



January 9, 2020

North Carolina Department of Transportation
Geotechnical Unit
Mail Service Center 1592
Raleigh, North Carolina 27699-1592

Attention: Mr. Craig Haden

email: cehaden@ncdot.gov

Reference: **Preliminary Site Assessment Report**
NCDOT Project I-5878, WBS Element 53078.1.1
Parcel 84-Building and Earth
610 Spring Branch Road
Dunn, Harnett County, North Carolina
S&ME Project 4305-19-161

Dear Mr. Haden:

S&ME, Inc. (S&ME) is submitting this Preliminary Site Assessment (PSA) Report to the North Carolina Department of Transportation (NCDOT). This report presents the background/project information, field activities, findings, conclusions, and recommendations. These services were performed in general accordance with S&ME Proposal No. 43-1900576 REV-01 dated August 9, 2019, and Contract Number 7000018853 dated April 12, 2018 between NCDOT and S&ME, Inc., authorized by NCDOT in its September 5, 2019 Notice to Proceed Letter.

◆ Background/Project Information

Based on NCDOT's July 24, 2019, Request for Technical and Cost Proposal, the PSA was conducted within the NCDOT right-of-way (ROW) and/or easement as indicated on the preliminary plan sheets provided by NCDOT at the following property:

NCDOT Parcel No.	Property Owner	Site Address
84	KAM Leasing, LLC	(Building and Earth) 610 Spring Branch (aka Pope Road), Dunn, NC



The property is developed with a commercial building that is currently occupied by Building and Earth which is a geotechnical, environmental and material testing firm. The building is reported to have previously been occupied by a textile sewing facility. The property is not listed with registered petroleum underground storage tanks (USTs) (active or closed). The property is not listed with North Carolina Department of Environmental Quality (NCDEQ) Incidents associated with petroleum releases from USTs or aboveground storage tanks.

The PSA included a geophysical survey, subsequent limited soil sampling (six soil borings up to 10 feet below ground surface (ft.-bgs)) and limited groundwater sampling (one groundwater sample), within accessible areas of the proposed ROW/easement in preparation for construction activities. **Figure 1** shows the vicinity and site location, and **Figure 2** shows the site and boring locations. Soil and groundwater sampling results are shown on **Figure 3**.

◆ Field Services

Prior to field activities, a site specific Health and Safety Plan was prepared as required by the Occupational Health and Safety Act (OSHA). Underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator (East Coast Underground, LLC) was also used to locate and mark underground utilities.

◆ Geophysical Survey

On July 25, 2019, S&ME completed Time Domain Electromagnetic (TDEM) and Ground Penetrating Radar (GPR) surveys within accessible areas of the proposed ROW/easement at Parcel 84. Brief descriptions of these complementary geophysical techniques are presented in the following paragraphs.

Time Domain Electromagnetics (TDEM)

TDEM measures the electrical conductivity of subsurface materials and discriminates between moderately conductive earth materials and very conductive metallic targets within the shallow subsurface. 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. These measurements can also be supported with a global positioning system (GPS) which is output directly into the TDEM data file.

We used a Geonics Limited EM-61 MK2 TDEM system in general accordance with ASTM D6820 *Standard Guide for Use of the Time Domain Electromagnetic Method for Subsurface Investigation.* Data was collected along lines spaced at approximately five feet using a Juniper® Systems Geode™ sub-meter GPS as positioning support. The presence of vehicles and thick vegetation within the survey area, prevented TDEM data collection in several locations. The approximate TDEM data collection paths are presented in **Figure 4**. Golden Software's Surfer® program was used to grid and plot the data (**Figures 5 and 6**). The TDEM data has been presented as Plots A and B in order to provide both opaque and semi-transparent views, respectively.



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® 4000 GPR system equipped with a 350 MHz antenna in general accordance with ASTM D6432 "*Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation*" to further characterize anomalies/features identified during the TDEM survey.

A total of six GPR profiles (Lines 1 through 6) were collected for documentation (**Figure 7**). The data was post-processed using the GSSI Radan® 7 GPR software program for additional analysis.

Geophysical Findings

Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site. One anomalous feature unrelated to known surficial targets was identified in the geophysical data sets (Anomaly A; **Figures 6 and 7**). Anomaly A is characterized by high amplitude GPR responses located less than about one foot below ground surface (bgs) and may be related to a relatively small isolated buried metallic object. The anomaly was marked in the field using white spray paint. Example GPR profiles are presented in **Figure 8**

◆ Soil Sampling

On October 29, 2019, Troxler Geologic, Inc. (Troxler's) drill crew utilized a track mounted Geoprobe® rig to advance six soil borings (B-1 through B-6) and to collect soil samples within accessible areas of the proposed ROW/easement at Parcel 84. The approximate location of the soil borings are shown in **Figure 2**. A photographic log is included in **Appendix I**. Troxler's drill crew advanced the Geoprobe® borings up to a depth of approximately 10 ft.-bgs. During the advancement of the soil borings, groundwater was encountered at depths ranging from approximately four to 9.7 ft.-bgs. Soil samples were continuously collected in four-foot long disposable acetate-plastic sleeves that line the hollow stainless-steel sample probes. Soil recovered from the sleeves was classified on-site by S&ME personnel and screened with a Photoionization Detector (PID) at approximately two foot depth intervals to measure relative headspace concentrations of volatile organic compounds (VOCs).

VOC headspace readings were obtained from an aliquot of each soil sample that was placed in a re-sealable bag. Another portion of the sample was placed in a separate re-sealable bag 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, the PID probe was inserted into the bag to obtain a headspace reading. A summary of the PID readings and logs of the soil borings are included in **Appendix II**.

Petroleum odors and elevated PID readings were not noted in the collected soil samples. Therefore, a soil sample was selected from each boring at varying depth intervals. The soil samples were placed into laboratory supplied containers and transported to RED Lab, LLC (Red Lab) in an insulated cooler with ice for analysis. A total of six soil



samples (one soil sample per boring) were analyzed by RED Lab for TPH-GRO and TPH-DRO using ultra-violet fluorescence (UVF) spectroscopy with product (fuel) identification.

Soil Analytical Results

Based upon analytical results of soil samples analyzed by RED Lab using UVP spectroscopy, TPH-GRO and TPH-DRO were not reported at concentrations exceeding their respective North Carolina TPH Action Levels. TPH-DRO was reported in borings B-2 and B-3 at the four to six foot depth interval, at concentrations ranging from 0.96 milligram per kilograms (mg/kg) to 1.2 mg/kg, which is slightly above the laboratory method reporting limits but well below its North Carolina TPH Action Level of 100 mg/kg. TPH-GRO and TPH-DRO were not reported at concentrations exceeding the laboratory method reporting limits at the remaining soil samples. A summary of the soil analytical results is presented in **Table 1** and shown on **Figure 3**. A copy of the laboratory analytical report provided by RED Lab is presented in **Appendix III**.

◆ Groundwater Sampling

During the advancement of the soil borings, groundwater was encountered at depths ranging from approximately four to 9.7 ft.-bgs. Therefore, the Geoprobe® was used to advance one of the soil borings into the groundwater table for the collection of a groundwater sample. Due to the lack of petroleum odors or elevated PID readings, boring B-4 was selected at random for collection of a groundwater sample. A temporary monitor well (TW-1) was installed at boring B-4 to a depth of approximately five ft.-bgs using a five foot section of one-inch diameter, Schedule 40 PVC, 0.01-inch slotted screen that intersected the groundwater table. Groundwater within the temporary monitor well at boring B-4 was measured at four ft.-bgs. Groundwater was purged from the temporary well until relatively clear using disposable tubing attached to a peristaltic pump. The flow rate was reduced and laboratory supplied containers were filled directly from the tubing, labeled as TW-1 and placed in an insulated cooler with ice for transport to Con-Test Laboratories (Con-Test) for analysis of VOCs by EPA Method 8260 and polycyclic aromatic compounds (PAHs) by EPA Method 8270.

Upon completion of the soil and groundwater sampling, the well materials were removed and the soil borings backfilled with bentonite pellets and soil cuttings. Investigative derived wastes (IDW), such as soil cuttings generated during the soil boring advancement and decontamination water, were spread on the ground in accordance with the procedures specified by NCDEQ. Used gloves and tubing were bagged and disposed off-site.

Groundwater Analytical Results

Based upon analytical results of the groundwater sample analyzed by Con-Test, one target constituent was reported at a concentration slightly above the laboratory method reporting limits and below its 15A NCAC 2L Groundwater Quality Standards (2L Standards). Tetrachloroethylene (PCE), which is a chlorinated solvent, was reported in the groundwater sample at a concentration of 0.43 microgram per liter ($\mu\text{g/L}$) which is below its 2L Standard of 0.7 $\mu\text{g/L}$. No other target constituent was reported in the groundwater sample at a concentration exceeding the laboratory method reporting limits. A summary of the groundwater analytical results is presented in **Table 2** and shown on **Figure 3**. A copy of the laboratory analytical report provided by Con-Test is presented in **Appendix III**.



◆ Conclusion and Recommendations

The geophysical survey identified one anomaly (Anomaly A) which may be related to a relatively small isolated buried metallic object. Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site.

S&ME advanced six soil borings (B-1 through B-6) to a depth of up to approximately 10 ft.-bgs at the site. Petroleum odors and elevated PID readings were not noted in soil samples collected at the borings. Selected soil samples from the soil borings were analyzed for TPH-GRO and TPH-DRO using UVF spectroscopy.

TPH-GRO and TPH-DRO were not reported at concentrations exceeding their respective North Carolina TPH Action Levels. TPH-DRO was reported in borings B-2 and B-3 at the four to six foot depth interval at concentrations slightly above the laboratory method reporting limits but well below its North Carolina TPH Action Level. TPH-GRO and TPH-DRO were not reported at concentrations exceeding the laboratory method reporting limits at the remaining soil samples.

During the soil boring advancement, groundwater was encountered at depths ranging from four to 9.7 ft.-bgs. One temporary well (TW-1) was installed at soil boring B-4. Groundwater at TW-1 was measured at four ft.-bgs and analyzed by Con-Test for VOCs by EPA Method 8260 and PAHs by EPA Method 8270. Tetrachloroethylene (PCE), which is a chlorinated solvent, was reported in the groundwater sample at a concentration of 0.43 µg/L which is below its 2L Standard of 0.7 µg/L. No other target constituent was reported in the groundwater sample at a concentration exceeding the laboratory method reporting limits.

Based on the findings of the geophysical survey and analytical results of soil and groundwater samples, it is likely that during construction, NCDOT may encounter soil marginally impacted with petroleum (below TPH Action Levels) and groundwater marginally impacted with Tetrachloroethylene a chlorinated solvent (below 2L Standards).

It should also be assumed that saturated petroleum and solvent impacted soil will be encountered if construction excavations extend deeper than four ft.-bgs on the site. If construction dewatering is required, impacted groundwater must be properly disposed or treated at a licensed facility. If petroleum stained or odorous soils are encountered during construction, these soils should be properly handled and disposed at a licensed facility.

S&ME recommends maintaining an awareness level for the presence of marginally impacted petroleum and solvents in the soil and groundwater at the site for the safety of workers and the public.

◆ Limitations

The results of this preliminary investigation are limited to the boring locations presented herein. The results of this Preliminary Site Assessment are not all inclusive and may not represent existing conditions across the entire property. These results only reflect the current conditions at the locations sampled on the date this Preliminary Site Assessment was performed. This report has been prepared in accordance with generally accepted environmental engineering and geophysical practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made.



**Preliminary Site Assessment Report
NCDOT Project I-5878, WBS Element 53078.1.1
Parcel 84-Building and Earth
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-19-161**

The geophysical methods used for this survey have inherent limitations. Site metallic features (e.g., surficial debris, reinforced concrete, utilities, 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 six ft.-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.

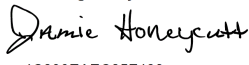
This Preliminary Site Assessment was performed solely for NCDOT regarding the above-referenced site and assessment area. This report is provided for the sole use of NCDOT. Use of this report by any other parties will be at such party's sole risk. S&ME disclaims liability for any such use or reliance by third parties. The observations presented in this report are indicative of conditions during the time of the assessment and of the specific areas referenced.



◆ Closing

S&ME appreciates the opportunity to provide these services to you. If you have any questions or comments regarding this report, please contact us at your convenience.

Sincerely,
S&ME, Inc.

DocuSigned by:

4C890EAE25F488...

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1/27/2020

Thomas P. Raymond, P.E., P.M.P.
Senior Consultant
traymond@smeinc.com

Attachments:

Table 1: Summary of Soil Sampling Results

Table 2: Summary of Groundwater Sampling Results

Figure 1: Vicinity Map

Figure 2: Site Map

Figure 3: Soil and Groundwater Constituent Map

Figure 4: TDEM Path Location Plan

Figure 5: TDEM Data Plot A

Figure 6: TDEM Data Plot B

Figure 7: Geophysical Anomaly Location Plan

Figure 8: Example GPR Data – Lines 5 and 6

Appendix I: Photographs

Appendix II: Boring Logs

Appendix III: Laboratory Analytical Reports and Chain of Custody

Tables



TABLE 1
SUMMARY OF SOIL SAMPLING RESULTS
NCDOT Project I-5878
Parcel 84 - (Building and Earth)
610 Spring Branch Road
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-19-161

Analytical Method→			Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by Ultraviolet Fluorescence (UVF) Spectrometry	
Sample ID	Date	Contaminant of Concern→	TPH-GRO	TPH-DRO
		Sample Depth (ft.-bgs)		
B-1	10/29/2019	6 to 8	<0.53	<0.53
B-2	10/29/2019	4 to 6	<0.5	0.96
B-3	10/29/2019	4 to 6	<0.48	1.2
B-4	10/29/2019	4 to 6	<0.5	<0.5
B-5	10/29/2019	6 to 8	<0.26	<0.26
B-6	10/29/2019	6 to 8	<0.51	<0.51
North Carolina TPH Action Levels			50	100

Notes:

1. UVF analysis performed by RED Lab, LLC
2. Concentrations are reported in milligrams per kilogram (mg/Kg).
3. ft.-bgs:- feet below ground surface.
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the North Carolina TPH Action Levels are shown in Shaded and **BOLD** fields.



TABLE 2
SUMMARY OF GROUNDWATER SAMPLING RESULTS
NCDOT Project I-5878
Parcel 84 - (Building and Earth)
610 Spring Branch Road
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-19-161

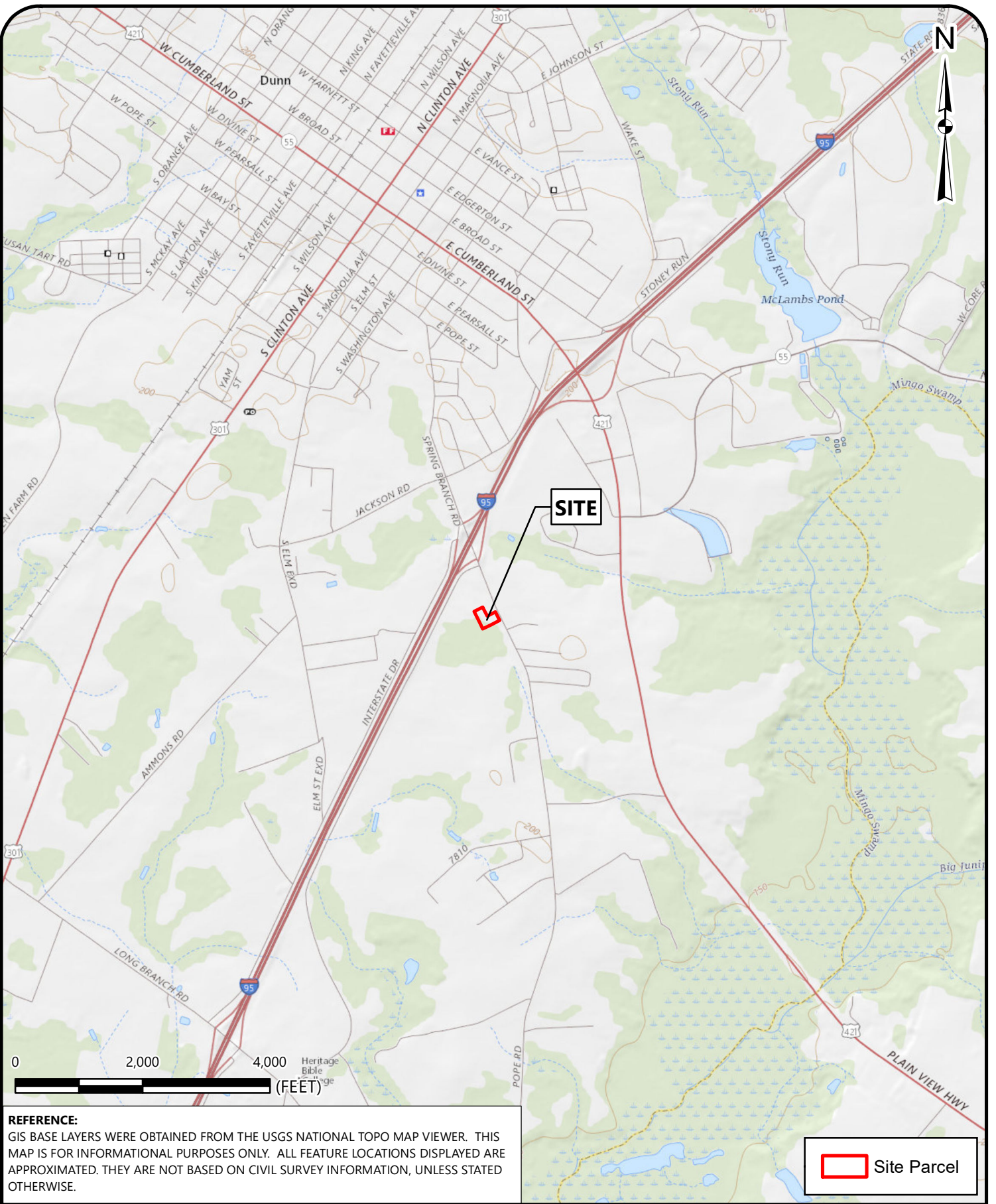
Analytical Method→		Volatile Organic Compounds by EPA Method 8260	Polycyclic Aromatic Compounds (PAHs) by EPA Method 8270
Sample ID	Contaminant of Concern→	Tetrachloroethylene	Constituent Specific
	Date		
B-4/TW-1	10/29/2019	0.43 J	Below Laboratory Reporting Limits
2L Standard (µg/L)		0.7	Not Applicable
GCL (µg/L)		700	Not Applicable

Notes:

1. Analytes that are not shown for the method were not detected.
2. Concentrations are reported in micrograms per liter (µg/L).
3. 2L Standard: North Carolina Groundwater Quality Standards: 15A NCAC 2L.0202
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the 2L Standards are shown in Shaded and **BOLD** fields.
6. GCL: Gross Contamination Level.
7. J: Estimated concentration detected below the reporting limit.

Figures

Drawing Path: T:\Projects\2019\ENV\4305-19-161 NCDOT I-5878 PSAs\GIS\Parcel_84\VICINITY.mxd plotted by abentz 11-26-2019



REFERENCE:

GIS BASE LAYERS WERE OBTAINED FROM THE USGS NATIONAL TOPO MAP VIEWER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

 Site Parcel



VICINITY MAP

NCDOT PROJECT I-5878
 PARCEL NO. 84 (BUILDING AND EARTH)
 610 SPRING BRANCH RD, DUNN, HARNETT COUNTY, NORTH CAROLINA

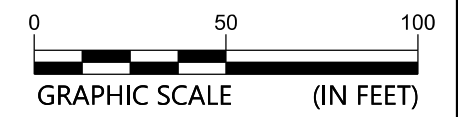
SCALE:
 1" = 2,000'
 DATE:
 11-26-19
 PROJECT NUMBER
 4305-19-161

FIGURE NO.
1



LEGEND
 Geoenvironmental Boring:
 Underground Storage Tank (UST):
 Map Source: NCDOT Project I-59868
 Image Source: NC ONEMAP, Dated 2016

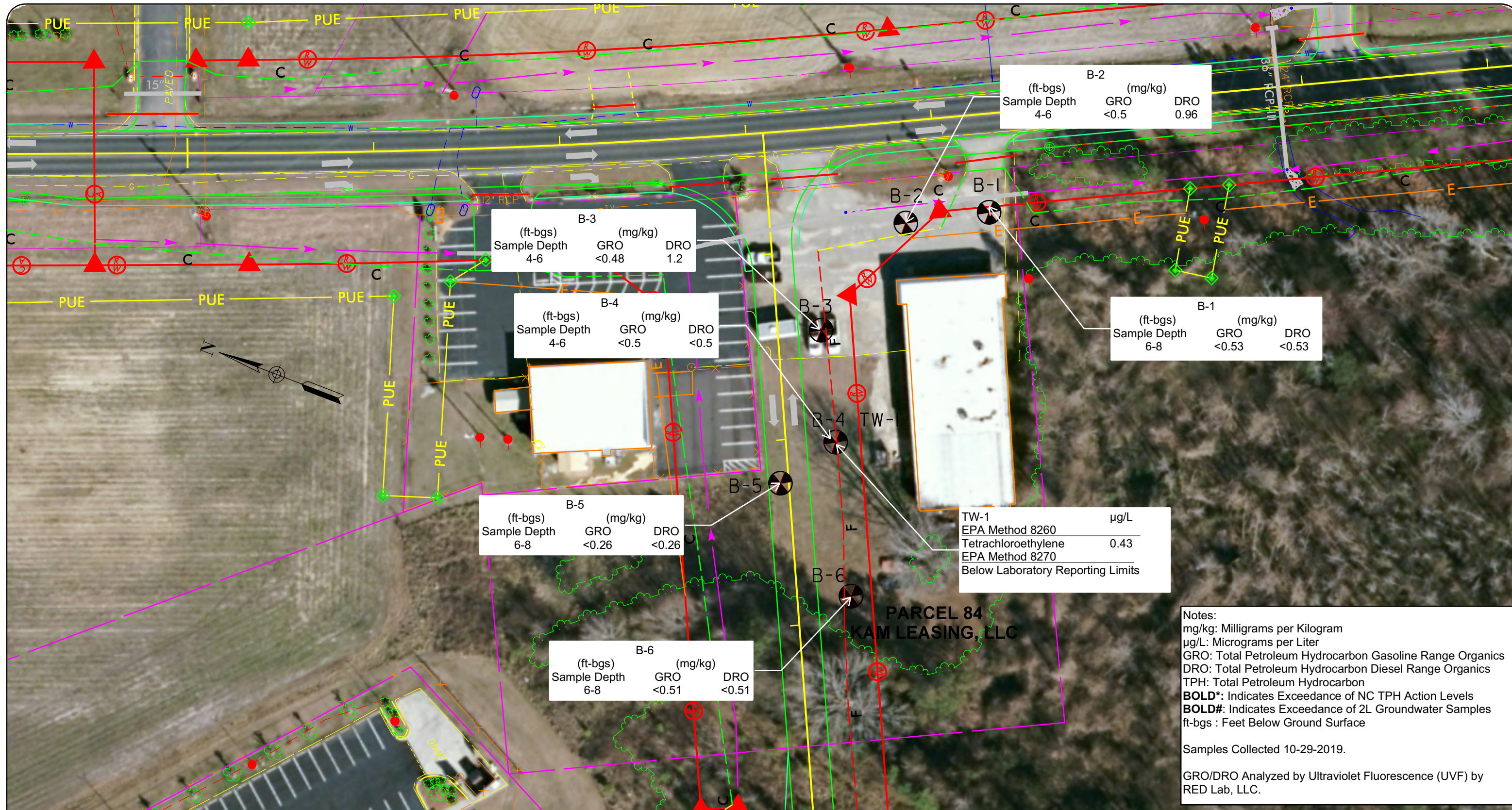
Known Soil Contamination:
 Possible Soil Contamination:
 Existing Contamination Known - Water:



SITE MAP

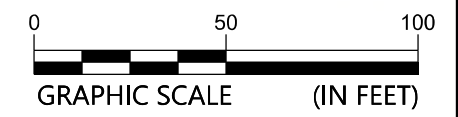
NCDOT Project: I-5878
 PARCEL 84 - BUILDING AND EARTH
 610 Spring Branch Rd., Dunn, Harnett County, North Carolina

SCALE:	FIGURE NO.
1" = 50'	2
DATE:	
JAN. 2020	
PROJECT NUMBER	
4305-19-161	



LEGEND
 Geoenvironmental Boring:
 Underground Storage Tank (UST):
 Map Source: NCDOT Project I-59868
 Image Source: NC ONEMAP, Dated 2016

Known Soil Contamination:
 Possible Soil Contamination:
 Existing Contamination Known - Water:



SOIL AND GROUNDWATER CONSTITUENT MAP

NCDOT Project: I-5878
 PARCEL 84 - BUILDING AND EARTH
 610 Spring Branch Rd., Dunn, Harnett County, North Carolina

SCALE:	FIGURE NO.
1" = 50'	3
DATE:	
JAN. 2020	
PROJECT NUMBER	
4305-19-161	





REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED MARCH 4, 2018)



Google Earth
© 2018 Google

LEGEND

- - - - - Approximate TDEM Path
- Approximate Requested Survey Area
- Location of Vehicles

TDEM PATH LOCATION PLAN

NCDOT PROJECT: I-5878
PARCEL #84 – (BUILDING AND EARTH)
610 SPRING BRANCH ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
1/7/2020

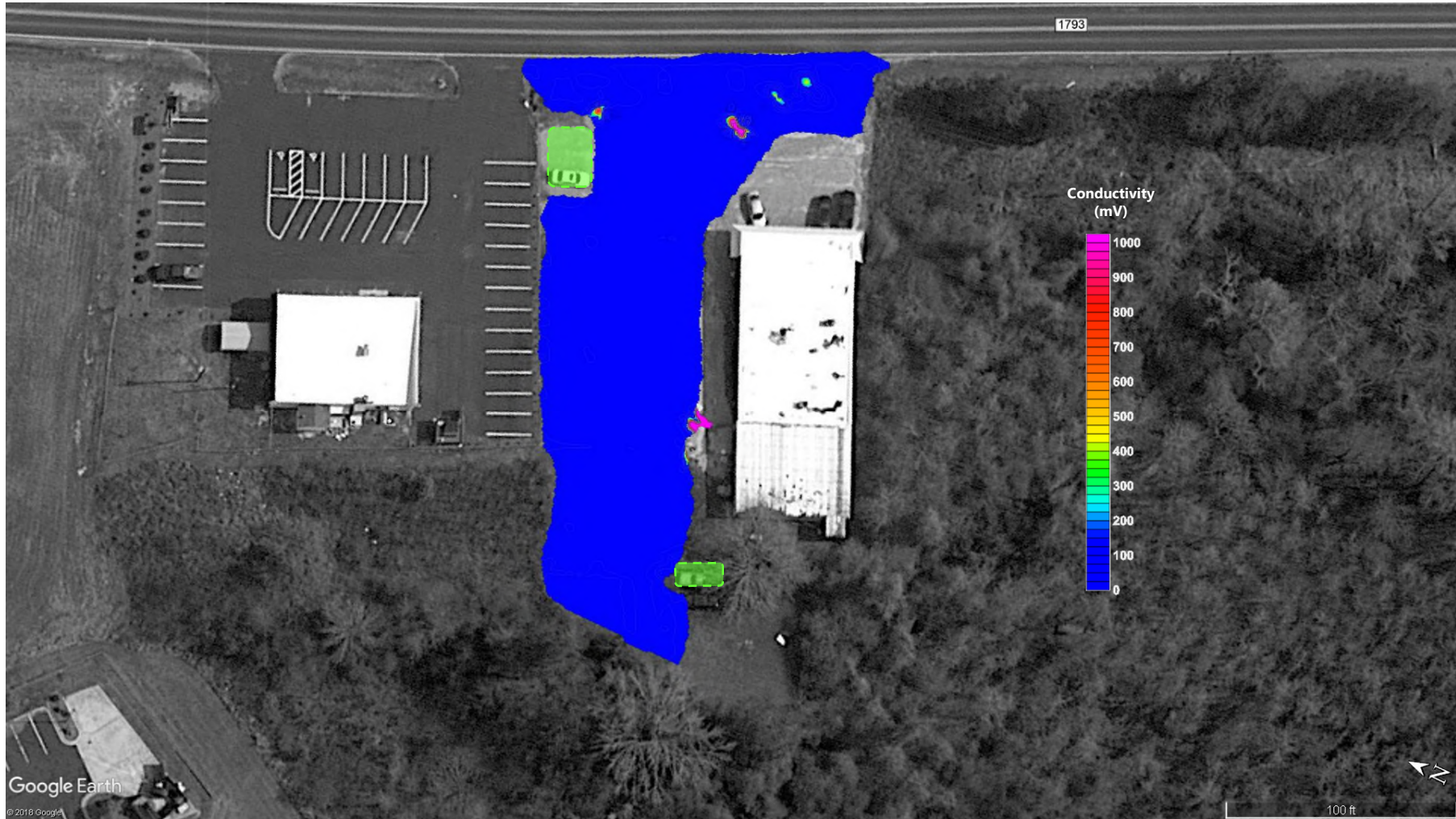
PROJECT NUMBER
4305-19-161

FIGURE NO.

4




REFERENCE:
 GOOGLE EARTH PRO AERIAL PHOTOGRAPH
 (DATED MARCH 4, 2018)



Google Earth
 © 2018 Google

LEGEND

 Location of Vehicles

TDEM DATA PLOT A

NCDOT PROJECT: I-5878
 PARCEL #84 – (BUILDING AND EARTH)
 610 SPRING BRANCH ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
 AS SHOWN

DATE:
 1/7/2020

PROJECT NUMBER
 4305-19-161

FIGURE NO.

5



REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED MARCH 4, 2018)



Google Earth
© 2018 Google

LEGEND

- Approximate Location of Geophysical Anomaly
- Approximate Location of Possible Utility
- Location of Vehicles

TDEM DATA PLOT B

NCDOT PROJECT: I-5878
PARCEL #84 – (BUILDING AND EARTH)
610 SPRING BRANCH ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
1/7/2020

PROJECT NUMBER
4305-19-161

FIGURE NO.

6



REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED MARCH 4, 2018)



Google Earth
© 2018 Google

LEGEND

- Approximate Location of Geophysical Anomaly
- Approximate Location of Possible Utility
- Location of Vehicles
- Approximate Location of GPR Profile

GEOPHYSICAL ANOMALY LOCATION PLAN

NCDOT PROJECT: I-5878
PARCEL #84 – (BUILDING AND EARTH)
610 SPRING BRANCH ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

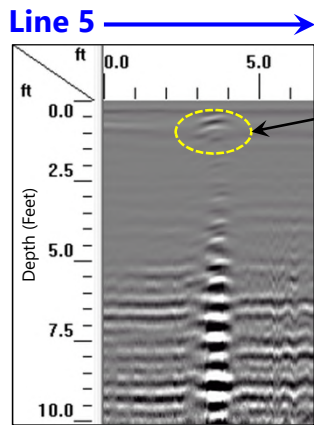
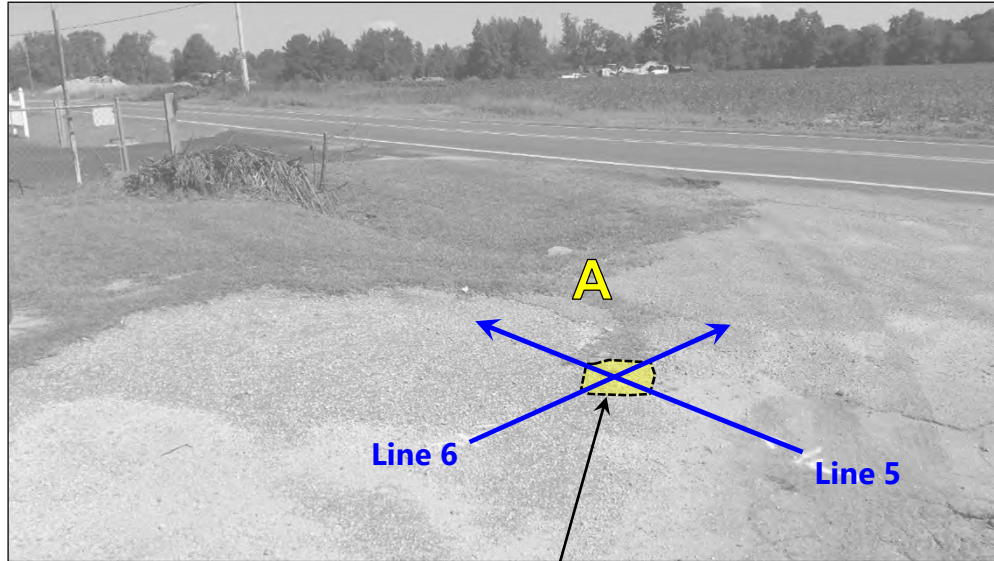
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DATE:
1/7/2020

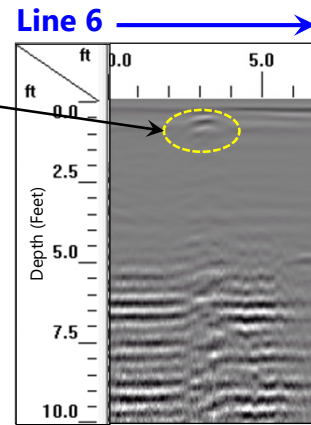
PROJECT NUMBER
4305-19-161

FIGURE NO.

7



Anomaly A



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



EXAMPLE GPR DATA – LINES 5 AND 6

NCDOT PROJECT: I-5878
 PARCEL #84 – (BUILDING AND EARTH)
 610 SPRING BRANCH ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
 AS SHOWN

DATE:
 1/7/2020

PROJECT NUMBER
 4305-19-161

FIGURE NO.

Appendix I – Photographs



Preliminary Site Assessment Report
NCDOT Project I-5878, WBS Element 53078.1.1
Parcel 84-Building and Earth
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-19-161

1	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%; padding: 5px;">Location / Orientation</td> <td style="padding: 5px;">Front view of site looking southwest.</td> </tr> <tr> <td style="padding: 5px;">Remarks</td> <td style="padding: 5px;">None</td> </tr> </table>	Location / Orientation	Front view of site looking southwest.	Remarks	None	<div style="border: 1px solid black; padding: 5px;"> <div style="display: flex; justify-content: space-between; align-items: center; border-bottom: 1px solid black; margin-bottom: 5px;"> <div style="font-size: 0.8em; color: gray;"> SE S SW W N 150 180 210 240 270 300 </div> <div style="font-size: 0.8em; color: gray;"> 220°SW (T) 35°17'18"N, 78°36'10"W ±16ft ▲ 197ft </div> </div>  <div style="text-align: right; font-size: 0.8em; color: gray; margin-top: 5px;">29 Oct 2019, 15:02:41</div> </div> <div style="display: flex; flex-direction: column; align-items: center; justify-content: center; font-size: 0.8em; color: gray; margin-top: 10px;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Date: 10/29/2019</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Photographer: JTH</div> </div>
Location / Orientation	Front view of site looking southwest.					
Remarks	None					

2	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%; padding: 5px;">Location / Orientation</td> <td style="padding: 5px;">View looking southwest at the western side of the site.</td> </tr> <tr> <td style="padding: 5px;">Remarks</td> <td style="padding: 5px;">Geoprobe is at location of boring B-4/TW-1.</td> </tr> </table>	Location / Orientation	View looking southwest at the western side of the site.	Remarks	Geoprobe is at location of boring B-4/TW-1.	<div style="border: 1px solid black; padding: 5px;"> <div style="display: flex; justify-content: space-between; align-items: center; border-bottom: 1px solid black; margin-bottom: 5px;"> <div style="font-size: 0.8em; color: gray;"> S SW W NW 150 180 210 240 270 300 330 </div> <div style="font-size: 0.8em; color: gray;"> 236°SW (T) 35°17'18"N, 78°36'11"W ±16ft ▲ 246ft </div> </div>  <div style="text-align: right; font-size: 0.8em; color: gray; margin-top: 5px;">29 Oct 2019, 16:56:09</div> </div> <div style="display: flex; flex-direction: column; align-items: center; justify-content: center; font-size: 0.8em; color: gray; margin-top: 10px;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Date: 10/29/2019</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Photographer: JTH</div> </div>
Location / Orientation	View looking southwest at the western side of the site.					
Remarks	Geoprobe is at location of boring B-4/TW-1.					

Appendix II – Boring Logs

Appendix III – Laboratory Analytical Reports and Chain of Custody



Hydrocarbon Analysis Results

Client: S&ME
Address: 3201 SPRING FOREST RD
 RALEIGH NC

Samples taken
Samples extracted
Samples analysed

Tuesday, October 29, 2019
 Tuesday, October 29, 2019
 Friday, November 1, 2019

Contact: JAMIE HONEYCUTT

Operator

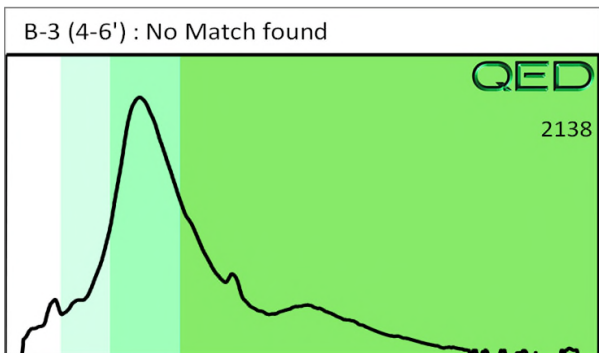
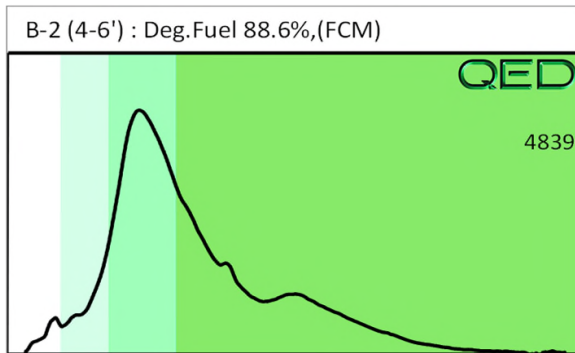
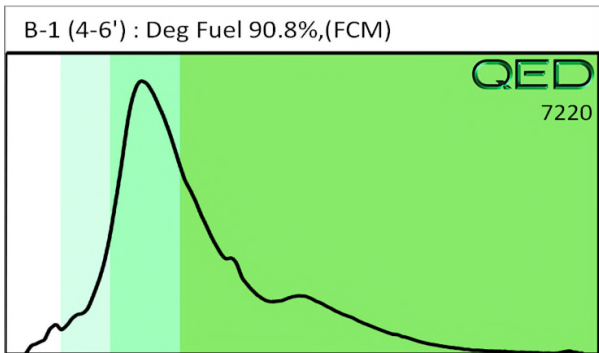
MAX MOYER

Project: NCDOT I-5878 PARCEL 84

U00902

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5 - C10	C10 - C18	C18	
s	B-1 (6-8')	21.1	<0.53	<0.53	<0.53	<0.53	<0.11	<0.17	<0.021	0	0	0	PHC not detected,(P)
s	B-2 (4-6')	20.0	<0.5	<0.5	0.96	0.96	0.5	<0.16	<0.02	0	77.9	22.1	Deg Fuel 81%,(FCM)
s	B-3 (4-6')	19.3	<0.48	<0.48	1.2	1.2	0.69	<0.15	<0.019	0	78.9	21.1	Deg Fuel 76.7%,(FCM)
s	B-4 (4-6')	20.0	<0.5	<0.5	<0.5	<0.5	<0.1	<0.16	<0.02	0	0	0	PHC not detected,(BO)
s	B-5 (6-8')	10.4	<0.26	<0.26	<0.26	<0.26	<0.05	<0.08	<0.01	0	0	0	(FCM)
s	B-6 (6-8')	10.5	<0.51	<0.51	<0.51	<0.51	<0.1	<0.16	<0.02	0	0	0	PHC not detected
Initial Calibrator QC check			OK			Final FCM QC Check			OK			101%	

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.
 Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected
 B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modified Result.
 % Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**



NC DOT - I-5878 Parcel 84 B143

Client Name: SyME Forest
 Address: 3201 Spring House Rd
Beaufort NC
 Contact: Jamie T Harrop
 Project Ref.: NC DOT - I-5878 Parcel 84
 Email: harropj@smec.com
 Phone #: 910 977 7614
 Collected by: Jamie T Harrop

REDLAB™

RAPID ENVIRONMENTAL DIAGNOSTICS
 CHAIN OF CUSTODY AND ANALYTICAL
 REQUEST FORM

RED Lab, LLC
 5598 Marvin K Moss Lane
 MARBIONC Bldg, Suite 2003
 Wilmington, NC 28409

Each sample will be analyzed for
 BTEX, GRO, DRO, TPH, PAH total
 aromatics and BaP

Sample Collection Date/Time	TAT Requested		Initials	Sample ID	Total Wt.	Tare Wt.	Sample Wt.
	24 Hour	48 Hour					
10-29-19 1500		↑	JTH	B-1 6-8'	57.4	45.1	12.3
1510		↑		B-2 4-6'	57.7	44.7	13.0
1520		↑		B-3 4-6'	57.7	44.2	13.5
1530		↑		B-4 4-6'	57.5	44.5	13.0
1545		↑		B-5 6-8'	58.3	44.8	13.5
1600		↑	↓	B-6 6-8'	57.7	45.0	12.7

Comments:

Relinquished by: Jamie T Harrop Date/Time: 10/30/19 1500 Accepted by: JMM Date/Time: 11/1/19

Relinquished by: Date/Time: Accepted by: Date/Time:

RED Lab USE ONLY 6

November 26, 2019

Jamie Honeycutt
S&ME, Inc - Raleigh, NC
3201 Spring Forest Rd.
Raleigh, NC 27616

Project Location: Dunn, NC
Client Job Number:
Project Number: 4305-19-161
Laboratory Work Order Number: 19K0024

Enclosed are results of analyses for samples received by the laboratory on October 31, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Kerry K. McGee". The signature is written in a cursive, flowing style.

Kerry K. McGee
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

S&ME, Inc - Raleigh, NC
3201 Spring Forest Rd.
Raleigh, NC 27616
ATTN: Jamie Honeycutt

REPORT DATE: 11/26/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 4305-19-161

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19K0024

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Dunn, NC

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
TW-1	19K0024-01	Ground Water		SW-846 8260D SW-846 8270E	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

EXECUTIVE SUMMARY

Client ID: **TW-1**Lab ID: **19K0024-01**

Analyte	Results/Qual	DL	RL	Units	Method
Tetrachloroethylene	0.43 J	0.18	1.0	µg/L	SW-846 8260D

Con-Test does not accept liability for the consequences of any actions taken solely on the basis of the information provided in the Executive Summary section of this report. Users must review this report in its entirety to determine data usability and assessment.

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

REVISED REPORT 11-25-19: Due to a labeling error the results for method 8270 have been revised with the correct results.

REVISED REPORT 11-19-19: Due to a labeling error the results for method 8260 have been revised with the correct results.

For method 8270, only PAHs were requested and reported.

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SW-846 8260D

Qualifications:**L-02**

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

Analyte & Samples(s) Qualified:**trans-1,4-Dichloro-2-butene**

B245276-BS1, B245276-BSD1

Vinyl Chloride

B245276-BS1, B245276-BSD1

L-04

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:**tert-Amyl Methyl Ether (TAME)**

19K0024-01[TW-1], B245276-BLK1, B245276-BS1, B245276-BSD1

tert-Butyl Ethyl Ether (TBEE)

19K0024-01[TW-1], B245276-BLK1, B245276-BS1, B245276-BSD1

L-07A

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:**Acetone**

B245276-BS1

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:**Acetone**

19K0024-01[TW-1], B245276-BLK1, B245276-BS1, B245276-BSD1

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:**tert-Amyl Methyl Ether (TAME)**

19K0024-01[TW-1], B245276-BLK1, B245276-BS1, B245276-BSD1, S042406-CCV1

tert-Butyl Ethyl Ether (TBEE)

19K0024-01[TW-1], B245276-BLK1, B245276-BS1, B245276-BSD1, S042406-CCV1

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:**Acetone**

B245276-BS1, B245276-BSD1, S042406-CCV1

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:**2-Hexanone (MBK)**

B245276-BS1, B245276-BSD1, S042406-CCV1

4-Methyl-2-pentanone (MIBK)

B245276-BS1, B245276-BSD1, S042406-CCV1

trans-1,4-Dichloro-2-butene

B245276-BS1, B245276-BSD1, S042406-CCV1

Vinyl Chloride

B245276-BS1, B245276-BSD1, S042406-CCV1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Lisa A. Worthington", is written over a light gray rectangular background.

Lisa A. Worthington
Technical Representative

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Dunn, NC

Sample Description:

Work Order: 19K0024

Date Received: 10/31/2019

Field Sample #: TW-1

Sampled: 10/29/2019 16:30

Sample ID: 19K0024-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	3.8	µg/L	1	R-05	SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Acrylonitrile	ND	5.0	0.52	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.14	µg/L	1	V-05, L-04	SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Benzene	ND	1.0	0.18	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Bromochloromethane	ND	1.0	0.32	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Bromodichloromethane	ND	0.50	0.16	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Bromoform	ND	1.0	0.46	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Bromomethane	ND	2.0	0.78	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
2-Butanone (MEK)	ND	20	1.9	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
tert-Butyl Alcohol (TBA)	ND	20	4.2	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
n-Butylbenzene	ND	1.0	0.21	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
sec-Butylbenzene	ND	1.0	0.16	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
tert-Butylbenzene	ND	1.0	0.17	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.16	µg/L	1	V-05, L-04	SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Carbon Disulfide	ND	5.0	4.4	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Carbon Tetrachloride	ND	1.0	0.11	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Chlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Chlorodibromomethane	ND	0.50	0.21	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Chloroethane	ND	2.0	0.35	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Chloroform	ND	2.0	0.17	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Chloromethane	ND	2.0	0.45	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.53	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2-Dibromoethane (EDB)	ND	0.50	0.19	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Dibromomethane	ND	1.0	0.37	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2-Dichlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,3-Dichlorobenzene	ND	1.0	0.12	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,4-Dichlorobenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.26	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2-Dichloroethane	ND	1.0	0.41	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1-Dichloroethylene	ND	1.0	0.32	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
cis-1,2-Dichloroethylene	ND	1.0	0.13	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
trans-1,2-Dichloroethylene	ND	1.0	0.31	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2-Dichloropropane	ND	1.0	0.20	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,3-Dichloropropane	ND	0.50	0.11	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
2,2-Dichloropropane	ND	1.0	0.20	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1-Dichloropropene	ND	2.0	0.16	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
cis-1,3-Dichloropropene	ND	0.50	0.13	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
trans-1,3-Dichloropropene	ND	0.50	0.23	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Diethyl Ether	ND	2.0	0.34	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Dunn, NC

Sample Description:

Work Order: 19K0024

Date Received: 10/31/2019

Field Sample #: TW-1

Sampled: 10/29/2019 16:30

Sample ID: 19K0024-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.17	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,4-Dioxane	ND	50	22	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Ethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Hexachlorobutadiene	ND	0.60	0.47	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Isopropylbenzene (Cumene)	ND	1.0	0.17	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
p-Isopropyltoluene (p-Cymene)	ND	1.0	0.20	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.25	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Methylene Chloride	ND	5.0	0.34	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	1.7	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Naphthalene	ND	2.0	0.31	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Styrene	ND	1.0	0.11	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	0.27	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	0.22	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Tetrachloroethylene	0.43	1.0	0.18	µg/L	1	J	SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Tetrahydrofuran	ND	10	0.51	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Toluene	ND	1.0	0.14	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2,3-Trichlorobenzene	ND	5.0	0.57	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2,4-Trichlorobenzene	ND	1.0	0.40	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,3,5-Trichlorobenzene	ND	1.0	0.30	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1,1-Trichloroethane	ND	1.0	0.20	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1,2-Trichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Trichloroethylene	ND	1.0	0.24	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	0.33	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2,3-Trichloropropane	ND	2.0	0.25	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.32	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,3,5-Trimethylbenzene	ND	1.0	0.14	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Vinyl Chloride	ND	2.0	0.45	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
m+p Xylene	ND	2.0	0.30	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
o-Xylene	ND	1.0	0.17	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	104	70-130	11/7/19 19:56
Toluene-d8	100	70-130	11/7/19 19:56
4-Bromofluorobenzene	93.6	70-130	11/7/19 19:56

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Project Location: Dunn, NC

Sample Description:

Work Order: 19K0024

Date Received: 10/31/2019

Field Sample #: TW-1

Sampled: 10/29/2019 16:30

Sample ID: 19K0024-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene (SIM)	ND	0.30	0.033	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Acenaphthylene (SIM)	ND	0.20	0.035	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Anthracene (SIM)	ND	0.20	0.032	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Benzo(a)anthracene (SIM)	ND	0.050	0.016	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Benzo(a)pyrene (SIM)	ND	0.10	0.012	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Benzo(b)fluoranthene (SIM)	ND	0.050	0.015	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Benzo(g,h,i)perylene (SIM)	ND	0.50	0.018	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Benzo(k)fluoranthene (SIM)	ND	0.20	0.012	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Chrysene (SIM)	ND	0.20	0.015	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Dibenz(a,h)anthracene (SIM)	ND	0.10	0.017	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Fluoranthene (SIM)	ND	0.50	0.025	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Fluorene (SIM)	ND	1.0	0.034	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.10	0.018	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
2-Methylnaphthalene (SIM)	ND	1.0	0.062	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Naphthalene (SIM)	ND	1.0	0.26	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Phenanthrene (SIM)	ND	0.050	0.030	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Pyrene (SIM)	ND	1.0	0.023	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Surrogates		% Recovery	Recovery Limits			Flag/Qual				
Nitrobenzene-d5		73.1	30-130						11/6/19 18:47	
2-Fluorobiphenyl		47.6	30-130						11/6/19 18:47	
p-Terphenyl-d14		62.8	30-130						11/6/19 18:47	

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Sample Extraction Data

Prep Method: SW-846 5030B-SW-846 8260D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K0024-01 [TW-1]	B245276	5	5.00	11/06/19

Prep Method: SW-846 3510C-SW-846 8270E

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K0024-01 [TW-1]	B245268	1000	1.00	11/05/19

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B245276 - SW-846 5030B

Blank (B245276-BLK1)

Prepared: 11/06/19 Analyzed: 11/07/19

Acetone	ND	50	µg/L							R-05
Acrylonitrile	ND	5.0	µg/L							
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L							L-04, V-05
Benzene	ND	1.0	µg/L							
Bromobenzene	ND	1.0	µg/L							
Bromochloromethane	ND	1.0	µg/L							
Bromodichloromethane	ND	0.50	µg/L							
Bromoform	ND	1.0	µg/L							
Bromomethane	ND	2.0	µg/L							
2-Butanone (MEK)	ND	20	µg/L							
tert-Butyl Alcohol (TBA)	ND	20	µg/L							
n-Butylbenzene	ND	1.0	µg/L							
sec-Butylbenzene	ND	1.0	µg/L							
tert-Butylbenzene	ND	1.0	µg/L							
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L							L-04, V-05
Carbon Disulfide	ND	5.0	µg/L							
Carbon Tetrachloride	ND	1.0	µg/L							
Chlorobenzene	ND	1.0	µg/L							
Chlorodibromomethane	ND	0.50	µg/L							
Chloroethane	ND	2.0	µg/L							
Chloroform	ND	2.0	µg/L							
Chloromethane	ND	2.0	µg/L							
2-Chlorotoluene	ND	1.0	µg/L							
4-Chlorotoluene	ND	1.0	µg/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	µg/L							
1,2-Dibromoethane (EDB)	ND	0.50	µg/L							
Dibromomethane	ND	1.0	µg/L							
1,2-Dichlorobenzene	ND	1.0	µg/L							
1,3-Dichlorobenzene	ND	1.0	µg/L							
1,4-Dichlorobenzene	ND	1.0	µg/L							
trans-1,4-Dichloro-2-butene	ND	2.0	µg/L							
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L							
1,1-Dichloroethane	ND	1.0	µg/L							
1,2-Dichloroethane	ND	1.0	µg/L							
1,1-Dichloroethylene	ND	1.0	µg/L							
cis-1,2-Dichloroethylene	ND	1.0	µg/L							
trans-1,2-Dichloroethylene	ND	1.0	µg/L							
1,2-Dichloropropane	ND	1.0	µg/L							
1,3-Dichloropropane	ND	0.50	µg/L							
2,2-Dichloropropane	ND	1.0	µg/L							
1,1-Dichloropropene	ND	2.0	µg/L							
cis-1,3-Dichloropropene	ND	0.50	µg/L							
trans-1,3-Dichloropropene	ND	0.50	µg/L							
Diethyl Ether	ND	2.0	µg/L							
Diisopropyl Ether (DIPE)	ND	0.50	µg/L							
1,4-Dioxane	ND	50	µg/L							
Ethylbenzene	ND	1.0	µg/L							
Hexachlorobutadiene	ND	0.60	µg/L							
2-Hexanone (MBK)	ND	10	µg/L							
Isopropylbenzene (Cumene)	ND	1.0	µg/L							
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B245276 - SW-846 5030B										
Blank (B245276-BLK1)										
Prepared: 11/06/19 Analyzed: 11/07/19										
Methylene Chloride	ND	5.0	µg/L							
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L							
Naphthalene	ND	2.0	µg/L							
n-Propylbenzene	ND	1.0	µg/L							
Styrene	ND	1.0	µg/L							
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L							
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L							
Tetrachloroethylene	ND	1.0	µg/L							
Tetrahydrofuran	ND	10	µg/L							
Toluene	ND	1.0	µg/L							
1,2,3-Trichlorobenzene	ND	5.0	µg/L							
1,2,4-Trichlorobenzene	ND	1.0	µg/L							
1,3,5-Trichlorobenzene	ND	1.0	µg/L							
1,1,1-Trichloroethane	ND	1.0	µg/L							
1,1,2-Trichloroethane	ND	1.0	µg/L							
Trichloroethylene	ND	1.0	µg/L							
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L							
1,2,3-Trichloropropane	ND	2.0	µg/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	µg/L							
1,2,4-Trimethylbenzene	ND	1.0	µg/L							
1,3,5-Trimethylbenzene	ND	1.0	µg/L							
Vinyl Chloride	ND	2.0	µg/L							
m+p Xylene	ND	2.0	µg/L							
o-Xylene	ND	1.0	µg/L							
Surrogate: 1,2-Dichloroethane-d4	26.3		µg/L	25.0		105	70-130			
Surrogate: Toluene-d8	25.0		µg/L	25.0		100	70-130			
Surrogate: 4-Bromofluorobenzene	23.4		µg/L	25.0		93.6	70-130			
LCS (B245276-BS1)										
Prepared: 11/06/19 Analyzed: 11/07/19										
Acetone	181	50	µg/L	100		181	* 70-160			V-06, R-05, L-07A †
Acrylonitrile	11.1	5.0	µg/L	10.0		111	70-130			
tert-Amyl Methyl Ether (TAME)	5.69	0.50	µg/L	10.0		56.9	* 70-130			V-05, L-04
Benzene	8.91	1.0	µg/L	10.0		89.1	70-130			
Bromobenzene	10.3	1.0	µg/L	10.0		103	70-130			
Bromochloromethane	10.1	1.0	µg/L	10.0		101	70-130			
Bromodichloromethane	10.4	0.50	µg/L	10.0		104	70-130			
Bromoform	9.95	1.0	µg/L	10.0		99.5	70-130			
Bromomethane	5.49	2.0	µg/L	10.0		54.9	40-160			†
2-Butanone (MEK)	118	20	µg/L	100		118	40-160			†
tert-Butyl Alcohol (TBA)	80.3	20	µg/L	100		80.3	40-160			†
n-Butylbenzene	11.4	1.0	µg/L	10.0		114	70-130			
sec-Butylbenzene	11.4	1.0	µg/L	10.0		114	70-130			
tert-Butylbenzene	10.9	1.0	µg/L	10.0		109	70-130			
tert-Butyl Ethyl Ether (TBEE)	6.44	0.50	µg/L	10.0		64.4	* 70-130			V-05, L-04
Carbon Disulfide	10.6	5.0	µg/L	10.0		106	70-130			
Carbon Tetrachloride	10.2	1.0	µg/L	10.0		102	70-130			
Chlorobenzene	10.2	1.0	µg/L	10.0		102	70-130			
Chlorodibromomethane	9.54	0.50	µg/L	10.0		95.4	70-130			
Chloroethane	9.75	2.0	µg/L	10.0		97.5	70-130			
Chloroform	8.97	2.0	µg/L	10.0		89.7	70-130			
Chloromethane	8.20	2.0	µg/L	10.0		82.0	40-160			†
2-Chlorotoluene	10.0	1.0	µg/L	10.0		100	70-130			

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B245276 - SW-846 5030B										
LCS (B245276-BS1)										
					Prepared: 11/06/19 Analyzed: 11/07/19					
4-Chlorotoluene	10.6	1.0	µg/L	10.0		106	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	10.3	5.0	µg/L	10.0		103	70-130			
1,2-Dibromoethane (EDB)	9.70	0.50	µg/L	10.0		97.0	70-130			
Dibromomethane	9.89	1.0	µg/L	10.0		98.9	70-130			
1,2-Dichlorobenzene	10.6	1.0	µg/L	10.0		106	70-130			
1,3-Dichlorobenzene	11.1	1.0	µg/L	10.0		111	70-130			
1,4-Dichlorobenzene	10.7	1.0	µg/L	10.0		107	70-130			
trans-1,4-Dichloro-2-butene	13.3	2.0	µg/L	10.0		133 *	70-130			L-02, V-20
Dichlorodifluoromethane (Freon 12)	7.67	2.0	µg/L	10.0		76.7	40-160			†
1,1-Dichloroethane	9.88	1.0	µg/L	10.0		98.8	70-130			
1,2-Dichloroethane	10.9	1.0	µg/L	10.0		109	70-130			
1,1-Dichloroethylene	10.9	1.0	µg/L	10.0		109	70-130			
cis-1,2-Dichloroethylene	9.83	1.0	µg/L	10.0		98.3	70-130			
trans-1,2-Dichloroethylene	10.2	1.0	µg/L	10.0		102	70-130			
1,2-Dichloropropane	9.80	1.0	µg/L	10.0		98.0	70-130			
1,3-Dichloropropane	9.84	0.50	µg/L	10.0		98.4	70-130			
2,2-Dichloropropane	10.1	1.0	µg/L	10.0		101	40-130			†
1,1-Dichloropropene	9.78	2.0	µg/L	10.0		97.8	70-130			
cis-1,3-Dichloropropene	10.1	0.50	µg/L	10.0		101	70-130			
trans-1,3-Dichloropropene	9.66	0.50	µg/L	10.0		96.6	70-130			
Diethyl Ether	10.0	2.0	µg/L	10.0		100	70-130			
Diisopropyl Ether (DIPE)	10.7	0.50	µg/L	10.0		107	70-130			
1,4-Dioxane	102	50	µg/L	100		102	40-130			†
Ethylbenzene	10.6	1.0	µg/L	10.0		106	70-130			
Hexachlorobutadiene	11.6	0.60	µg/L	10.0		116	70-130			
2-Hexanone (MBK)	125	10	µg/L	100		125	70-160			V-20 †
Isopropylbenzene (Cumene)	10.6	1.0	µg/L	10.0		106	70-130			
p-Isopropyltoluene (p-Cymene)	10.6	1.0	µg/L	10.0		106	70-130			
Methyl tert-Butyl Ether (MTBE)	8.54	1.0	µg/L	10.0		85.4	70-130			
Methylene Chloride	10.3	5.0	µg/L	10.0		103	70-130			
4-Methyl-2-pentanone (MIBK)	125	10	µg/L	100		125	70-160			V-20 †
Naphthalene	9.21	2.0	µg/L	10.0		92.1	40-130			†
n-Propylbenzene	10.6	1.0	µg/L	10.0		106	70-130			
Styrene	9.03	1.0	µg/L	10.0		90.3	70-130			
1,1,1,2-Tetrachloroethane	10.7	1.0	µg/L	10.0		107	70-130			
1,1,2,2-Tetrachloroethane	10.6	0.50	µg/L	10.0		106	70-130			
Tetrachloroethylene	10.5	1.0	µg/L	10.0		105	70-130			
Tetrahydrofuran	9.62	10	µg/L	10.0		96.2	70-130			J
Toluene	9.89	1.0	µg/L	10.0		98.9	70-130			
1,2,3-Trichlorobenzene	8.77	5.0	µg/L	10.0		87.7	70-130			
1,2,4-Trichlorobenzene	10.2	1.0	µg/L	10.0		102	70-130			
1,3,5-Trichlorobenzene	10.3	1.0	µg/L	10.0		103	70-130			
1,1,1-Trichloroethane	10.0	1.0	µg/L	10.0		100	70-130			
1,1,2-Trichloroethane	9.62	1.0	µg/L	10.0		96.2	70-130			
Trichloroethylene	10.3	1.0	µg/L	10.0		103	70-130			
Trichlorofluoromethane (Freon 11)	9.52	2.0	µg/L	10.0		95.2	70-130			
1,2,3-Trichloropropane	10.7	2.0	µg/L	10.0		107	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	10.0	1.0	µg/L	10.0		100	70-130			
1,2,4-Trimethylbenzene	9.71	1.0	µg/L	10.0		97.1	70-130			
1,3,5-Trimethylbenzene	10.2	1.0	µg/L	10.0		102	70-130			
Vinyl Chloride	22.9	2.0	µg/L	10.0		229 *	40-160			L-02, V-20 †

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B245276 - SW-846 5030B

LCS (B245276-BS1)

Prepared: 11/06/19 Analyzed: 11/07/19

m+p Xylene	21.2	2.0	µg/L	20.0		106	70-130			
o-Xylene	10.8	1.0	µg/L	10.0		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	26.0		µg/L	25.0		104	70-130			
Surrogate: Toluene-d8	25.2		µg/L	25.0		101	70-130			
Surrogate: 4-Bromofluorobenzene	24.6		µg/L	25.0		98.5	70-130			

LCS Dup (B245276-BSD1)

Prepared: 11/06/19 Analyzed: 11/07/19

Acetone	129	50	µg/L	100		129	70-160	33.1 *	25	R-05, V-06 †
Acrylonitrile	10.9	5.0	µg/L	10.0		109	70-130	2.09	25	
tert-Amyl Methyl Ether (TAME)	5.76	0.50	µg/L	10.0		57.6 *	70-130	1.22	25	L-04, V-05
Benzene	8.96	1.0	µg/L	10.0		89.6	70-130	0.560	25	
Bromobenzene	9.94	1.0	µg/L	10.0		99.4	70-130	3.75	25	
Bromochloromethane	10.3	1.0	µg/L	10.0		103	70-130	1.57	25	
Bromodichloromethane	9.92	0.50	µg/L	10.0		99.2	70-130	4.44	25	
Bromoform	9.75	1.0	µg/L	10.0		97.5	70-130	2.03	25	
Bromomethane	6.80	2.0	µg/L	10.0		68.0	40-160	21.3	25	†
2-Butanone (MEK)	107	20	µg/L	100		107	40-160	9.53	25	†
tert-Butyl Alcohol (TBA)	78.4	20	µg/L	100		78.4	40-160	2.38	25	†
n-Butylbenzene	11.6	1.0	µg/L	10.0		116	70-130	1.04	25	
sec-Butylbenzene	11.4	1.0	µg/L	10.0		114	70-130	0.175	25	
tert-Butylbenzene	10.9	1.0	µg/L	10.0		109	70-130	0.366	25	
tert-Butyl Ethyl Ether (TBEE)	6.40	0.50	µg/L	10.0		64.0 *	70-130	0.623	25	L-04, V-05
Carbon Disulfide	10.3	5.0	µg/L	10.0		103	70-130	2.88	25	
Carbon Tetrachloride	10.2	1.0	µg/L	10.0		102	70-130	0.196	25	
Chlorobenzene	9.80	1.0	µg/L	10.0		98.0	70-130	3.51	25	
Chlorodibromomethane	9.48	0.50	µg/L	10.0		94.8	70-130	0.631	25	
Chloroethane	9.49	2.0	µg/L	10.0		94.9	70-130	2.70	25	
Chloroform	8.90	2.0	µg/L	10.0		89.0	70-130	0.783	25	
Chloromethane	8.58	2.0	µg/L	10.0		85.8	40-160	4.53	25	†
2-Chlorotoluene	9.72	1.0	µg/L	10.0		97.2	70-130	2.84	25	
4-Chlorotoluene	10.3	1.0	µg/L	10.0		103	70-130	2.68	25	
1,2-Dibromo-3-chloropropane (DBCP)	11.1	5.0	µg/L	10.0		111	70-130	6.82	25	
1,2-Dibromoethane (EDB)	9.78	0.50	µg/L	10.0		97.8	70-130	0.821	25	
Dibromomethane	9.69	1.0	µg/L	10.0		96.9	70-130	2.04	25	
1,2-Dichlorobenzene	10.6	1.0	µg/L	10.0		106	70-130	0.284	25	
1,3-Dichlorobenzene	10.9	1.0	µg/L	10.0		109	70-130	1.73	25	
1,4-Dichlorobenzene	10.6	1.0	µg/L	10.0		106	70-130	0.848	25	
trans-1,4-Dichloro-2-butene	13.2	2.0	µg/L	10.0		132 *	70-130	0.754	25	L-02, V-20
Dichlorodifluoromethane (Freon 12)	7.56	2.0	µg/L	10.0		75.6	40-160	1.44	25	†
1,1-Dichloroethane	10.0	1.0	µg/L	10.0		100	70-130	1.71	25	
1,2-Dichloroethane	10.8	1.0	µg/L	10.0		108	70-130	0.920	25	
1,1-Dichloroethylene	10.9	1.0	µg/L	10.0		109	70-130	0.275	25	
cis-1,2-Dichloroethylene	10.0	1.0	µg/L	10.0		100	70-130	1.81	25	
trans-1,2-Dichloroethylene	10.1	1.0	µg/L	10.0		101	70-130	0.689	25	
1,2-Dichloropropane	9.61	1.0	µg/L	10.0		96.1	70-130	1.96	25	
1,3-Dichloropropane	9.71	0.50	µg/L	10.0		97.1	70-130	1.33	25	
2,2-Dichloropropane	9.99	1.0	µg/L	10.0		99.9	40-130	1.19	25	†
1,1-Dichloropropene	9.54	2.0	µg/L	10.0		95.4	70-130	2.48	25	
cis-1,3-Dichloropropene	9.81	0.50	µg/L	10.0		98.1	70-130	3.21	25	
trans-1,3-Dichloropropene	9.94	0.50	µg/L	10.0		99.4	70-130	2.86	25	
Diethyl Ether	10.1	2.0	µg/L	10.0		101	70-130	0.795	25	
Diisopropyl Ether (DIPE)	11.0	0.50	µg/L	10.0		110	70-130	2.49	25	

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B245276 - SW-846 5030B										
LCS Dup (B245276-BSD1)										
					Prepared: 11/06/19 Analyzed: 11/07/19					
1,4-Dioxane	112	50	µg/L	100		112	40-130	9.05	50	† ‡
Ethylbenzene	10.2	1.0	µg/L	10.0		102	70-130	4.14	25	
Hexachlorobutadiene	11.7	0.60	µg/L	10.0		117	70-130	1.20	25	
2-Hexanone (MBK)	124	10	µg/L	100		124	70-160	1.16	25	V-20 †
Isopropylbenzene (Cumene)	10.4	1.0	µg/L	10.0		104	70-130	1.90	25	
p-Isopropyltoluene (p-Cymene)	10.7	1.0	µg/L	10.0		107	70-130	1.22	25	
Methyl tert-Butyl Ether (MTBE)	8.44	1.0	µg/L	10.0		84.4	70-130	1.18	25	
Methylene Chloride	10.3	5.0	µg/L	10.0		103	70-130	0.388	25	
4-Methyl-2-pentanone (MIBK)	127	10	µg/L	100		127	70-160	1.65	25	V-20 †
Naphthalene	9.61	2.0	µg/L	10.0		96.1	40-130	4.25	25	†
n-Propylbenzene	10.4	1.0	µg/L	10.0		104	70-130	2.09	25	
Styrene	8.78	1.0	µg/L	10.0		87.8	70-130	2.81	25	
1,1,1,2-Tetrachloroethane	10.4	1.0	µg/L	10.0		104	70-130	2.66	25	
1,1,2,2-Tetrachloroethane	10.9	0.50	µg/L	10.0		109	70-130	2.71	25	
Tetrachloroethylene	10.2	1.0	µg/L	10.0		102	70-130	2.90	25	
Tetrahydrofuran	11.0	10	µg/L	10.0		110	70-130	13.8	25	
Toluene	9.64	1.0	µg/L	10.0		96.4	70-130	2.56	25	
1,2,3-Trichlorobenzene	9.14	5.0	µg/L	10.0		91.4	70-130	4.13	25	
1,2,4-Trichlorobenzene	10.4	1.0	µg/L	10.0		104	70-130	1.74	25	
1,3,5-Trichlorobenzene	10.2	1.0	µg/L	10.0		102	70-130	0.978	25	
1,1,1-Trichloroethane	10.2	1.0	µg/L	10.0		102	70-130	1.49	25	
1,1,2-Trichloroethane	9.72	1.0	µg/L	10.0		97.2	70-130	1.03	25	
Trichloroethylene	9.58	1.0	µg/L	10.0		95.8	70-130	7.24	25	
Trichlorofluoromethane (Freon 11)	9.61	2.0	µg/L	10.0		96.1	70-130	0.941	25	
1,2,3-Trichloropropane	10.7	2.0	µg/L	10.0		107	70-130	0.187	25	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	9.99	1.0	µg/L	10.0		99.9	70-130	0.599	25	
1,2,4-Trimethylbenzene	9.62	1.0	µg/L	10.0		96.2	70-130	0.931	25	
1,3,5-Trimethylbenzene	10.0	1.0	µg/L	10.0		100	70-130	1.97	25	
Vinyl Chloride	23.6	2.0	µg/L	10.0		236	* 40-160	3.05	25	L-02, V-20 †
m+p Xylene	20.4	2.0	µg/L	20.0		102	70-130	3.84	25	
o-Xylene	10.5	1.0	µg/L	10.0		105	70-130	3.29	25	
Surrogate: 1,2-Dichloroethane-d4	26.5		µg/L	25.0		106	70-130			
Surrogate: Toluene-d8	24.9		µg/L	25.0		99.8	70-130			
Surrogate: 4-Bromofluorobenzene	23.9		µg/L	25.0		95.6	70-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B245268 - SW-846 3510C										
Blank (B245268-BLK1)										
Prepared & Analyzed: 11/06/19										
Acenaphthene (SIM)	ND	0.30	µg/L							
Acenaphthylene (SIM)	ND	0.20	µg/L							
Anthracene (SIM)	ND	0.20	µg/L							
Benzo(a)anthracene (SIM)	ND	0.050	µg/L							
Benzo(a)pyrene (SIM)	ND	0.10	µg/L							
Benzo(b)fluoranthene (SIM)	ND	0.050	µg/L							
Benzo(g,h,i)perylene (SIM)	ND	0.50	µg/L							
Benzo(k)fluoranthene (SIM)	ND	0.20	µg/L							
Chrysene (SIM)	ND	0.20	µg/L							
Dibenz(a,h)anthracene (SIM)	ND	0.10	µg/L							
Fluoranthene (SIM)	ND	0.50	µg/L							
Fluorene (SIM)	ND	1.0	µg/L							
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.10	µg/L							
2-Methylnaphthalene (SIM)	ND	1.0	µg/L							
Naphthalene (SIM)	ND	1.0	µg/L							
Phenanthrene (SIM)	ND	0.050	µg/L							
Pyrene (SIM)	ND	1.0	µg/L							
Surrogate: Nitrobenzene-d5	73.7		µg/L	100		73.7	30-130			
Surrogate: 2-Fluorobiphenyl	51.1		µg/L	100		51.1	30-130			
Surrogate: p-Terphenyl-d14	65.3		µg/L	100		65.3	30-130			
LCS (B245268-BS1)										
Prepared & Analyzed: 11/06/19										
Acenaphthene (SIM)	35.2	6.0	µg/L	50.0		70.4	40-140			
Acenaphthylene (SIM)	35.7	4.0	µg/L	50.0		71.4	40-140			
Anthracene (SIM)	38.2	4.0	µg/L	50.0		76.3	40-140			
Benzo(a)anthracene (SIM)	37.0	1.0	µg/L	50.0		74.1	40-140			
Benzo(a)pyrene (SIM)	37.4	2.0	µg/L	50.0		74.8	40-140			
Benzo(b)fluoranthene (SIM)	39.6	1.0	µg/L	50.0		79.2	40-140			
Benzo(g,h,i)perylene (SIM)	40.1	10	µg/L	50.0		80.2	40-140			
Benzo(k)fluoranthene (SIM)	39.8	4.0	µg/L	50.0		79.6	40-140			
Chrysene (SIM)	35.8	4.0	µg/L	50.0		71.7	40-140			
Dibenz(a,h)anthracene (SIM)	42.6	2.0	µg/L	50.0		85.2	40-140			
Fluoranthene (SIM)	37.3	10	µg/L	50.0		74.7	40-140			
Fluorene (SIM)	36.3	20	µg/L	50.0		72.6	40-140			
Indeno(1,2,3-cd)pyrene (SIM)	42.8	2.0	µg/L	50.0		85.6	40-140			
2-Methylnaphthalene (SIM)	34.3	20	µg/L	50.0		68.7	40-140			
Naphthalene (SIM)	32.7	20	µg/L	50.0		65.4	40-140			
Phenanthrene (SIM)	35.9	1.0	µg/L	50.0		71.8	40-140			
Pyrene (SIM)	36.4	20	µg/L	50.0		72.7	40-140			
Surrogate: Nitrobenzene-d5	74.9		µg/L	100		74.9	30-130			
Surrogate: 2-Fluorobiphenyl	56.8		µg/L	100		56.8	30-130			
Surrogate: p-Terphenyl-d14	59.6		µg/L	100		59.6	30-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B245268 - SW-846 3510C										
LCS Dup (B245268-BSD1)										
Prepared & Analyzed: 11/06/19										
Acenaphthene (SIM)	36.1	6.0	µg/L	50.0		72.2	40-140	2.47	20	
Acenaphthylene (SIM)	36.5	4.0	µg/L	50.0		73.0	40-140	2.22	20	
Anthracene (SIM)	39.5	4.0	µg/L	50.0		79.0	40-140	3.40	20	
Benzo(a)anthracene (SIM)	38.1	1.0	µg/L	50.0		76.2	40-140	2.82	20	
Benzo(a)pyrene (SIM)	38.7	2.0	µg/L	50.0		77.4	40-140	3.47	20	
Benzo(b)fluoranthene (SIM)	41.0	1.0	µg/L	50.0		82.0	40-140	3.43	20	
Benzo(g,h,i)perylene (SIM)	41.6	10	µg/L	50.0		83.3	40-140	3.82	20	
Benzo(k)fluoranthene (SIM)	41.8	4.0	µg/L	50.0		83.6	40-140	4.80	20	
Chrysene (SIM)	37.1	4.0	µg/L	50.0		74.1	40-140	3.35	20	
Dibenz(a,h)anthracene (SIM)	44.3	2.0	µg/L	50.0		88.5	40-140	3.78	20	
Fluoranthene (SIM)	38.4	10	µg/L	50.0		76.8	40-140	2.80	20	
Fluorene (SIM)	37.1	20	µg/L	50.0		74.2	40-140	2.23	20	
Indeno(1,2,3-cd)pyrene (SIM)	44.5	2.0	µg/L	50.0		88.9	40-140	3.76	20	‡
2-Methylnaphthalene (SIM)	35.8	20	µg/L	50.0		71.7	40-140	4.27	20	
Naphthalene (SIM)	33.0	20	µg/L	50.0		66.0	40-140	1.04	20	
Phenanthrene (SIM)	37.1	1.0	µg/L	50.0		74.2	40-140	3.18	20	
Pyrene (SIM)	37.4	20	µg/L	50.0		74.7	40-140	2.71	20	
Surrogate: Nitrobenzene-d5	77.8		µg/L	100		77.8	30-130			
Surrogate: 2-Fluorobiphenyl	59.4		µg/L	100		59.4	30-130			
Surrogate: p-Terphenyl-d14	60.7		µg/L	100		60.7	30-130			

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
L-02	Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
L-07A	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260D in Water</i>	
Acetone	NC
Acrylonitrile	NC
tert-Amyl Methyl Ether (TAME)	NC
Benzene	NC
Bromobenzene	NC
Bromochloromethane	NC
Bromodichloromethane	NC
Bromoform	NC
Bromomethane	NC
2-Butanone (MEK)	NC
tert-Butyl Alcohol (TBA)	NC
n-Butylbenzene	NC
sec-Butylbenzene	NC
tert-Butylbenzene	NC
tert-Butyl Ethyl Ether (TBEE)	NC
Carbon Disulfide	NC
Carbon Tetrachloride	NC
Chlorobenzene	NC
Chlorodibromomethane	NC
Chloroethane	NC
Chloroform	NC
Chloromethane	NC
2-Chlorotoluene	NC
4-Chlorotoluene	NC
1,2-Dibromo-3-chloropropane (DBCP)	NC
1,2-Dibromoethane (EDB)	NC
Dibromomethane	NC
1,2-Dichlorobenzene	NC
1,3-Dichlorobenzene	NC
1,4-Dichlorobenzene	NC
trans-1,4-Dichloro-2-butene	NC
Dichlorodifluoromethane (Freon 12)	NC
1,1-Dichloroethane	NC
1,2-Dichloroethane	NC
1,1-Dichloroethylene	NC
cis-1,2-Dichloroethylene	NC
trans-1,2-Dichloroethylene	NC
1,2-Dichloropropane	NC
1,3-Dichloropropane	NC
2,2-Dichloropropane	NC
1,1-Dichloropropene	NC
cis-1,3-Dichloropropene	NC
trans-1,3-Dichloropropene	NC
Diethyl Ether	NC
Diisopropyl Ether (DIPE)	NC
1,4-Dioxane	NC
Ethylbenzene	NC

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260D in Water</i>	
Hexachlorobutadiene	NC
2-Hexanone (MBK)	NC
Isopropylbenzene (Cumene)	NC
p-Isopropyltoluene (p-Cymene)	NC
Methyl tert-Butyl Ether (MTBE)	NC
Methylene Chloride	NC
4-Methyl-2-pentanone (MIBK)	NC
Naphthalene	NC
n-Propylbenzene	NC
Styrene	NC
1,1,1,2-Tetrachloroethane	NC
1,1,2,2-Tetrachloroethane	NC
Tetrachloroethylene	NC
Tetrahydrofuran	NC
Toluene	NC
1,2,3-Trichlorobenzene	NC
1,2,4-Trichlorobenzene	NC
1,3,5-Trichlorobenzene	NC
1,1,1-Trichloroethane	NC
1,1,2-Trichloroethane	NC
Trichloroethylene	NC
Trichlorofluoromethane (Freon 11)	NC
1,2,3-Trichloropropane	NC
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	NC
1,2,4-Trimethylbenzene	NC
1,3,5-Trimethylbenzene	NC
Vinyl Chloride	NC
m+p Xylene	NC
o-Xylene	NC

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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

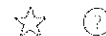
Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Public Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

IMPORTANT!

The wildfires are causing hazardous conditions in California. [Learn More](#)



411359783302



Delivered
Friday 11/01/2019 at 9:02 am



DELIVERED

Signed for by: R.PETRIAS

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[OBTAIN PROOF OF DELIVERY](#)

FROM
Autryville, NC US

TO
East Longmeadow, MA US

Shipment Facts

TRACKING NUMBER
411359783302

SERVICE
FedEx Priority Overnight

WEIGHT
53.4 lbs / 24.22 kgs

DELIVERED TO
Shipping/Receiving

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
53.4 lbs / 24.22 kgs

RETURN REASON

TERMS
Third Party

PACKAGING
Your Packaging

SPECIAL HANDLING SECTION
Deliver Weekday

STANDARD TRANSIT
 11/01/2019 by 10:30 am

SHIP DATE
 Thu 10/31/2019

ACTUAL DELIVERY
Fri 11/01/2019 9:02 am

Travel History

Local Scan Time

Friday, 11/01/2019

9:02 am	East Longmeadow, MA	Delivered
7:45 am	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
6:27 am	EAST GRANBY, CT	At destination sort facility

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples _____



con-test
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client S TME

Received By MSJ Date 11/1/19 Time 902

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 4.1
By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? MA Were Samples Tampered with? MA
Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent information? Client T Analysis T Sampler Name J
Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? MA Acid _____ Base _____

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.	<u>2</u>	1 Liter Plastic		16 oz Amb.
HCL-	<u>3</u>	500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear
DI-		Other Glass		Other Plastic		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Unused Media

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Comments: