAIN STREET
TROUTMAN, IREDALE COUNTY, NORTH CAROLINA

SCALE: AS SHOWN

DATE: 6/28/2018

PROJECT NUMBER 6235-18-013

FIGURE NO. 5



0 2000 4000

GRAPHIC SCALE (IN FEET)

SOURCE: SHEPHERDS, NC AND TROUTMAN, NC QUADRANGLES, 7.5-MINUTE SERIES US TOPO (2016).

SITE VICINITY MAP

US 21 INTERSECTION
870 S. MAIN STREET
TROUTMAN, IREDELL COUNTY, NORTH CAROLINA

SCALE:	FIGURE NO.
AS SHOWN	6
DATE:	
JUNE 2018	
PROJECT NUMBER	
6235-18-013	

Drawing Path: Q:\6235\2018\18-013 - US 21 INTERSECTION\US 21 Intersection - FIGS.dwg



LEGEND

- APPROXIMATE SOIL SAMPLE LOCATION
- OLD GROUNDWATER MONITORING WELL

0 50 100

GRAPHIC SCALE (IN FEET)

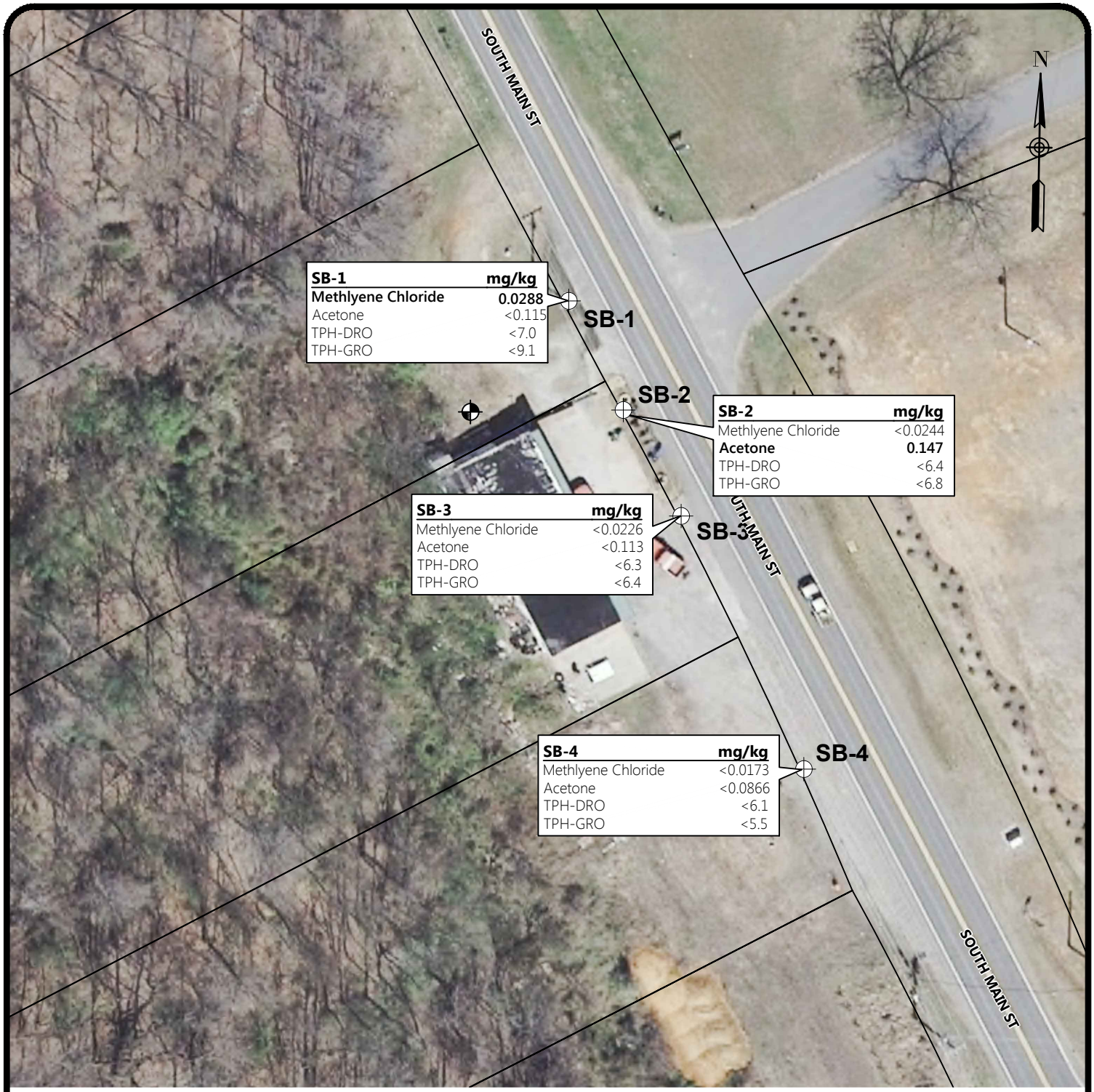
SOURCE: 2014 AERIAL PHOTOGRAPH AND 2017 IREDELL COUNTY PARCEL DATA OBTAINED FROM NC ONEMAP.

SITE MAP

US 21 INTERSECTION
870 S. MAIN STREET
TROUTMAN, IREDELL COUNTY, NORTH CAROLINA

SCALE:	FIGURE NO.
AS SHOWN	7
DATE:	
JUNE 2018	
PROJECT NUMBER	
6235-18-013	

Drawing Path: Q:\6235\2018\18-013 - US 21 INTERSECTION\US 21 Intersection - FIGS.dwg



LEGEND

⊕ - APPROXIMATE SOIL SAMPLE LOCATION

⊕ - OLD GROUNDWATER MONITORING WELL

mg/kg - MILLIGRAMS PER KILOGRAM

CONCENTRATIONS IN **BOLD** ARE GREATER THAN THE DETECTION LIMIT

0 50 100

GRAPHIC SCALE (IN FEET)

SOURCE: 2014 AERIAL PHOTOGRAPH AND 2017 IREDELL COUNTY PARCEL DATA OBTAINED FROM NC ONEMAP.

SOIL SAMPLING CONSTITUENT MAP

US 21 INTERSECTION
870 S. MAIN STREET
TROUTMAN, IREDELL COUNTY, NORTH CAROLINA

SCALE:	FIGURE NO.
AS SHOWN	8
DATE:	
JUNE 2018	
PROJECT NUMBER	
6235-18-013	

Drawing Path: Q:\6235\2018\18-013 - US 21 INTERSECTION\US 21 Intersection - FIGS.dwg

Attachment II – Tables

Table 1
Summary of Soil Analytical Results
US 21 Intersection (R-5711) (US)
870 S. Main Street, Troutman, Iredell County, North Carolina
S&ME Project No. 6235-18-013

Analytical Method			EPA Method 8260		EPA Method (8015/3550)	EPA Method (8015/5030)
Sample ID	Date Collected (mm/dd/yy)	Incident Phase	Methlyene Chloride	Acetone	TPH-DRO	TPH-GRO
SB-1	6/8/2018	LSA	**0.0288**	<0.115	<7.0	<9.1
SB-2	6/8/2018	LSA	<0.0244	**0.147**	<6.4	<6.8
SB-3	6/8/2018	LSA	<0.0226	<0.113	<6.3	<6.4
SB-4	6/8/2018	LSA	<0.0173	<0.0866	<6.1	<5.5
NCDEQ Action Level			NSE	NSE	100	50
Soil-to-Groundwater MSCC			0.02	24.0	NSE	NSE
Residential Soil Cleanup Goal			85	14,000	NSE	NSE
Industrial/Commercial Soil Cleanup Goal			763	360,000	NSE	NSE

NOTES:
Concentrations in bold are greater than the detection limit
= Greater than the soil to groundwater MSCC
All values are shown in milligrams per kilograms mg/kg
NA = Not analyzed
NSE = No standard established
MSCC = Maximum Soil Contaminant Concentration
ND = Not detected

Attachment III – Field Notes and Field Sampling Logs

Environmental Field Report	
Date: June 8, 2018	**Job Number:** 6235-18-013
Project Name: U5711	**Weather/Temperature:** Sunny, 80 °F
Project Location: Troutman, Iredell County, North Carolina	
Notes By: ☒ ☐	**Present at the Site:** Darren Cox John (IET)

Equipment Used
Slope Water Level Indicator

On June 1, 2018, S&ME personnel, Darren Cox, visited the U5711 site in Troutman to complete soil borings

0945 Arrived on site

945-10 observed traffic patterns along main street

10-1010 Explored site for utilities, and previous GPR work performed and sited boring locations.

1015 IET arrived and went over site plan and set up struck by since working near roadway.

1030-1100 Performed 4 soil boring to 10 feet (SB-1 through SB-4)

11-1230 Bagged up profiles of soil 0-2, 2-4, 4-6, 6-8 and 8-10) for each Soil boring for screening and sample collection.

SB-1 6-8

SB-2 8-10

SB-3 2-4

SB-4 2-4

1300 offsite

Hours	Mileage	Signature of S&ME Personnel
3.5		

PROJECT:	**U5711 US 21 Intersection** Troutman, NC S&ME Project No. 6235-18-013		**BORING LOG: SB-1**
DATE DRILLED:	Friday, June 08, 2018	BORING DEPTH (FT):	10
DRILL RIG:	AMS Power Probe 9500 VTR	WATER LEVEL:	
DRILLER:	Innovative Environmental Technologies, Inc.	CAVE-IN DEPTH:	
HAMMER TYPE:		LOGGED BY:	
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (2.25-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Concrete, Gravel,			1.9					
		Fill, Sandy Silt, Soft, Orange, Brown,			2.4					
		Clayey Silt, Firm, Orange, Light,			4.7					
5					5.1	Yes				
					4.6					
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**U5711 US 21 Intersection** Troutman, NC S&ME Project No. 6235-18-013	**BORING LOG: SB-2**
DATE DRILLED:	Friday, June 08, 2018	BORING DEPTH (FT): 10
DRILL RIG:	AMS Power Probe 9500 VTR	WATER LEVEL:
DRILLER:	Innovative Environmental Technologies, Inc.	CAVE-IN DEPTH:
HAMMER TYPE:		LOGGED BY:
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:
DRILLING METHOD:	Macro-Core Sampler (2.25-in. OD)	EASTING:

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Concrete, Gravel,			7.7					
		Fill, Silty Sand, Loose, Brown,								
		Fill, Silty Clay, Firm, Red, Orange, Light,			3.5					
					4.2					
5		Residuum, Clayey Silt, Soft, Orange, Brown, Light, Petroleum Odors			4.4					
					13.5	Yes				
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**U5711 US 21 Intersection** Troutman, NC S&ME Project No. 6235-18-013		**BORING LOG: SB-3**
DATE DRILLED:	Friday, June 08, 2018	BORING DEPTH (FT):	10
DRILL RIG:	AMS Power Probe 9500 VTR	WATER LEVEL:	
DRILLER:	Innovative Environmental Technologies, Inc.	CAVE-IN DEPTH:	
HAMMER TYPE:		LOGGED BY:	
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (2.25-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Asphalt, Gravel, Concrete,			2.1					
		Residuum, Silty Clay, Firm, Orange, Brown, Dark,			4.3	Yes				
5		Residuum, Clayey Silt, Soft, Tan, Orange, Light,			4.1					
					4.1					
		Partially Weathered Rock, Sandy Silt, Very Soft, Tan, Yellow, Light,			4.0					
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**U5711 US 21 Intersection** Troutman, NC S&ME Project No. 6235-18-013		**BORING LOG: SB-4**
DATE DRILLED:	Friday, June 08, 2018	BORING DEPTH (FT):	10
DRILL RIG:	AMS Power Probe 9500 VTR	WATER LEVEL:	
DRILLER:	Innovative Environmental Technologies, Inc.	CAVE-IN DEPTH:	
HAMMER TYPE:		LOGGED BY:	
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (2.25-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Concrete, Gravel,			1.1					
		Fill, Sandy Silt, Soft, Brown, Rock Fragments,								
		Residuum, Silty Clay, Stiff, Orange, Red, Light,			3.8	Yes				
					3.9					
5		Residuum, Clayey Silt, Soft, Orange, Tan, Light,			4.0					
					3.4					
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

Attachment IV – Site Photographs



6/8/2018

Photographer: Darren Cox

	Location / Orientation	In NCDOT Right of Way looking northwest
	Remarks	Former auto repair building



6/8/2018

Photographer: Darren Cox

2	**Location / Orientation**	In NCDOT Right of Way looking southwest
	Remarks	Former auto repair building



6/8/2018

Photographer: Darren Cox

3	**Location / Orientation**	On site looking north
	Remarks	Building, concrete drive, fencing marking property boundary



6/8/2018

Photographer: Darren Cox

4	**Location / Orientation**	On site looking east into Right of Way
	Remarks	Boring SB-2, gravel, roadway

Representative Photographs
US 21 Intersection (R-5711) (US)
Troutman, Iredell County, North Carolina
S&ME Project No. 6235-18-013



6/8/2018

Photographer: Darren Cox

5	**Location / Orientation**	In DOT Right of Way looking south
	Remarks	Boring SB-3, gravel



6/8/2018

Photographer: Darren Cox

6	**Location / Orientation**	Near boring SB-1
	Remarks	Typical soil profile observed on site

Attachment V – Laboratory Analytical Report

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

June 20, 2018

Ed Henriques
S&ME, Inc.
8646 W Market St
Suite 105
Greensboro, NC 27409

RE: Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

Dear Ed Henriques:
Enclosed are the analytical results for sample(s) received by the laboratory on June 11, 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
trey.carter@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Darren Cox, S&ME Greensboro
Chemical Testing Engineer, NCDOT

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CERTIFICATIONS

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

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

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SAMPLE ANALYTE COUNT

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92387904001	**SB-1**	EPA 8015 Modified	SEM	2	PASI-C
		EPA 8015 Modified	CL	2	PASI-C
		EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92387904002	**SB-2**	EPA 8015 Modified	SEM	2	PASI-C
		EPA 8015 Modified	CL	2	PASI-C
		EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92387904003	**SB-3**	EPA 8015 Modified	SEM	2	PASI-C
		EPA 8015 Modified	CL	2	PASI-C
		EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92387904004	**SB-4**	EPA 8015 Modified	SEM	2	PASI-C
		EPA 8015 Modified	CL	2	PASI-C
		EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C

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Huntersville, NC 28078
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ANALYTICAL RESULTS

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

Sample: SB-1 **Lab ID: 92387904001** Collected: 06/08/18 11:00 Received: 06/11/18 11:20 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Range Organics(C10-C28)	ND	mg/kg	7.0	1	06/12/18 15:13	06/14/18 12:44		
Surrogates								
n-Pentacosane (S)	63	%	41-119	1	06/12/18 15:13	06/14/18 12:44	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gas Range Organics (C6-C10)	ND	mg/kg	9.1	1	06/11/18 12:05	06/12/18 04:43		
Surrogates								
4-Bromofluorobenzene (S)	83	%	70-167	1	06/11/18 12:05	06/12/18 04:43	460-00-4	
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	115	1		06/12/18 20:55	67-64-1	
Benzene	ND	ug/kg	5.7	1		06/12/18 20:55	71-43-2	
Bromobenzene	ND	ug/kg	5.7	1		06/12/18 20:55	108-86-1	
Bromochloromethane	ND	ug/kg	5.7	1		06/12/18 20:55	74-97-5	
Bromodichloromethane	ND	ug/kg	5.7	1		06/12/18 20:55	75-27-4	
Bromoform	ND	ug/kg	5.7	1		06/12/18 20:55	75-25-2	
Bromomethane	ND	ug/kg	11.5	1		06/12/18 20:55	74-83-9	
2-Butanone (MEK)	ND	ug/kg	115	1		06/12/18 20:55	78-93-3	
n-Butylbenzene	ND	ug/kg	5.7	1		06/12/18 20:55	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.7	1		06/12/18 20:55	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.7	1		06/12/18 20:55	98-06-6	
Carbon tetrachloride	ND	ug/kg	5.7	1		06/12/18 20:55	56-23-5	
Chlorobenzene	ND	ug/kg	5.7	1		06/12/18 20:55	108-90-7	
Chloroethane	ND	ug/kg	11.5	1		06/12/18 20:55	75-00-3	
Chloroform	ND	ug/kg	5.7	1		06/12/18 20:55	67-66-3	
Chloromethane	ND	ug/kg	11.5	1		06/12/18 20:55	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.7	1		06/12/18 20:55	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.7	1		06/12/18 20:55	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.7	1		06/12/18 20:55	96-12-8	
Dibromochloromethane	ND	ug/kg	5.7	1		06/12/18 20:55	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.7	1		06/12/18 20:55	106-93-4	
Dibromomethane	ND	ug/kg	5.7	1		06/12/18 20:55	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.7	1		06/12/18 20:55	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.7	1		06/12/18 20:55	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.7	1		06/12/18 20:55	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	11.5	1		06/12/18 20:55	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.7	1		06/12/18 20:55	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.7	1		06/12/18 20:55	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.7	1		06/12/18 20:55	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.7	1		06/12/18 20:55	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.7	1		06/12/18 20:55	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.7	1		06/12/18 20:55	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.7	1		06/12/18 20:55	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.7	1		06/12/18 20:55	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.7	1		06/12/18 20:55	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.7	1		06/12/18 20:55	10061-01-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

Sample: SB-1 **Lab ID: 92387904001** Collected: 06/08/18 11:00 Received: 06/11/18 11:20 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
trans-1,3-Dichloropropene	ND	ug/kg	5.7	1		06/12/18 20:55	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.7	1		06/12/18 20:55	108-20-3	
Ethylbenzene	ND	ug/kg	5.7	1		06/12/18 20:55	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.7	1		06/12/18 20:55	87-68-3	
2-Hexanone	ND	ug/kg	57.3	1		06/12/18 20:55	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.7	1		06/12/18 20:55	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.7	1		06/12/18 20:55	99-87-6	
Methylene Chloride	**28.8**	ug/kg	22.9	1		06/12/18 20:55	75-09-2	C9
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	57.3	1		06/12/18 20:55	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.7	1		06/12/18 20:55	1634-04-4	
Naphthalene	ND	ug/kg	5.7	1		06/12/18 20:55	91-20-3	
n-Propylbenzene	ND	ug/kg	5.7	1		06/12/18 20:55	103-65-1	
Styrene	ND	ug/kg	5.7	1		06/12/18 20:55	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.7	1		06/12/18 20:55	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.7	1		06/12/18 20:55	79-34-5	
Tetrachloroethene	ND	ug/kg	5.7	1		06/12/18 20:55	127-18-4	L2
Toluene	ND	ug/kg	5.7	1		06/12/18 20:55	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.7	1		06/12/18 20:55	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.7	1		06/12/18 20:55	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.7	1		06/12/18 20:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.7	1		06/12/18 20:55	79-00-5	
Trichloroethene	ND	ug/kg	5.7	1		06/12/18 20:55	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.7	1		06/12/18 20:55	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.7	1		06/12/18 20:55	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.7	1		06/12/18 20:55	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.7	1		06/12/18 20:55	108-67-8	
Vinyl acetate	ND	ug/kg	57.3	1		06/12/18 20:55	108-05-4	
Vinyl chloride	ND	ug/kg	11.5	1		06/12/18 20:55	75-01-4	
Xylene (Total)	ND	ug/kg	11.5	1		06/12/18 20:55	1330-20-7	
m&p-Xylene	ND	ug/kg	11.5	1		06/12/18 20:55	179601-23-1	
o-Xylene	ND	ug/kg	5.7	1		06/12/18 20:55	95-47-6	
Surrogates								
Toluene-d8 (S)	117	%	70-130	1		06/12/18 20:55	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130	1		06/12/18 20:55	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-132	1		06/12/18 20:55	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**27.9**	%	0.10	1		06/12/18 12:09		

REPORT OF LABORATORY ANALYSIS

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Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

Sample: SB-2 **Lab ID: 92387904002** Collected: 06/08/18 11:30 Received: 06/11/18 11:20 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Range Organics(C10-C28)	ND	mg/kg	6.4	1	06/20/18 07:10	06/20/18 09:19		
Surrogates								
n-Pentacosane (S)	42	%	41-119	1	06/20/18 07:10	06/20/18 09:19	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gas Range Organics (C6-C10)	ND	mg/kg	6.8	1	06/11/18 12:05	06/12/18 05:11		
Surrogates								
4-Bromofluorobenzene (S)	79	%	70-167	1	06/11/18 12:05	06/12/18 05:11	460-00-4	
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	**147**	ug/kg	122	1		06/12/18 21:15	67-64-1	
Benzene	ND	ug/kg	6.1	1		06/12/18 21:15	71-43-2	
Bromobenzene	ND	ug/kg	6.1	1		06/12/18 21:15	108-86-1	
Bromochloromethane	ND	ug/kg	6.1	1		06/12/18 21:15	74-97-5	
Bromodichloromethane	ND	ug/kg	6.1	1		06/12/18 21:15	75-27-4	
Bromoform	ND	ug/kg	6.1	1		06/12/18 21:15	75-25-2	
Bromomethane	ND	ug/kg	12.2	1		06/12/18 21:15	74-83-9	
2-Butanone (MEK)	ND	ug/kg	122	1		06/12/18 21:15	78-93-3	
n-Butylbenzene	ND	ug/kg	6.1	1		06/12/18 21:15	104-51-8	
sec-Butylbenzene	ND	ug/kg	6.1	1		06/12/18 21:15	135-98-8	
tert-Butylbenzene	ND	ug/kg	6.1	1		06/12/18 21:15	98-06-6	
Carbon tetrachloride	ND	ug/kg	6.1	1		06/12/18 21:15	56-23-5	
Chlorobenzene	ND	ug/kg	6.1	1		06/12/18 21:15	108-90-7	
Chloroethane	ND	ug/kg	12.2	1		06/12/18 21:15	75-00-3	
Chloroform	ND	ug/kg	6.1	1		06/12/18 21:15	67-66-3	
Chloromethane	ND	ug/kg	12.2	1		06/12/18 21:15	74-87-3	
2-Chlorotoluene	ND	ug/kg	6.1	1		06/12/18 21:15	95-49-8	
4-Chlorotoluene	ND	ug/kg	6.1	1		06/12/18 21:15	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	6.1	1		06/12/18 21:15	96-12-8	
Dibromochloromethane	ND	ug/kg	6.1	1		06/12/18 21:15	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	6.1	1		06/12/18 21:15	106-93-4	
Dibromomethane	ND	ug/kg	6.1	1		06/12/18 21:15	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	6.1	1		06/12/18 21:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	6.1	1		06/12/18 21:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	6.1	1		06/12/18 21:15	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	12.2	1		06/12/18 21:15	75-71-8	
1,1-Dichloroethane	ND	ug/kg	6.1	1		06/12/18 21:15	75-34-3	
1,2-Dichloroethane	ND	ug/kg	6.1	1		06/12/18 21:15	107-06-2	
1,1-Dichloroethene	ND	ug/kg	6.1	1		06/12/18 21:15	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	6.1	1		06/12/18 21:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	6.1	1		06/12/18 21:15	156-60-5	
1,2-Dichloropropane	ND	ug/kg	6.1	1		06/12/18 21:15	78-87-5	
1,3-Dichloropropane	ND	ug/kg	6.1	1		06/12/18 21:15	142-28-9	
2,2-Dichloropropane	ND	ug/kg	6.1	1		06/12/18 21:15	594-20-7	
1,1-Dichloropropene	ND	ug/kg	6.1	1		06/12/18 21:15	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	6.1	1		06/12/18 21:15	10061-01-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

Sample: SB-2 **Lab ID: 92387904002** Collected: 06/08/18 11:30 Received: 06/11/18 11:20 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
trans-1,3-Dichloropropene	ND	ug/kg	6.1	1		06/12/18 21:15	10061-02-6	
Diisopropyl ether	ND	ug/kg	6.1	1		06/12/18 21:15	108-20-3	
Ethylbenzene	ND	ug/kg	6.1	1		06/12/18 21:15	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	6.1	1		06/12/18 21:15	87-68-3	
2-Hexanone	ND	ug/kg	60.9	1		06/12/18 21:15	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	6.1	1		06/12/18 21:15	98-82-8	
p-Isopropyltoluene	ND	ug/kg	6.1	1		06/12/18 21:15	99-87-6	
Methylene Chloride	ND	ug/kg	24.4	1		06/12/18 21:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	60.9	1		06/12/18 21:15	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	6.1	1		06/12/18 21:15	1634-04-4	
Naphthalene	ND	ug/kg	6.1	1		06/12/18 21:15	91-20-3	
n-Propylbenzene	ND	ug/kg	6.1	1		06/12/18 21:15	103-65-1	
Styrene	ND	ug/kg	6.1	1		06/12/18 21:15	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	6.1	1		06/12/18 21:15	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	6.1	1		06/12/18 21:15	79-34-5	
Tetrachloroethene	ND	ug/kg	6.1	1		06/12/18 21:15	127-18-4	L2
Toluene	ND	ug/kg	6.1	1		06/12/18 21:15	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	6.1	1		06/12/18 21:15	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	6.1	1		06/12/18 21:15	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	6.1	1		06/12/18 21:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	6.1	1		06/12/18 21:15	79-00-5	
Trichloroethene	ND	ug/kg	6.1	1		06/12/18 21:15	79-01-6	
Trichlorofluoromethane	ND	ug/kg	6.1	1		06/12/18 21:15	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	6.1	1		06/12/18 21:15	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	6.1	1		06/12/18 21:15	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	6.1	1		06/12/18 21:15	108-67-8	
Vinyl acetate	ND	ug/kg	60.9	1		06/12/18 21:15	108-05-4	
Vinyl chloride	ND	ug/kg	12.2	1		06/12/18 21:15	75-01-4	
Xylene (Total)	ND	ug/kg	12.2	1		06/12/18 21:15	1330-20-7	
m&p-Xylene	ND	ug/kg	12.2	1		06/12/18 21:15	179601-23-1	
o-Xylene	ND	ug/kg	6.1	1		06/12/18 21:15	95-47-6	
Surrogates								
Toluene-d8 (S)	122	%	70-130	1		06/12/18 21:15	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130	1		06/12/18 21:15	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-132	1		06/12/18 21:15	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**21.4**	%	0.10	1		06/12/18 12:09		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

Sample: SB-3 **Lab ID: 92387904003** Collected: 06/08/18 12:00 Received: 06/11/18 11:20 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Range Organics(C10-C28)	ND	mg/kg	6.3	1	06/12/18 15:13	06/14/18 13:09		
Surrogates								
n-Pentacosane (S)	59	%	41-119	1	06/12/18 15:13	06/14/18 13:09	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gas Range Organics (C6-C10)	ND	mg/kg	6.4	1	06/11/18 12:05	06/12/18 05:39		
Surrogates								
4-Bromofluorobenzene (S)	82	%	70-167	1	06/11/18 12:05	06/12/18 05:39	460-00-4	
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	113	1		06/12/18 21:36	67-64-1	
Benzene	ND	ug/kg	5.6	1		06/12/18 21:36	71-43-2	
Bromobenzene	ND	ug/kg	5.6	1		06/12/18 21:36	108-86-1	
Bromochloromethane	ND	ug/kg	5.6	1		06/12/18 21:36	74-97-5	
Bromodichloromethane	ND	ug/kg	5.6	1		06/12/18 21:36	75-27-4	
Bromoform	ND	ug/kg	5.6	1		06/12/18 21:36	75-25-2	
Bromomethane	ND	ug/kg	11.3	1		06/12/18 21:36	74-83-9	
2-Butanone (MEK)	ND	ug/kg	113	1		06/12/18 21:36	78-93-3	
n-Butylbenzene	ND	ug/kg	5.6	1		06/12/18 21:36	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.6	1		06/12/18 21:36	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.6	1		06/12/18 21:36	98-06-6	
Carbon tetrachloride	ND	ug/kg	5.6	1		06/12/18 21:36	56-23-5	
Chlorobenzene	ND	ug/kg	5.6	1		06/12/18 21:36	108-90-7	
Chloroethane	ND	ug/kg	11.3	1		06/12/18 21:36	75-00-3	
Chloroform	ND	ug/kg	5.6	1		06/12/18 21:36	67-66-3	
Chloromethane	ND	ug/kg	11.3	1		06/12/18 21:36	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.6	1		06/12/18 21:36	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.6	1		06/12/18 21:36	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.6	1		06/12/18 21:36	96-12-8	
Dibromochloromethane	ND	ug/kg	5.6	1		06/12/18 21:36	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.6	1		06/12/18 21:36	106-93-4	
Dibromomethane	ND	ug/kg	5.6	1		06/12/18 21:36	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.6	1		06/12/18 21:36	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.6	1		06/12/18 21:36	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.6	1		06/12/18 21:36	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	11.3	1		06/12/18 21:36	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.6	1		06/12/18 21:36	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.6	1		06/12/18 21:36	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.6	1		06/12/18 21:36	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.6	1		06/12/18 21:36	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.6	1		06/12/18 21:36	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.6	1		06/12/18 21:36	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.6	1		06/12/18 21:36	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.6	1		06/12/18 21:36	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.6	1		06/12/18 21:36	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.6	1		06/12/18 21:36	10061-01-5	

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ANALYTICAL RESULTS

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

Sample: SB-3 **Lab ID: 92387904003** Collected: 06/08/18 12:00 Received: 06/11/18 11:20 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
trans-1,3-Dichloropropene	ND	ug/kg	5.6	1		06/12/18 21:36	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.6	1		06/12/18 21:36	108-20-3	
Ethylbenzene	ND	ug/kg	5.6	1		06/12/18 21:36	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.6	1		06/12/18 21:36	87-68-3	
2-Hexanone	ND	ug/kg	56.4	1		06/12/18 21:36	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.6	1		06/12/18 21:36	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.6	1		06/12/18 21:36	99-87-6	
Methylene Chloride	ND	ug/kg	22.6	1		06/12/18 21:36	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	56.4	1		06/12/18 21:36	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.6	1		06/12/18 21:36	1634-04-4	
Naphthalene	ND	ug/kg	5.6	1		06/12/18 21:36	91-20-3	
n-Propylbenzene	ND	ug/kg	5.6	1		06/12/18 21:36	103-65-1	
Styrene	ND	ug/kg	5.6	1		06/12/18 21:36	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.6	1		06/12/18 21:36	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.6	1		06/12/18 21:36	79-34-5	
Tetrachloroethene	ND	ug/kg	5.6	1		06/12/18 21:36	127-18-4	L2
Toluene	ND	ug/kg	5.6	1		06/12/18 21:36	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.6	1		06/12/18 21:36	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.6	1		06/12/18 21:36	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.6	1		06/12/18 21:36	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.6	1		06/12/18 21:36	79-00-5	
Trichloroethene	ND	ug/kg	5.6	1		06/12/18 21:36	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.6	1		06/12/18 21:36	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.6	1		06/12/18 21:36	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.6	1		06/12/18 21:36	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.6	1		06/12/18 21:36	108-67-8	
Vinyl acetate	ND	ug/kg	56.4	1		06/12/18 21:36	108-05-4	
Vinyl chloride	ND	ug/kg	11.3	1		06/12/18 21:36	75-01-4	
Xylene (Total)	ND	ug/kg	11.3	1		06/12/18 21:36	1330-20-7	
m&p-Xylene	ND	ug/kg	11.3	1		06/12/18 21:36	179601-23-1	
o-Xylene	ND	ug/kg	5.6	1		06/12/18 21:36	95-47-6	
Surrogates								
Toluene-d8 (S)	109	%	70-130	1		06/12/18 21:36	2037-26-5	
4-Bromofluorobenzene (S)	73	%	70-130	1		06/12/18 21:36	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-132	1		06/12/18 21:36	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**20.1**	%	0.10	1		06/12/18 12:09		

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ANALYTICAL RESULTS

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

Sample: SB-4 **Lab ID: 92387904004** Collected: 06/08/18 12:30 Received: 06/11/18 11:20 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Range Organics(C10-C28)	ND	mg/kg	6.1	1	06/12/18 15:13	06/14/18 13:09		
Surrogates								
n-Pentacosane (S)	57	%	41-119	1	06/12/18 15:13	06/14/18 13:09	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gas Range Organics (C6-C10)	ND	mg/kg	5.5	1	06/11/18 12:05	06/12/18 06:07		
Surrogates								
4-Bromofluorobenzene (S)	81	%	70-167	1	06/11/18 12:05	06/12/18 06:07	460-00-4	
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	86.6	1		06/12/18 21:56	67-64-1	
Benzene	ND	ug/kg	4.3	1		06/12/18 21:56	71-43-2	
Bromobenzene	ND	ug/kg	4.3	1		06/12/18 21:56	108-86-1	
Bromochloromethane	ND	ug/kg	4.3	1		06/12/18 21:56	74-97-5	
Bromodichloromethane	ND	ug/kg	4.3	1		06/12/18 21:56	75-27-4	
Bromoform	ND	ug/kg	4.3	1		06/12/18 21:56	75-25-2	
Bromomethane	ND	ug/kg	8.7	1		06/12/18 21:56	74-83-9	
2-Butanone (MEK)	ND	ug/kg	86.6	1		06/12/18 21:56	78-93-3	
n-Butylbenzene	ND	ug/kg	4.3	1		06/12/18 21:56	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.3	1		06/12/18 21:56	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.3	1		06/12/18 21:56	98-06-6	
Carbon tetrachloride	ND	ug/kg	4.3	1		06/12/18 21:56	56-23-5	
Chlorobenzene	ND	ug/kg	4.3	1		06/12/18 21:56	108-90-7	
Chloroethane	ND	ug/kg	8.7	1		06/12/18 21:56	75-00-3	
Chloroform	ND	ug/kg	4.3	1		06/12/18 21:56	67-66-3	
Chloromethane	ND	ug/kg	8.7	1		06/12/18 21:56	74-87-3	
2-Chlorotoluene	ND	ug/kg	4.3	1		06/12/18 21:56	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.3	1		06/12/18 21:56	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.3	1		06/12/18 21:56	96-12-8	
Dibromochloromethane	ND	ug/kg	4.3	1		06/12/18 21:56	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.3	1		06/12/18 21:56	106-93-4	
Dibromomethane	ND	ug/kg	4.3	1		06/12/18 21:56	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.3	1		06/12/18 21:56	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.3	1		06/12/18 21:56	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.3	1		06/12/18 21:56	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	8.7	1		06/12/18 21:56	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.3	1		06/12/18 21:56	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.3	1		06/12/18 21:56	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.3	1		06/12/18 21:56	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.3	1		06/12/18 21:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.3	1		06/12/18 21:56	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.3	1		06/12/18 21:56	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.3	1		06/12/18 21:56	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.3	1		06/12/18 21:56	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.3	1		06/12/18 21:56	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.3	1		06/12/18 21:56	10061-01-5	

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ANALYTICAL RESULTS

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

Sample: SB-4 **Lab ID: 92387904004** Collected: 06/08/18 12:30 Received: 06/11/18 11:20 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
trans-1,3-Dichloropropene	ND	ug/kg	4.3	1		06/12/18 21:56	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.3	1		06/12/18 21:56	108-20-3	
Ethylbenzene	ND	ug/kg	4.3	1		06/12/18 21:56	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	4.3	1		06/12/18 21:56	87-68-3	
2-Hexanone	ND	ug/kg	43.3	1		06/12/18 21:56	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.3	1		06/12/18 21:56	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.3	1		06/12/18 21:56	99-87-6	
Methylene Chloride	ND	ug/kg	17.3	1		06/12/18 21:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	43.3	1		06/12/18 21:56	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.3	1		06/12/18 21:56	1634-04-4	
Naphthalene	ND	ug/kg	4.3	1		06/12/18 21:56	91-20-3	
n-Propylbenzene	ND	ug/kg	4.3	1		06/12/18 21:56	103-65-1	
Styrene	ND	ug/kg	4.3	1		06/12/18 21:56	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.3	1		06/12/18 21:56	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.3	1		06/12/18 21:56	79-34-5	
Tetrachloroethene	ND	ug/kg	4.3	1		06/12/18 21:56	127-18-4	L2
Toluene	ND	ug/kg	4.3	1		06/12/18 21:56	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.3	1		06/12/18 21:56	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.3	1		06/12/18 21:56	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.3	1		06/12/18 21:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.3	1		06/12/18 21:56	79-00-5	
Trichloroethene	ND	ug/kg	4.3	1		06/12/18 21:56	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.3	1		06/12/18 21:56	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.3	1		06/12/18 21:56	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.3	1		06/12/18 21:56	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.3	1		06/12/18 21:56	108-67-8	
Vinyl acetate	ND	ug/kg	43.3	1		06/12/18 21:56	108-05-4	
Vinyl chloride	ND	ug/kg	8.7	1		06/12/18 21:56	75-01-4	
Xylene (Total)	ND	ug/kg	8.7	1		06/12/18 21:56	1330-20-7	
m&p-Xylene	ND	ug/kg	8.7	1		06/12/18 21:56	179601-23-1	
o-Xylene	ND	ug/kg	4.3	1		06/12/18 21:56	95-47-6	
Surrogates								
Toluene-d8 (S)	115	%	70-130	1		06/12/18 21:56	2037-26-5	
4-Bromofluorobenzene (S)	99	%	70-130	1		06/12/18 21:56	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-132	1		06/12/18 21:56	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**17.7**	%	0.10	1		06/12/18 12:09		

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

QC Batch: 414742 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 5035A/5030B Analysis Description: Gasoline Range Organics
Associated Lab Samples: 92387904001, 92387904002, 92387904003, 92387904004

METHOD BLANK: 2299889 Matrix: Solid
Associated Lab Samples: 92387904001, 92387904002, 92387904003, 92387904004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gas Range Organics (C6-C10)	mg/kg	ND	6.0	06/11/18 13:42	
4-Bromofluorobenzene (S)	%	73	70-167	06/11/18 13:42	

LABORATORY CONTROL SAMPLE: 2299890

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gas Range Organics (C6-C10)	mg/kg	49.9	44.6	89	70-165	
4-Bromofluorobenzene (S)	%			70	70-167	

MATRIX SPIKE SAMPLE: 2299891

Parameter	Units	92387715014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gas Range Organics (C6-C10)	mg/kg	ND	45.3	43.9	96	47-187	
4-Bromofluorobenzene (S)	%				77	70-167	

SAMPLE DUPLICATE: 2299892

Parameter	Units	92387715015 Result	Dup Result	RPD	Qualifiers
Gas Range Organics (C6-C10)	mg/kg	ND	ND		
4-Bromofluorobenzene (S)	%	79	80	1	

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

QC Batch: 414886 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92387904001, 92387904002

METHOD BLANK: 2300696 Matrix: Solid
Associated Lab Samples: 92387904001, 92387904002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	5.6	06/12/18 14:27	
1,1,1-Trichloroethane	ug/kg	ND	5.6	06/12/18 14:27	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.6	06/12/18 14:27	
1,1,2-Trichloroethane	ug/kg	ND	5.6	06/12/18 14:27	
1,1-Dichloroethane	ug/kg	ND	5.6	06/12/18 14:27	
1,1-Dichloroethene	ug/kg	ND	5.6	06/12/18 14:27	
1,1-Dichloropropene	ug/kg	ND	5.6	06/12/18 14:27	
1,2,3-Trichlorobenzene	ug/kg	ND	5.6	06/12/18 14:27	
1,2,3-Trichloropropane	ug/kg	ND	5.6	06/12/18 14:27	
1,2,4-Trichlorobenzene	ug/kg	ND	5.6	06/12/18 14:27	
1,2,4-Trimethylbenzene	ug/kg	ND	5.6	06/12/18 14:27	
1,2-Dibromo-3-chloropropane	ug/kg	ND	5.6	06/12/18 14:27	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.6	06/12/18 14:27	
1,2-Dichlorobenzene	ug/kg	ND	5.6	06/12/18 14:27	
1,2-Dichloroethane	ug/kg	ND	5.6	06/12/18 14:27	
1,2-Dichloropropane	ug/kg	ND	5.6	06/12/18 14:27	
1,3,5-Trimethylbenzene	ug/kg	ND	5.6	06/12/18 14:27	
1,3-Dichlorobenzene	ug/kg	ND	5.6	06/12/18 14:27	
1,3-Dichloropropane	ug/kg	ND	5.6	06/12/18 14:27	
1,4-Dichlorobenzene	ug/kg	ND	5.6	06/12/18 14:27	
2,2-Dichloropropane	ug/kg	ND	5.6	06/12/18 14:27	
2-Butanone (MEK)	ug/kg	ND	112	06/12/18 14:27	
2-Chlorotoluene	ug/kg	ND	5.6	06/12/18 14:27	
2-Hexanone	ug/kg	ND	55.9	06/12/18 14:27	
4-Chlorotoluene	ug/kg	ND	5.6	06/12/18 14:27	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	55.9	06/12/18 14:27	
Acetone	ug/kg	ND	112	06/12/18 14:27	
Benzene	ug/kg	ND	5.6	06/12/18 14:27	
Bromobenzene	ug/kg	ND	5.6	06/12/18 14:27	
Bromochloromethane	ug/kg	ND	5.6	06/12/18 14:27	
Bromodichloromethane	ug/kg	ND	5.6	06/12/18 14:27	
Bromoform	ug/kg	ND	5.6	06/12/18 14:27	
Bromomethane	ug/kg	ND	11.2	06/12/18 14:27	
Carbon tetrachloride	ug/kg	ND	5.6	06/12/18 14:27	
Chlorobenzene	ug/kg	ND	5.6	06/12/18 14:27	
Chloroethane	ug/kg	ND	11.2	06/12/18 14:27	
Chloroform	ug/kg	ND	5.6	06/12/18 14:27	
Chloromethane	ug/kg	ND	11.2	06/12/18 14:27	
cis-1,2-Dichloroethene	ug/kg	ND	5.6	06/12/18 14:27	
cis-1,3-Dichloropropene	ug/kg	ND	5.6	06/12/18 14:27	
Dibromochloromethane	ug/kg	ND	5.6	06/12/18 14:27	

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

METHOD BLANK: 2300696 Matrix: Solid
Associated Lab Samples: 92387904001, 92387904002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/kg	ND	5.6	06/12/18 14:27	
Dichlorodifluoromethane	ug/kg	ND	11.2	06/12/18 14:27	
Diisopropyl ether	ug/kg	ND	5.6	06/12/18 14:27	
Ethylbenzene	ug/kg	ND	5.6	06/12/18 14:27	
Hexachloro-1,3-butadiene	ug/kg	ND	5.6	06/12/18 14:27	
Isopropylbenzene (Cumene)	ug/kg	ND	5.6	06/12/18 14:27	
m&p-Xylene	ug/kg	ND	11.2	06/12/18 14:27	
Methyl-tert-butyl ether	ug/kg	ND	5.6	06/12/18 14:27	
Methylene Chloride	ug/kg	ND	22.4	06/12/18 14:27	
n-Butylbenzene	ug/kg	ND	5.6	06/12/18 14:27	
n-Propylbenzene	ug/kg	ND	5.6	06/12/18 14:27	
Naphthalene	ug/kg	ND	5.6	06/12/18 14:27	
o-Xylene	ug/kg	ND	5.6	06/12/18 14:27	
p-Isopropyltoluene	ug/kg	ND	5.6	06/12/18 14:27	
sec-Butylbenzene	ug/kg	ND	5.6	06/12/18 14:27	
Styrene	ug/kg	ND	5.6	06/12/18 14:27	
tert-Butylbenzene	ug/kg	ND	5.6	06/12/18 14:27	
Tetrachloroethene	ug/kg	ND	5.6	06/12/18 14:27	
Toluene	ug/kg	ND	5.6	06/12/18 14:27	
trans-1,2-Dichloroethene	ug/kg	ND	5.6	06/12/18 14:27	
trans-1,3-Dichloropropene	ug/kg	ND	5.6	06/12/18 14:27	
Trichloroethene	ug/kg	ND	5.6	06/12/18 14:27	
Trichlorofluoromethane	ug/kg	ND	5.6	06/12/18 14:27	
Vinyl acetate	ug/kg	ND	55.9	06/12/18 14:27	
Vinyl chloride	ug/kg	ND	11.2	06/12/18 14:27	
Xylene (Total)	ug/kg	ND	11.2	06/12/18 14:27	
1,2-Dichloroethane-d4 (S)	%	97	70-132	06/12/18 14:27	
4-Bromofluorobenzene (S)	%	103	70-130	06/12/18 14:27	
Toluene-d8 (S)	%	121	70-130	06/12/18 14:27	

LABORATORY CONTROL SAMPLE: 2300697

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	62.5	67.3	108	74-137	
1,1,1-Trichloroethane	ug/kg	62.5	67.1	107	67-140	
1,1,2,2-Tetrachloroethane	ug/kg	62.5	52.9	85	72-141	
1,1,2-Trichloroethane	ug/kg	62.5	73.8	118	78-138	
1,1-Dichloroethane	ug/kg	62.5	70.9	113	69-134	
1,1-Dichloroethene	ug/kg	62.5	70.5	113	67-138	
1,1-Dichloropropene	ug/kg	62.5	69.5	111	69-139	
1,2,3-Trichlorobenzene	ug/kg	62.5	60.4	97	70-146	
1,2,3-Trichloropropane	ug/kg	62.5	59.6	95	69-144	
1,2,4-Trichlorobenzene	ug/kg	62.5	62.1	99	68-148	
1,2,4-Trimethylbenzene	ug/kg	62.5	62.6	100	74-137	

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

LABORATORY CONTROL SAMPLE: 2300697

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromo-3-chloropropane	ug/kg	62.5	62.0	99	65-140	
1,2-Dibromoethane (EDB)	ug/kg	62.5	65.2	104	77-135	
1,2-Dichlorobenzene	ug/kg	62.5	64.5	103	77-141	
1,2-Dichloroethane	ug/kg	62.5	65.8	105	65-137	
1,2-Dichloropropane	ug/kg	62.5	74.7	120	72-136	
1,3,5-Trimethylbenzene	ug/kg	62.5	63.3	101	76-133	
1,3-Dichlorobenzene	ug/kg	62.5	61.5	98	74-138	
1,3-Dichloropropane	ug/kg	62.5	65.8	105	71-139	
1,4-Dichlorobenzene	ug/kg	62.5	63.8	102	76-138	
2,2-Dichloropropane	ug/kg	62.5	64.8	104	68-137	
2-Butanone (MEK)	ug/kg	125	119J	95	58-147	
2-Chlorotoluene	ug/kg	62.5	61.2	98	73-139	
2-Hexanone	ug/kg	125	113	91	62-145	
4-Chlorotoluene	ug/kg	62.5	63.1	101	76-141	
4-Methyl-2-pentanone (MIBK)	ug/kg	125	137	110	64-149	
Acetone	ug/kg	125	112J	90	53-153	
Benzene	ug/kg	62.5	68.4	109	73-135	
Bromobenzene	ug/kg	62.5	63.3	101	75-133	
Bromochloromethane	ug/kg	62.5	66.1	106	73-134	
Bromodichloromethane	ug/kg	62.5	72.7	116	71-135	
Bromoform	ug/kg	62.5	58.2	93	66-141	
Bromomethane	ug/kg	62.5	66.4	106	53-160	
Carbon tetrachloride	ug/kg	62.5	72.0	115	60-145	
Chlorobenzene	ug/kg	62.5	62.4	100	78-130	
Chloroethane	ug/kg	62.5	58.0	93	64-149	
Chloroform	ug/kg	62.5	67.6	108	70-134	
Chloromethane	ug/kg	62.5	52.5	84	52-150	
cis-1,2-Dichloroethene	ug/kg	62.5	66.2	106	70-133	
cis-1,3-Dichloropropene	ug/kg	62.5	74.6	119	68-134	
Dibromochloromethane	ug/kg	62.5	61.1	98	71-138	
Dibromomethane	ug/kg	62.5	69.0	110	74-130	
Dichlorodifluoromethane	ug/kg	62.5	54.4	87	40-160	
Diisopropyl ether	ug/kg	62.5	65.3	104	69-141	
Ethylbenzene	ug/kg	62.5	61.2	98	75-133	
Hexachloro-1,3-butadiene	ug/kg	62.5	63.1	101	68-143	
Isopropylbenzene (Cumene)	ug/kg	62.5	62.1	99	76-143	
m&p-Xylene	ug/kg	125	123	99	75-136	
Methyl-tert-butyl ether	ug/kg	62.5	73.9	118	68-144	
Methylene Chloride	ug/kg	62.5	68.2	109	45-154	
n-Butylbenzene	ug/kg	62.5	64.7	104	72-137	
n-Propylbenzene	ug/kg	62.5	65.2	104	76-136	
Naphthalene	ug/kg	62.5	63.6	102	68-151	
o-Xylene	ug/kg	62.5	63.6	102	76-141	
p-Isopropyltoluene	ug/kg	62.5	64.4	103	76-140	
sec-Butylbenzene	ug/kg	62.5	64.8	104	79-139	
Styrene	ug/kg	62.5	61.3	98	79-137	
tert-Butylbenzene	ug/kg	62.5	63.0	101	74-143	

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

LABORATORY CONTROL SAMPLE: 2300697

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	62.5	36.4	58	71-138	F3,L2
Toluene	ug/kg	62.5	66.7	107	74-131	
trans-1,2-Dichloroethene	ug/kg	62.5	71.4	114	67-135	
trans-1,3-Dichloropropene	ug/kg	62.5	70.7	113	65-146	
Trichloroethene	ug/kg	62.5	71.0	114	67-135	
Trichlorofluoromethane	ug/kg	62.5	64.6	103	59-144	
Vinyl acetate	ug/kg	125	84.8	68	40-160	F3
Vinyl chloride	ug/kg	62.5	61.4	98	56-141	
Xylene (Total)	ug/kg	188	187	100	76-137	
1,2-Dichloroethane-d4 (S)	%			100	70-132	
4-Bromofluorobenzene (S)	%			93	70-130	
Toluene-d8 (S)	%			110	70-130	

MATRIX SPIKE SAMPLE: 2301221

Parameter	Units	92387555010 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	14.5	12.3	85	70-130	
1,1,1-Trichloroethane	ug/kg	ND	14.5	13.6	93	70-130	
1,1,2,2-Tetrachloroethane	ug/kg	ND	14.5	11.9	82	70-130	
1,1,2-Trichloroethane	ug/kg	ND	14.5	12.1	83	70-130	
1,1-Dichloroethane	ug/kg	ND	14.5	13.3	91	70-130	
1,1-Dichloroethene	ug/kg	ND	14.5	14.1	97	49-180	
1,1-Dichloropropene	ug/kg	ND	14.5	13.5	93	70-130	
1,2,3-Trichlorobenzene	ug/kg	ND	14.5	4.6	32	70-130	M1
1,2,3-Trichloropropane	ug/kg	ND	14.5	10.8	75	70-130	
1,2,4-Trichlorobenzene	ug/kg	ND	14.5	5.3	36	70-130	M1
1,2,4-Trimethylbenzene	ug/kg	ND	14.5	12.3	85	70-130	
1,2-Dibromo-3-chloropropane	ug/kg	ND	14.5	10.9	75	70-130	
1,2-Dibromoethane (EDB)	ug/kg	ND	14.5	12.1	83	70-130	
1,2-Dichlorobenzene	ug/kg	ND	14.5	8.6	59	70-130	M1
1,2-Dichloroethane	ug/kg	ND	14.5	12.8	88	70-130	
1,2-Dichloropropane	ug/kg	ND	14.5	13.4	92	70-130	
1,3,5-Trimethylbenzene	ug/kg	ND	14.5	12.9	89	70-130	
1,3-Dichlorobenzene	ug/kg	ND	14.5	9.0	62	70-130	M1
1,3-Dichloropropane	ug/kg	ND	14.5	13.2	91	70-130	
1,4-Dichlorobenzene	ug/kg	ND	14.5	8.8	61	70-130	M1
2,2-Dichloropropane	ug/kg	ND	14.5	13.1	90	70-130	
2-Butanone (MEK)	ug/kg	ND	29	25.7J	89	70-130	
2-Chlorotoluene	ug/kg	ND	14.5	12.0	83	70-130	
2-Hexanone	ug/kg	ND	29	22.7J	78	70-130	
4-Chlorotoluene	ug/kg	ND	14.5	11.1	77	70-130	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	29	23.5J	81	70-130	
Acetone	ug/kg	ND	29	65.4J	225	70-130	M1
Benzene	ug/kg	ND	14.5	13.8	95	50-166	
Bromobenzene	ug/kg	ND	14.5	11.4	78	70-130	

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

MATRIX SPIKE SAMPLE: 2301221

Parameter	Units	92387555010 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromochloromethane	ug/kg	ND	14.5	12.7	87	70-130	
Bromodichloromethane	ug/kg	ND	14.5	12.2	84	70-130	
Bromoform	ug/kg	ND	14.5	9.9	68	70-130	M1
Bromomethane	ug/kg	ND	14.5	16.1	111	70-130	
Carbon tetrachloride	ug/kg	ND	14.5	13.5	93	70-130	
Chlorobenzene	ug/kg	ND	14.5	11.4	78	43-169	
Chloroethane	ug/kg	ND	14.5	14.5	100	70-130	
Chloroform	ug/kg	ND	14.5	14.1	97	70-130	
Chloromethane	ug/kg	ND	14.5	10.2	70	70-130	
cis-1,2-Dichloroethene	ug/kg	ND	14.5	13.2	91	70-130	
cis-1,3-Dichloropropene	ug/kg	ND	14.5	11.5	79	70-130	
Dibromochloromethane	ug/kg	ND	14.5	11.8	81	70-130	
Dibromomethane	ug/kg	ND	14.5	12.4	85	70-130	
Dichlorodifluoromethane	ug/kg	ND	14.5	14.7	101	70-130	
Diisopropyl ether	ug/kg	ND	14.5	13.6	94	70-130	
Ethylbenzene	ug/kg	ND	14.5	12.5	86	70-130	
Hexachloro-1,3-butadiene	ug/kg	ND	14.5	10.5	72	70-130	
Isopropylbenzene (Cumene)	ug/kg	ND	14.5	12.4	85	70-130	
m&p-Xylene	ug/kg	ND	29	24.4	84	70-130	
Methyl-tert-butyl ether	ug/kg	ND	14.5	13.4	93	70-130	
Methylene Chloride	ug/kg	10.6J	14.5	21.4	74	70-130	
n-Butylbenzene	ug/kg	ND	14.5	11.8	81	70-130	
n-Propylbenzene	ug/kg	ND	14.5	14.2	97	70-130	
Naphthalene	ug/kg	ND	14.5	6.3	43	70-130	M1
o-Xylene	ug/kg	ND	14.5	12.0	83	70-130	
p-Isopropyltoluene	ug/kg	ND	14.5	12.7	87	70-130	
sec-Butylbenzene	ug/kg	ND	14.5	13.9	96	70-130	
Styrene	ug/kg	ND	14.5	10	69	70-130	M1
tert-Butylbenzene	ug/kg	ND	14.5	14.0	96	70-130	
Tetrachloroethene	ug/kg	ND	14.5	8.1	55	70-130	M0
Toluene	ug/kg	ND	14.5	12.7	88	52-163	
trans-1,2-Dichloroethene	ug/kg	ND	14.5	13.7	94	70-130	
trans-1,3-Dichloropropene	ug/kg	ND	14.5	10.6	73	70-130	
Trichloroethene	ug/kg	ND	14.5	12.0	82	49-167	
Trichlorofluoromethane	ug/kg	ND	14.5	14.4	99	70-130	
Vinyl acetate	ug/kg	ND	29	ND	20	70-130	M1
Vinyl chloride	ug/kg	ND	14.5	14.6	101	70-130	
Xylene (Total)	ug/kg	ND	43.5	36.4	84	70-130	
1,2-Dichloroethane-d4 (S)	%				94	70-132	
4-Bromofluorobenzene (S)	%				94	70-130	
Toluene-d8 (S)	%				97	70-130	

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

SAMPLE DUPLICATE: 2301222

Parameter	Units	92387744005 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		
1,1,1-Trichloroethane	ug/kg	ND	ND		
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		
1,1,2-Trichloroethane	ug/kg	ND	ND		
1,1-Dichloroethane	ug/kg	ND	ND		
1,1-Dichloroethene	ug/kg	ND	ND		
1,1-Dichloropropene	ug/kg	ND	ND		
1,2,3-Trichlorobenzene	ug/kg	ND	ND		
1,2,3-Trichloropropane	ug/kg	ND	ND		
1,2,4-Trichlorobenzene	ug/kg	ND	ND		
1,2,4-Trimethylbenzene	ug/kg	ND	ND		
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		
1,2-Dichlorobenzene	ug/kg	ND	ND		
1,2-Dichloroethane	ug/kg	ND	ND		
1,2-Dichloropropane	ug/kg	ND	ND		
1,3,5-Trimethylbenzene	ug/kg	ND	ND		
1,3-Dichlorobenzene	ug/kg	ND	ND		
1,3-Dichloropropane	ug/kg	ND	ND		
1,4-Dichlorobenzene	ug/kg	ND	ND		
2,2-Dichloropropane	ug/kg	ND	ND		
2-Butanone (MEK)	ug/kg	ND	ND		
2-Chlorotoluene	ug/kg	ND	ND		
2-Hexanone	ug/kg	ND	ND		
4-Chlorotoluene	ug/kg	ND	ND		
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		
Acetone	ug/kg	ND	ND		
Benzene	ug/kg	ND	ND		
Bromobenzene	ug/kg	ND	ND		
Bromochloromethane	ug/kg	ND	ND		
Bromodichloromethane	ug/kg	ND	ND		
Bromoform	ug/kg	ND	ND		
Bromomethane	ug/kg	ND	ND		
Carbon tetrachloride	ug/kg	ND	ND		
Chlorobenzene	ug/kg	ND	ND		
Chloroethane	ug/kg	ND	ND		
Chloroform	ug/kg	ND	ND		
Chloromethane	ug/kg	ND	ND		
cis-1,2-Dichloroethene	ug/kg	ND	ND		
cis-1,3-Dichloropropene	ug/kg	ND	ND		
Dibromochloromethane	ug/kg	ND	ND		
Dibromomethane	ug/kg	ND	ND		
Dichlorodifluoromethane	ug/kg	ND	ND		
Diisopropyl ether	ug/kg	ND	ND		
Ethylbenzene	ug/kg	ND	ND		
Hexachloro-1,3-butadiene	ug/kg	ND	ND		
Isopropylbenzene (Cumene)	ug/kg	ND	ND		

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

SAMPLE DUPLICATE: 2301222

Parameter	Units	92387744005 Result	Dup Result	RPD	Qualifiers
m&p-Xylene	ug/kg	ND	ND		
Methyl-tert-butyl ether	ug/kg	ND	ND		
Methylene Chloride	ug/kg	ND	ND		
n-Butylbenzene	ug/kg	ND	ND		
n-Propylbenzene	ug/kg	ND	ND		
Naphthalene	ug/kg	ND	ND		
o-Xylene	ug/kg	ND	ND		
p-Isopropyltoluene	ug/kg	ND	ND		
sec-Butylbenzene	ug/kg	ND	ND		
Styrene	ug/kg	ND	ND		
tert-Butylbenzene	ug/kg	ND	ND		
Tetrachloroethene	ug/kg	ND	ND		
Toluene	ug/kg	ND	ND		
trans-1,2-Dichloroethene	ug/kg	ND	ND		
trans-1,3-Dichloropropene	ug/kg	ND	ND		
Trichloroethene	ug/kg	ND	ND		
Trichlorofluoromethane	ug/kg	ND	ND		
Vinyl acetate	ug/kg	ND	ND		
Vinyl chloride	ug/kg	ND	ND		
Xylene (Total)	ug/kg	ND	ND		
1,2-Dichloroethane-d4 (S)	%	103	97	8	
4-Bromofluorobenzene (S)	%	100	96	6	
Toluene-d8 (S)	%	117	100	18	

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

QC Batch: 414895
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92387904003, 92387904004

METHOD BLANK: 2300754
Matrix: Solid
Associated Lab Samples: 92387904003, 92387904004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	6.5	06/12/18 14:07	
1,1,1-Trichloroethane	ug/kg	ND	6.5	06/12/18 14:07	
1,1,2,2-Tetrachloroethane	ug/kg	ND	6.5	06/12/18 14:07	
1,1,2-Trichloroethane	ug/kg	ND	6.5	06/12/18 14:07	
1,1-Dichloroethane	ug/kg	ND	6.5	06/12/18 14:07	
1,1-Dichloroethene	ug/kg	ND	6.5	06/12/18 14:07	
1,1-Dichloropropene	ug/kg	ND	6.5	06/12/18 14:07	
1,2,3-Trichlorobenzene	ug/kg	ND	6.5	06/12/18 14:07	
1,2,3-Trichloropropane	ug/kg	ND	6.5	06/12/18 14:07	
1,2,4-Trichlorobenzene	ug/kg	ND	6.5	06/12/18 14:07	
1,2,4-Trimethylbenzene	ug/kg	ND	6.5	06/12/18 14:07	
1,2-Dibromo-3-chloropropane	ug/kg	ND	6.5	06/12/18 14:07	
1,2-Dibromoethane (EDB)	ug/kg	ND	6.5	06/12/18 14:07	
1,2-Dichlorobenzene	ug/kg	ND	6.5	06/12/18 14:07	
1,2-Dichloroethane	ug/kg	ND	6.5	06/12/18 14:07	
1,2-Dichloropropane	ug/kg	ND	6.5	06/12/18 14:07	
1,3,5-Trimethylbenzene	ug/kg	ND	6.5	06/12/18 14:07	
1,3-Dichlorobenzene	ug/kg	ND	6.5	06/12/18 14:07	
1,3-Dichloropropane	ug/kg	ND	6.5	06/12/18 14:07	
1,4-Dichlorobenzene	ug/kg	ND	6.5	06/12/18 14:07	
2,2-Dichloropropane	ug/kg	ND	6.5	06/12/18 14:07	
2-Butanone (MEK)	ug/kg	ND	131	06/12/18 14:07	
2-Chlorotoluene	ug/kg	ND	6.5	06/12/18 14:07	
2-Hexanone	ug/kg	ND	65.4	06/12/18 14:07	
4-Chlorotoluene	ug/kg	ND	6.5	06/12/18 14:07	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	65.4	06/12/18 14:07	
Acetone	ug/kg	ND	131	06/12/18 14:07	
Benzene	ug/kg	ND	6.5	06/12/18 14:07	
Bromobenzene	ug/kg	ND	6.5	06/12/18 14:07	
Bromochloromethane	ug/kg	ND	6.5	06/12/18 14:07	
Bromodichloromethane	ug/kg	ND	6.5	06/12/18 14:07	
Bromoform	ug/kg	ND	6.5	06/12/18 14:07	
Bromomethane	ug/kg	ND	13.1	06/12/18 14:07	
Carbon tetrachloride	ug/kg	ND	6.5	06/12/18 14:07	
Chlorobenzene	ug/kg	ND	6.5	06/12/18 14:07	
Chloroethane	ug/kg	ND	13.1	06/12/18 14:07	
Chloroform	ug/kg	ND	6.5	06/12/18 14:07	
Chloromethane	ug/kg	ND	13.1	06/12/18 14:07	
cis-1,2-Dichloroethene	ug/kg	ND	6.5	06/12/18 14:07	
cis-1,3-Dichloropropene	ug/kg	ND	6.5	06/12/18 14:07	
Dibromochloromethane	ug/kg	ND	6.5	06/12/18 14:07	

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

METHOD BLANK: 2300754 Matrix: Solid
Associated Lab Samples: 92387904003, 92387904004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/kg	ND	6.5	06/12/18 14:07	
Dichlorodifluoromethane	ug/kg	ND	13.1	06/12/18 14:07	
Diisopropyl ether	ug/kg	ND	6.5	06/12/18 14:07	
Ethylbenzene	ug/kg	ND	6.5	06/12/18 14:07	
Hexachloro-1,3-butadiene	ug/kg	ND	6.5	06/12/18 14:07	
Isopropylbenzene (Cumene)	ug/kg	ND	6.5	06/12/18 14:07	
m&p-Xylene	ug/kg	ND	13.1	06/12/18 14:07	
Methyl-tert-butyl ether	ug/kg	ND	6.5	06/12/18 14:07	
Methylene Chloride	ug/kg	ND	26.2	06/12/18 14:07	
n-Butylbenzene	ug/kg	ND	6.5	06/12/18 14:07	
n-Propylbenzene	ug/kg	ND	6.5	06/12/18 14:07	
Naphthalene	ug/kg	ND	6.5	06/12/18 14:07	
o-Xylene	ug/kg	ND	6.5	06/12/18 14:07	
p-Isopropyltoluene	ug/kg	ND	6.5	06/12/18 14:07	
sec-Butylbenzene	ug/kg	ND	6.5	06/12/18 14:07	
Styrene	ug/kg	ND	6.5	06/12/18 14:07	
tert-Butylbenzene	ug/kg	ND	6.5	06/12/18 14:07	
Tetrachloroethene	ug/kg	ND	6.5	06/12/18 14:07	
Toluene	ug/kg	ND	6.5	06/12/18 14:07	
trans-1,2-Dichloroethene	ug/kg	ND	6.5	06/12/18 14:07	
trans-1,3-Dichloropropene	ug/kg	ND	6.5	06/12/18 14:07	
Trichloroethene	ug/kg	ND	6.5	06/12/18 14:07	
Trichlorofluoromethane	ug/kg	ND	6.5	06/12/18 14:07	
Vinyl acetate	ug/kg	ND	65.4	06/12/18 14:07	
Vinyl chloride	ug/kg	ND	13.1	06/12/18 14:07	
Xylene (Total)	ug/kg	ND	13.1	06/12/18 14:07	
1,2-Dichloroethane-d4 (S)	%	97	70-132	06/12/18 14:07	
4-Bromofluorobenzene (S)	%	118	70-130	06/12/18 14:07	
Toluene-d8 (S)	%	115	70-130	06/12/18 14:07	

LABORATORY CONTROL SAMPLE: 2300755

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	58	60.4	104	74-137	
1,1,1-Trichloroethane	ug/kg	58	54.9	95	67-140	
1,1,2,2-Tetrachloroethane	ug/kg	58	54.3	94	72-141	
1,1,2-Trichloroethane	ug/kg	58	56.8	98	78-138	
1,1-Dichloroethane	ug/kg	58	54.6	94	69-134	
1,1-Dichloroethene	ug/kg	58	56.4	97	67-138	
1,1-Dichloropropene	ug/kg	58	57.7	99	69-139	
1,2,3-Trichlorobenzene	ug/kg	58	54.8	94	70-146	
1,2,3-Trichloropropane	ug/kg	58	62.9	108	69-144	
1,2,4-Trichlorobenzene	ug/kg	58	56.1	97	68-148	
1,2,4-Trimethylbenzene	ug/kg	58	55.6	96	74-137	

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

LABORATORY CONTROL SAMPLE: 2300755

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromo-3-chloropropane	ug/kg	58	54.9	95	65-140	
1,2-Dibromoethane (EDB)	ug/kg	58	64.6	111	77-135	
1,2-Dichlorobenzene	ug/kg	58	57.0	98	77-141	
1,2-Dichloroethane	ug/kg	58	58.1	100	65-137	
1,2-Dichloropropane	ug/kg	58	61.0	105	72-136	
1,3,5-Trimethylbenzene	ug/kg	58	51.2	88	76-133	
1,3-Dichlorobenzene	ug/kg	58	54.5	94	74-138	
1,3-Dichloropropane	ug/kg	58	62.9	108	71-139	
1,4-Dichlorobenzene	ug/kg	58	55.0	95	76-138	
2,2-Dichloropropane	ug/kg	58	52.3	90	68-137	
2-Butanone (MEK)	ug/kg	116	94.1J	81	58-147	
2-Chlorotoluene	ug/kg	58	50.3	87	73-139	
2-Hexanone	ug/kg	116	109	94	62-145	
4-Chlorotoluene	ug/kg	58	51.2	88	76-141	
4-Methyl-2-pentanone (MIBK)	ug/kg	116	106	91	64-149	
Acetone	ug/kg	116	95.5J	82	53-153	
Benzene	ug/kg	58	62.3	107	73-135	
Bromobenzene	ug/kg	58	51.9	90	75-133	
Bromochloromethane	ug/kg	58	55.5	96	73-134	
Bromodichloromethane	ug/kg	58	62.8	108	71-135	
Bromoform	ug/kg	58	54.1	93	66-141	
Bromomethane	ug/kg	58	52.3	90	53-160	
Carbon tetrachloride	ug/kg	58	57.4	99	60-145	
Chlorobenzene	ug/kg	58	57.8	100	78-130	
Chloroethane	ug/kg	58	46.6	80	64-149	
Chloroform	ug/kg	58	55.7	96	70-134	
Chloromethane	ug/kg	58	44.4	76	52-150	
cis-1,2-Dichloroethene	ug/kg	58	54.1	93	70-133	
cis-1,3-Dichloropropene	ug/kg	58	62.1	107	68-134	
Dibromochloromethane	ug/kg	58	58.4	101	71-138	
Dibromomethane	ug/kg	58	56.3	97	74-130	
Dichlorodifluoromethane	ug/kg	58	45.8	79	40-160	
Diisopropyl ether	ug/kg	58	50.2	86	69-141	
Ethylbenzene	ug/kg	58	57.6	99	75-133	
Hexachloro-1,3-butadiene	ug/kg	58	55.1	95	68-143	
Isopropylbenzene (Cumene)	ug/kg	58	61.2	106	76-143	
m&p-Xylene	ug/kg	116	116	100	75-136	
Methyl-tert-butyl ether	ug/kg	58	57.4	99	68-144	
Methylene Chloride	ug/kg	58	52.9	91	45-154	
n-Butylbenzene	ug/kg	58	57.6	99	72-137	
n-Propylbenzene	ug/kg	58	52.0	90	76-136	
Naphthalene	ug/kg	58	58.7	101	68-151	
o-Xylene	ug/kg	58	61.2	105	76-141	
p-Isopropyltoluene	ug/kg	58	56.5	97	76-140	
sec-Butylbenzene	ug/kg	58	56.6	98	79-139	
Styrene	ug/kg	58	59.1	102	79-137	
tert-Butylbenzene	ug/kg	58	56.7	98	74-143	

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

LABORATORY CONTROL SAMPLE: 2300755

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	58	35.8	62	71-138	F3,L2
Toluene	ug/kg	58	58.0	100	74-131	
trans-1,2-Dichloroethene	ug/kg	58	56.4	97	67-135	
trans-1,3-Dichloropropene	ug/kg	58	55.3	95	65-146	
Trichloroethene	ug/kg	58	66.3	114	67-135	
Trichlorofluoromethane	ug/kg	58	51.3	88	59-144	
Vinyl acetate	ug/kg	116	66.1	57	40-160	F3
Vinyl chloride	ug/kg	58	49.6	85	56-141	
Xylene (Total)	ug/kg	174	177	102	76-137	
1,2-Dichloroethane-d4 (S)	%			102	70-132	
4-Bromofluorobenzene (S)	%			106	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE SAMPLE: 2301229

Parameter	Units	92387976001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	19.7	15.2	77	70-130	
1,1,1-Trichloroethane	ug/kg	ND	19.7	16.6	84	70-130	
1,1,2,2-Tetrachloroethane	ug/kg	ND	19.7	14.6	74	70-130	
1,1,2-Trichloroethane	ug/kg	ND	19.7	14.9	75	70-130	
1,1-Dichloroethane	ug/kg	ND	19.7	15.9	81	70-130	
1,1-Dichloroethene	ug/kg	ND	19.7	17.4	88	49-180	
1,1-Dichloropropene	ug/kg	ND	19.7	16.1	82	70-130	
1,2,3-Trichlorobenzene	ug/kg	ND	19.7	6.9	35	70-130	M1
1,2,3-Trichloropropane	ug/kg	ND	19.7	14.0	71	70-130	
1,2,4-Trichlorobenzene	ug/kg	ND	19.7	7.2	36	70-130	M1
1,2,4-Trimethylbenzene	ug/kg	ND	19.7	13.8	70	70-130	
1,2-Dibromo-3-chloropropane	ug/kg	ND	19.7	11.6	59	70-130	M1
1,2-Dibromoethane (EDB)	ug/kg	ND	19.7	13.6	69	70-130	M1
1,2-Dichlorobenzene	ug/kg	ND	19.7	11.0	56	70-130	M1
1,2-Dichloroethane	ug/kg	ND	19.7	15.3	78	70-130	
1,2-Dichloropropane	ug/kg	ND	19.7	16.4	83	70-130	
1,3,5-Trimethylbenzene	ug/kg	ND	19.7	14.3	72	70-130	
1,3-Dichlorobenzene	ug/kg	ND	19.7	10.9	55	70-130	M1
1,3-Dichloropropane	ug/kg	ND	19.7	14.9	75	70-130	
1,4-Dichlorobenzene	ug/kg	ND	19.7	10.5	53	70-130	M1
2,2-Dichloropropane	ug/kg	ND	19.7	15.3	77	70-130	
2-Butanone (MEK)	ug/kg	ND	39.4	19.9J	50	70-130	M1
2-Chlorotoluene	ug/kg	ND	19.7	13.6	69	70-130	M1
2-Hexanone	ug/kg	ND	39.4	22.6J	57	70-130	M1
4-Chlorotoluene	ug/kg	ND	19.7	12.1	62	70-130	M1
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	39.4	26.9J	68	70-130	M1
Acetone	ug/kg	ND	39.4	46.4J	118	70-130	
Benzene	ug/kg	ND	19.7	16.4	83	50-166	
Bromobenzene	ug/kg	ND	19.7	12.4	63	70-130	M1

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

MATRIX SPIKE SAMPLE: 2301229

Parameter	Units	92387976001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromochloromethane	ug/kg	ND	19.7	15.0	76	70-130	
Bromodichloromethane	ug/kg	ND	19.7	15.2	77	70-130	
Bromoform	ug/kg	ND	19.7	11.9	60	70-130	M1
Bromomethane	ug/kg	ND	19.7	22.2	112	70-130	
Carbon tetrachloride	ug/kg	ND	19.7	16.1	82	70-130	
Chlorobenzene	ug/kg	ND	19.7	13.6	69	43-169	
Chloroethane	ug/kg	ND	19.7	17.5	89	70-130	
Chloroform	ug/kg	ND	19.7	16.7	85	70-130	
Chloromethane	ug/kg	ND	19.7	11.8	60	70-130	M1
cis-1,2-Dichloroethene	ug/kg	ND	19.7	15.4	78	70-130	
cis-1,3-Dichloropropene	ug/kg	ND	19.7	13.5	68	70-130	M1
Dibromochloromethane	ug/kg	ND	19.7	13.9	70	70-130	
Dibromomethane	ug/kg	ND	19.7	14.4	73	70-130	
Dichlorodifluoromethane	ug/kg	ND	19.7	17.9	91	70-130	
Diisopropyl ether	ug/kg	ND	19.7	6.8	34	70-130	M1
Ethylbenzene	ug/kg	ND	19.7	15.0	76	70-130	
Hexachloro-1,3-butadiene	ug/kg	ND	19.7	9.7	49	70-130	M1
Isopropylbenzene (Cumene)	ug/kg	ND	19.7	15.4	78	70-130	
m&p-Xylene	ug/kg	ND	39.4	29.1	74	70-130	
Methyl-tert-butyl ether	ug/kg	ND	19.7	15.8	80	70-130	
Methylene Chloride	ug/kg	ND	19.7	17J	43	70-130	M1
n-Butylbenzene	ug/kg	ND	19.7	11.9	60	70-130	M1
n-Propylbenzene	ug/kg	ND	19.7	14.5	74	70-130	
Naphthalene	ug/kg	ND	19.7	7.6	38	70-130	M1
o-Xylene	ug/kg	ND	19.7	14.6	74	70-130	
p-Isopropyltoluene	ug/kg	ND	19.7	13.8	70	70-130	
sec-Butylbenzene	ug/kg	ND	19.7	14.4	73	70-130	
Styrene	ug/kg	ND	19.7	11.4	58	70-130	M1
tert-Butylbenzene	ug/kg	ND	19.7	15.2	77	70-130	
Tetrachloroethene	ug/kg	ND	19.7	9.2	47	70-130	M0
Toluene	ug/kg	ND	19.7	15.4	78	52-163	
trans-1,2-Dichloroethene	ug/kg	ND	19.7	16.6	84	70-130	
trans-1,3-Dichloropropene	ug/kg	ND	19.7	12.8	65	70-130	M1
Trichloroethene	ug/kg	ND	19.7	14.7	75	49-167	
Trichlorofluoromethane	ug/kg	ND	19.7	18.1	92	70-130	
Vinyl acetate	ug/kg	ND	39.4	ND	0	70-130	M1
Vinyl chloride	ug/kg	ND	19.7	17.7	90	70-130	
Xylene (Total)	ug/kg	ND	59.1	43.7	74	70-130	
1,2-Dichloroethane-d4 (S)	%				92	70-132	
4-Bromofluorobenzene (S)	%				97	70-130	
Toluene-d8 (S)	%				99	70-130	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

SAMPLE DUPLICATE: 2301228

Parameter	Units	92387904003 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		
1,1,1-Trichloroethane	ug/kg	ND	ND		
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		
1,1,2-Trichloroethane	ug/kg	ND	ND		
1,1-Dichloroethane	ug/kg	ND	ND		
1,1-Dichloroethene	ug/kg	ND	ND		
1,1-Dichloropropene	ug/kg	ND	ND		
1,2,3-Trichlorobenzene	ug/kg	ND	ND		
1,2,3-Trichloropropane	ug/kg	ND	ND		
1,2,4-Trichlorobenzene	ug/kg	ND	ND		
1,2,4-Trimethylbenzene	ug/kg	ND	ND		
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		
1,2-Dichlorobenzene	ug/kg	ND	ND		
1,2-Dichloroethane	ug/kg	ND	ND		
1,2-Dichloropropane	ug/kg	ND	ND		
1,3,5-Trimethylbenzene	ug/kg	ND	ND		
1,3-Dichlorobenzene	ug/kg	ND	ND		
1,3-Dichloropropane	ug/kg	ND	ND		
1,4-Dichlorobenzene	ug/kg	ND	ND		
2,2-Dichloropropane	ug/kg	ND	ND		
2-Butanone (MEK)	ug/kg	ND	ND		
2-Chlorotoluene	ug/kg	ND	ND		
2-Hexanone	ug/kg	ND	ND		
4-Chlorotoluene	ug/kg	ND	ND		
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		
Acetone	ug/kg	ND	13.7J		
Benzene	ug/kg	ND	ND		
Bromobenzene	ug/kg	ND	ND		
Bromochloromethane	ug/kg	ND	ND		
Bromodichloromethane	ug/kg	ND	ND		
Bromoform	ug/kg	ND	ND		
Bromomethane	ug/kg	ND	ND		
Carbon tetrachloride	ug/kg	ND	ND		
Chlorobenzene	ug/kg	ND	ND		
Chloroethane	ug/kg	ND	ND		
Chloroform	ug/kg	ND	ND		
Chloromethane	ug/kg	ND	ND		
cis-1,2-Dichloroethene	ug/kg	ND	ND		
cis-1,3-Dichloropropene	ug/kg	ND	ND		
Dibromochloromethane	ug/kg	ND	ND		
Dibromomethane	ug/kg	ND	ND		
Dichlorodifluoromethane	ug/kg	ND	ND		
Diisopropyl ether	ug/kg	ND	ND		
Ethylbenzene	ug/kg	ND	ND		
Hexachloro-1,3-butadiene	ug/kg	ND	ND		
Isopropylbenzene (Cumene)	ug/kg	ND	ND		

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

SAMPLE DUPLICATE: 2301228

Parameter	Units	92387904003 Result	Dup Result	RPD	Qualifiers
m&p-Xylene	ug/kg	ND	ND		
Methyl-tert-butyl ether	ug/kg	ND	ND		
Methylene Chloride	ug/kg	ND	21.9		C9
n-Butylbenzene	ug/kg	ND	ND		
n-Propylbenzene	ug/kg	ND	ND		
Naphthalene	ug/kg	ND	ND		
o-Xylene	ug/kg	ND	ND		
p-Isopropyltoluene	ug/kg	ND	ND		
sec-Butylbenzene	ug/kg	ND	ND		
Styrene	ug/kg	ND	ND		
tert-Butylbenzene	ug/kg	ND	ND		
Tetrachloroethene	ug/kg	ND	ND		
Toluene	ug/kg	ND	ND		
trans-1,2-Dichloroethene	ug/kg	ND	ND		
trans-1,3-Dichloropropene	ug/kg	ND	ND		
Trichloroethene	ug/kg	ND	ND		
Trichlorofluoromethane	ug/kg	ND	ND		
Vinyl acetate	ug/kg	ND	ND		
Vinyl chloride	ug/kg	ND	ND		
Xylene (Total)	ug/kg	ND	ND		
1,2-Dichloroethane-d4 (S)	%	94	98	9	
4-Bromofluorobenzene (S)	%	73	98	16	
Toluene-d8 (S)	%	109	99	23	

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

QC Batch: 414907 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 3546 Analysis Description: 8015 Solid GCSV
Associated Lab Samples: 92387904001, 92387904003, 92387904004

METHOD BLANK: 2300834 Matrix: Solid
Associated Lab Samples: 92387904001, 92387904003, 92387904004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics(C10-C28)	mg/kg	ND	5.0	06/14/18 09:08	
n-Pentacosane (S)	%	73	41-119	06/14/18 09:08	

LABORATORY CONTROL SAMPLE & LCSD: 2300835 2300836

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics(C10-C28)	mg/kg	67.3	45.6	43.5	68	65	49-113	5	30	
n-Pentacosane (S)	%				71	74	41-119			

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

QC Batch: 415878
QC Batch Method: EPA 3546
Analysis Method: EPA 8015 Modified
Analysis Description: 8015 Solid GCSV
Associated Lab Samples: 92387904002

METHOD BLANK: 2306202 Matrix: Solid
Associated Lab Samples: 92387904002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics(C10-C28)	mg/kg	ND	5.0	06/20/18 08:55	
n-Pentacosane (S)	%	75	41-119	06/20/18 08:55	

LABORATORY CONTROL SAMPLE & LCSD: 2306203 2306204

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics(C10-C28)	mg/kg	66	40.6	41.3	61	63	49-113	2	30	
n-Pentacosane (S)	%				65	77	41-119			

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QUALITY CONTROL DATA

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

QC Batch: 414781 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92387904001, 92387904002, 92387904003, 92387904004

SAMPLE DUPLICATE: 2300164

Parameter	Units	92387722001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	99.6	99.6	0	

SAMPLE DUPLICATE: 2300165

Parameter	Units	92387904004 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	17.7	21.4	19	

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(704)875-9092

QUALIFIERS

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

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

C9	Common Laboratory Contaminant.
F3	The recovery of the second source standard used to verify the initial calibration curve for this analyte is outside the laboratory's control limits. The result is estimated.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NCDOT U5711 WBS 50207.1.1
Pace Project No.: 92387904

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92387904001	**SB-1**	EPA 3546	414907	EPA 8015 Modified	415184
92387904002	**SB-2**	EPA 3546	415878	EPA 8015 Modified	415912
92387904003	**SB-3**	EPA 3546	414907	EPA 8015 Modified	415184
92387904004	**SB-4**	EPA 3546	414907	EPA 8015 Modified	415184
92387904001	**SB-1**	EPA 5035A/5030B	414742	EPA 8015 Modified	414810
92387904002	**SB-2**	EPA 5035A/5030B	414742	EPA 8015 Modified	414810
92387904003	**SB-3**	EPA 5035A/5030B	414742	EPA 8015 Modified	414810
92387904004	**SB-4**	EPA 5035A/5030B	414742	EPA 8015 Modified	414810
92387904001	**SB-1**	EPA 8260	414886		
92387904002	**SB-2**	EPA 8260	414886		
92387904003	**SB-3**	EPA 8260	414895		
92387904004	**SB-4**	EPA 8260	414895		
92387904001	**SB-1**	ASTM D2974-87	414781		
92387904002	**SB-2**	ASTM D2974-87	414781		
92387904003	**SB-3**	ASTM D2974-87	414781		
92387904004	**SB-4**	ASTM D2974-87	414781		

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Laboratory receiving samples:
Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐

WO#: 92387904
92387904

Sample Condition Upon Receipt

Client Name: SAME Proje

Courier: ☐ Commercial ☐ Fed Ex ☐ Pace ☐ UPS ☐ USPS ☐ Other:____ ☐ Client

Custody Seal Present? ☐ Yes ☐ No Seals Intact? ☐ Yes ☐ No Date/Initials Person Examining Contents: VD 6-11-18

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): 5.5 Correction Factor: Add/Subtract (°C) +0.4

Cooler Temp Corrected (°C): 5.9

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

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

Field Data Required? ☐ Yes ☐ No

COMMENTS/SAMPLE DISCREPANCY

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: TC Date: 6/18 TC 12/18

Project Manager SRF Review: TC Date: 6/12/18

*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

Proje **WO# : 92387904**

PM: RWC Due Date: 06/20/18

CLIENT: 92-NCDOT

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	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) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	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 Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1									1												6	3							
2									1												6	3							
3									1												6	3							
4									1												6	3							
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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.

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	S&ME - Greensboro	Report To:	Darren Cox	Attention:	
Address:	8646 W Market St	Copy To:		Company Name:	
Greensboro, NC 27409				Address:	
Email:	dcox@smeinc.com	Purchase Order #:		Pace Quote:	
Phone:	NONE Fax	Project Name:	NC DOT U5711 #623518013	Pace Project Manager:	trey.carter@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	5937-1,2

Regulatory Agency:

State / Location: NC

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	DRO by 8015	GRO 8015	8260 Full List	6200B	625 SVOC	Residual Chlorine (Y/N)	92387904
1	SB-1	SL	C			6/8/18	1100		10										/	/	/				001
2	SB-2						1130												/	/	/				002
3	SB-3						1200												/	/	/				003
4	SB-4						1230												/	/	/				004
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
WBS# 50207.1.1 Iredell County NC		6/11/18	800		6/11/18	0804	
		6/11/18	1120		6-11-18	1120	5.9 Y 1.7 Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DARREN COX

SIGNATURE of SAMPLER:

DATE Signed: 6/11/18

TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)