

PROJECT SPECIAL PROVISIONS GEOENVIRONMENTAL

CONTAMINATED SOIL (2/6/2020)

The Contractor's attention is directed to the fact that soil contaminated with petroleum hydrocarbon compounds exist within the project area. The known areas of contamination are indicated on corresponding plans sheets. Information relating to these contaminated areas, sample locations, and investigation reports will be available at the following web address by navigating to the correct letting year and month then selecting, "Plans and Proposals", "U-3609B", "Individual Sheets/520 GeoEnvironmental":

<http://dotw-xfer01.dot.state.nc.us/dsplan/>

Petroleum contaminated soil may be encountered during any earthwork activities on the project. The Contractor shall only excavate those soils that the Engineer designates necessary to complete a particular task. The Engineer shall determine if soil is contaminated based on areas shown on the plans, petroleum odors, and unusual soil staining. Contaminated soil not required to be excavated is to remain in place and undisturbed. Undisturbed soil shall remain in place, whether contaminated or not. The Contractor shall transport all contaminated soil excavated from the project to a facility licensed to accept contaminated soil.

In the event that a stockpile is needed, the stockpile shall be created within the property boundaries of the source material and in accordance with the Diagram for Temporary Containment and Treatment of Petroleum-Contaminated Soil per North Carolina Department of Environmental Quality's (NCDEQ) Division of Waste Management UST Section GUIDELINES FOR EX SITU PETROLEUM CONTAMINATED SOIL REMEDIATION. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDEQ UST Section's Regional Office for off-site temporary storage. The Contractor shall provide copies of disposal manifests completed per the disposal facilities requirements and weigh tickets to the Engineer.

Measurement and Payment:

The quantity of contaminated soil hauled and disposed of shall be the actual number of tons of material, which has been acceptably transported and weighed with certified scales as documented by disposal manifests and weigh tickets. The quantity of contaminated soil, measured as provided above, shall be paid for at the contract unit price per ton for "Hauling and Disposal of Petroleum Contaminated Soil".

The above price and payment shall be full compensation for all work covered by this section, including, but not limited to stockpiling, loading, transportation, weighing, laboratory testing, disposal, equipment, decontamination of equipment, labor, and personal protective equipment.

Payment shall be made under:

Pay Item

Hauling and Disposal of Petroleum Contaminated Soil

DocuSigned by:
John Pilipchuk
52C44B94B8BE444
Pay Unit
Ton
2/10/2020



GEOENVIRONMENTAL PHASE II INVESTIGATION

**N.S. HOLDINGS LLC
1813 N. BERKELEY BLVD.
GOLDSBORO, NORTH CAROLINA**

**TIP NUMBER: U-3609B
WBS NUMBER: 39026.1.2
COUNTY: WAYNE**

**DESCRIPTION: GOLDSBORO - US 13 (BERKELEY BLVD)
FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)**

PREPARED FOR:



**NCDOT GEOTECHNICAL ENGINEERING UNIT
GEOENVIRONMENTAL SECTION
1589 MSC
RALEIGH, NORTH CAROLINA 27699-1589**

JANUARY 27, 2020

PREPARED BY:

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**CATLIN PROJECT NO. 219139
CORPORATE GEOLOGY LICENSE CERTIFICATION NO. C-118
CORPORATE LICENSURE NO. FOR ENGINEERING SERVICES C-0585**

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GEOENVIRONMENTAL PHASE II INVESTIGATION
N.S. HOLDINGS LLC
1813 N. BERKELEY BLVD.,
GOLDSBORO, NORTH CAROLINA

TIP NUMBER: U-3609B
WBS NUMBER: 39026.1.2

JANUARY 27, 2020

1.0 INTRODUCTION

Acquisition of the right-of-way (ROW) and/or easement is necessary for the US 13 improvements (including drainage) in Goldsboro, North Carolina. The North Carolina Department of Transportation (NCDOT) has indicated a site investigation is necessary to determine if underground storage tanks (UST), contaminated groundwater and/or contaminated soils are present.

2.0 PURPOSE OF INVESTIGATION AND DESCRIPTION

CATLIN Engineers and Scientists (CATLIN) was retained by the NCDOT Geotechnical Engineering Unit to provide field investigations concluding with GeoEnvironmental Phase II Investigation reports for nine (9) sites. In response to a request for proposal by Mr. John Pilipchuk, L.G., P.E. dated November 12, 2019 and subsequent work scope discussions with Mr. Craig Haden, CATLIN submitted a proposal for conducting an investigation at 1813 N. Berkeley Blvd. – N.S. Holdings LLC, along the NCDOT Project “Goldsboro – US 13 (Berkeley Blvd) from SR 1003 (New Hope Rd) to SR 1572 (Saulston Rd)” in Goldsboro, North Carolina. Figure 1 illustrates the general site location. The NCDOT Conventional Plan Sheet Symbols are provided on Figure 2.

According to NCDOT, ROW and/or easement acquisition is necessary for the roadway construction (TIP Number U-3609B) and specifically at the above referenced address (1813 N. Berkeley Blvd.). A site investigation was requested before parcel acquisition and roadway construction. The work scope as requested includes:

- Notify property owners/occupants of schedule and scope of work.
- Locate all drums and/or USTs, determine approximate size and contents (if any).
- Determine if contaminated soils are present.
- Test soil for contaminants relevant to the site's past use and/or possible release(s). For petroleum contaminants, Ultra-Violet Fluorescence (UVF) analysis is the preferred method.
- Advance eight (8) borings and collect one (1) soil sample from each boring to determine if contaminated soils are present.
- Submit eight (8) soil samples for UVF analyses.

- Collect one (1) groundwater sample and submit for volatile and semi-volatile organics analyses per Standard Method 6200B and Environmental Protection Agency (EPA) Method 625.
- Include (as a standard delivery item) the RED Lab, LLC (RED Lab) graphs in reports and send the GeoEnvironmental Section a copy of the RED Lab Excel file(s).
- If soil and groundwater contamination are evident, estimate the quantity of impacted soils and indicate the approximate area of soil and groundwater contamination on report figures.
- Provide a MicroStation file with the location of soil borings, USTs, soil contamination and monitoring wells.
- Prepare a report including field activities, findings, and recommendations and submit one electronic copy to the NCDOT GeoEnvironmental Section.

This report documents our activities and findings for the N.S. holdings LLC property at 1813 N. Berkeley Blvd., Goldsboro, North Carolina.

3.0 METHODS

Proposed boring/sample locations were discussed and agreed upon before boring advancement.

CATLIN coordinated geophysical activities with Pyramid Geophysical Services (Pyramid). The geophysical investigation methods and site photographs are detailed in the Pyramid Geophysical Survey provided in Appendix A.

CATLIN proposed utilizing QROS On-Site Rapid Measurement Techniques and Tools (QED™ Analyzer) by RED Lab to evaluate potential for petroleum and Poly Aromatic Hydrocarbon (PAH) impacts to soil in a cost-effective manner. Soil samples collected from above the approximate water table depth with total petroleum hydrocarbon (TPH) concentrations greater than the North Carolina Department of Environmental Quality (NCDEQ) Action Levels [100 milligrams per kilogram (mg/kg) diesel range organics (DRO) or 50 mg/kg gasoline range organics (GRO)] will be considered contaminated for estimated impacted vadose soil volume calculations. Contaminated soil volume is estimated from the surface to the water table and/or the midpoint distance between a “clean” sample location and contaminated sample location or the property line/easement.

Borings advanced during this investigation are identified with “1813DPT-” and numbered sequentially 01 through 08. Soil samples for analysis per QROS QED™ Analyzer were identified by boring number and depth [example: 1813DPT-01 (6')]. A groundwater sample for analysis per Standard Method 6200B and EPA Method 625 was identified by boring [example: 1813DPT-03]. CATLIN’s field activities at the site began and concluded on December 10, 2019.

3.1 FIELD METHODS

All field work was conducted in general accordance with state and federal guidelines and industry standards.

Underground utility locating was coordinated by CATLIN personnel. The North Carolina One Call Center (NC-1-Call) was contacted for underground utility location. The areas around the proposed boring locations were checked and underground utilities were indicated by NC-1-Call personnel. Pyramid also marked private underground utilities and cleared the boring locations.

CATLIN personnel gathered subsurface soil data by Direct Push Technology boring advancement using a GeoProbe 5400 (GeoProbe). When using the GeoProbe, the borings are advanced to depth by static force and a hydraulic percussion hammer. Two and one-quarter inch diameter by four-foot length steel is used as casing. Soil samples are continuously collected in one and one-half inch clear liners. Liners are removed from the casing and then cut in half longitudinally to allow for visual/manual classification utilizing the Unified Soil Classification System (USCS). Boring information was recorded on field logs and transferred to boring logs (see Appendix B). Soils were removed from the liner in two (2) foot intervals and placed in sealable polyethylene bags for organic volatile (headspace) analysis (OVA) utilizing a MiniRAE 3000 Photoionization Detector (PID). The OVA results were documented on field logs and are included on the boring logs in Appendix B. Soil samples were selected and packed in appropriate glassware for analysis. One (1) soil sample was collected from each soil boring location.

New disposable nitrile gloves were worn during sampling activities. Soils selected for QROS QED™ analysis were placed into new glassware provided by QROS. All samples were placed on ice in an insulated cooler for transportation to RED Lab in Wilmington, NC. Sample integrity was maintained by following proper Chain of Custody (COC) procedures. A copy of the COC is provided following the analytical report in Appendix C.

Following boring termination and tooling removal, new one-inch slotted poly vinyl chloride (PVC) well screen and casing was installed in a selected borehole for groundwater sampling. A grab groundwater sample was collected utilizing a peristaltic pump and new polyethylene tubing. Groundwater was pumped directly into laboratory provided glassware. New, disposable nitrile gloves were worn when handling well material and while collecting groundwater samples. The samples were packed on ice in an insulated cooler for transportation to the laboratory. Sample integrity was maintained by following proper COC procedures (see Appendix C).

The PVC materials were subsequently removed from the boring. Boreholes were abandoned to the surface in grassy areas and just below existing asphalt in asphalt areas using three-eighth inch bentonite

chips. Bentonite and water were poured into the borehole simultaneously to facilitate hydration. Boreholes in asphalt were finished with asphalt patch to the surface.

3.2 ANALYTICAL TESTING

The QROS QED™ Analyzer methods have been approved by the NCDEQ for petroleum contamination determination. Complete QROS QED™ procedures are on file with the NCDEQ and are available upon request. The QROS QED™ analysis was conducted by RED Lab personnel at their laboratory in Wilmington, North Carolina. QROS QED™ analysis provides Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX), DRO, GRO, TPH, total Aromatics (C10-C35) and 16 EPA PAH concentrations. A total of eight (8) soil samples were submitted to RED Lab. The COC documentation is included in Appendix C.

One (1) groundwater sample was submitted to ENCO Laboratories (ENCO) for analysis per EPA Methods 625 and Standard Method 6200B for the presence of semi-volatile and volatile organics (including potential petroleum and chlorinated solvent parameters). The COC documentation is included in Appendix C.

4.0 FIELD ACTIVITIES

4.1 CURRENT SITE CONDITIONS AND FIELD OBSERVATIONS

The site currently operates as a retail strip mall with various business including several restaurants, an insurance company, and a fabric alteration store. The building is outside the proposed ROW and/or easement. One (1) probable UST and one (1) no confidence anomaly were revealed during the geophysical investigation.

Photographs taken during the geophysical investigation are included in the geophysical survey provided in Appendix A.

Figure 3 illustrates the subject site including possible UST location, soil borings, and sample locations.

4.2 SOIL SAMPLING

A total of eight (8) borings were advanced as part of this investigation. The eight (8) soil samples collected (one from each boring) were submitted for analysis. Boring/sample locations are illustrated on Figure 3. Boring logs are included in Appendix B.

Soil borings were advanced to eight (8) or 12 feet below land surface (BLS) and terminated in moist to saturated, silty and clayey fine sand except boring 1813DPT-01 and -04, which were terminated in sandy and silty clay. Soils

were collected continuously to boring termination. After retrieving the drive, soil was visually/manually classified for USCS and screened for organic vapor head space. Soil samples collected from each boring for analysis were packed in the appropriate glassware, labeled, and placed in a cooler on ice. The eight (8) soil samples were submitted to RED Lab for QED™ analyses. The COC documentation is included in Appendix C.

4.3 GROUNDWATER SAMPLING

One (1) groundwater sample (1813DPT-03) was collected and submitted for analysis per Standard Method 6200B and EPA Method 625 under proper COC protocol (see Appendix C).

4.4 SURVEYING

Boring/sample locations were recorded utilizing a Trimble® global positioning survey instrument and data collector. Boring coordinates are on the boring logs provided in Appendix B and referenced on Table 2. Boring locations are indicated on plan sheets provided by NCDOT and illustrated on Figure 3.

5.0 RESULTS

Historical review

Review of the NCDEQ Division of Waste Management Site Locator Tool indicated no registered USTs, ASTs, or incidents at the subject site.

Geophysical Investigation

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of 11 EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. The GPR and EM recorded evidence of buried utilities and reinforcement within some of the concrete slabs at the site. Geophysical also recorded evidence of one (1) probable UST and one (1) no confidence anomaly. The complete geophysical survey report by Pyramid is included in Appendix A.

Soil

Soil borings 1813DPT-01 and –04 were terminated in sandy and silty clay at eight (8) feet BLS. Borings 1813DPT-02, –05, –06, –07, and –08 were terminated in silty and clayey fine sand at eight (8) feet BLS. Boring 1813DPT-03 was terminated in fine sand at 12 feet BLS. Complete boring logs are provided in Appendix B. A soil sample was collected at each boring from between four (4) and seven (7) feet BLS and submitted for laboratory analysis. The complete analytical reports and COC documents are provided in Appendix C.

The soil headspace OVA results ranged from 0.0 ppm [1813DPT-03 (0-2')] to 3.6 ppm [1813DPT-06 (4-6')]. The soil headspace screening is summarized in Table 1.

The soil samples collected from borings 1813DPT-01 through 1813DPT-08 did not reveal TPH DRO and/or TPH GRO above the State Action Levels (100 ppm DRO, 50 ppm GRO). Summarized TPH results are provided on Table 2 and illustrated on Figure 3. No impacted soils are suspected to be encountered during construction.

Groundwater

Based on the saturated soils found in the 1813DPT-03 temporary monitoring well, depth to groundwater is assumed at approximately eight feet BLS. No Standard Method 6200B and EPA Method 625 compounds were detected above the North Carolina Administrative Code (NCAC) T15A:02L Groundwater Quality Standards (2L GWQS). The original extraction (within "Hold Time") for EPA Method 625 was re-extracted outside of the hold time and both sets of data have been reported. The groundwater sample results are summarized on Table 3. The groundwater sample location and summarized results are illustrated on Figure 4. The complete laboratory analytical report is provided in Appendix C. A monitoring well construction and abandonment record were submitted to NCDEQ. Copies of the record are provided in Appendix B.

6.0 SUMMARY AND CONCLUSIONS

The N.S. Holding LLC property at 1813 N. Berkeley Blvd. currently operates as a retail strip mall with various business including several restaurants, an insurance company, and a fabric alteration store. The building is outside the proposed ROW and/or easement. No signs of USTs were observed during site reconnaissance however, one (1) probable UST and one (1) no confidence anomaly were identified during site geophysical surveying and are within the proposed ROW and/or easement. Review of the NCDEQ Division of Waste Management Site Locator Tool indicated no registered USTs, ASTs, or incidents at the site.

Soil and groundwater samples (8 soil, 1 groundwater) did not reveal TPH DRO/GRO or semi-volatile/volatile organic concentrations, respectively. The proposed construction at the site is not suspected to encounter contaminated soil or groundwater.

7.0 LIMITATIONS

This report is based on the agreed work scope and a review of available data from limited sampling. It is possible that this investigation may have failed to reveal the presence of contamination in the project area where such contamination may exist. Although CATLIN has used accepted methods appropriate for soil and groundwater sampling, CATLIN cannot guarantee that additional soil and/or groundwater contamination does not exist.

8.0 SIGNATURES

(Document Not Considered Final Unless All Signatures Are Completed)



TABLE 1
SUMMARY OF SOIL HEADSPACE SCREENING

N.S. Holdings LLC
1813 N. Berkeley Blvd., Goldsboro, North Carolina

BORING I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
1813DPT-01	0 - 2	0.9	
1813DPT-01	2 - 4	1.5	
1813DPT-01	4 - 6	1.4	1813 DPT-01 (6')
1813DPT-01	6 - 8	0.7	
1813DPT-02	0 - 4	1.0	1813 DPT-02 (4')
1813DPT-02	4 - 8	0.8	
1813DPT-03	0 - 2	0.0	
1813DPT-03	2 - 4	0.6	
1813DPT-03	4 - 6	0.1	
1813DPT-03	6 - 8	0.2	Soil 1813 DPT-03 (7')
1813DPT-03	8 - 10	0.5	
1813DPT-03	10 - 12	0.3	Water 1813 DPT-03
1813DPT-04	0 - 2	0.4	
1813DPT-04	2 - 4	0.4	
1813DPT-04	4 - 6	0.7	
1813DPT-04	6 - 8	0.7	1813 DPT-04 (7')
1813DPT-05	0 - 2	0.0	
1813DPT-05	2 - 4	0.3	
1813DPT-05	4 - 6	0.6	1813 DPT-05 (6')
1813DPT-05	6 - 8	0.1	
1813DPT-06	0 - 2	0.1	
1813DPT-06	2 - 4	2.9	
1813DPT-06	4 - 6	3.6	1813 DPT-06 (6')
1813DPT-06	6 - 8	2.0	
1813DPT-07	0 - 2	0.5	
1813DPT-07	2 - 4	0.4	
1813DPT-07	4 - 6	0.9	
1813DPT-07	6 - 8	1.6	1813 DPT-07 (7')
1813DPT-08	0 - 2	0.3	
1813DPT-08	2 - 4	0.6	
1813DPT-08	4 - 6	0.6	1813 DPT-08 (6')
1813DPT-08	6 - 8	0.5	

TABLE 2
SUMMARY OF SOIL LABORATORY RESULTS
ULTRA VIOLET FLUORESCENCE BY REDLAB QED™ ANALYZER

N.S. Holdings LLC
1813 N. Berkeley Blvd., Goldsboro, North Carolina

Sample ID	Northing	Easting	Contaminant of Concern →	TPH GRO	TPH DRO
			Date Collected		
1813DPT-01 (6')	598,250	2,321,455	12/10/2019	<0.71	<0.71
1813DPT-02 (9')	598,241	2,321,529	12/10/2019	<0.61	0.88
1813DPT-03 (7')	598,223	2,321,591	12/10/2019	<0.36	<0.36
1813DPT-04 (7')	598,211	2,321,637	12/10/2019	<0.63	<0.63
1813DPT-05 (7')	598,200	2,321,677	12/10/2019	<0.65	<0.65
1813DPT-06 (6')	598,174	2,321,721	12/10/2019	<0.73	<0.73
1813DPT-07 (7')	598,157	2,321,727	12/10/2019	<0.71	<0.71
1813DPT-08 (6')	598,127	2,321,732	12/10/2019	<0.54	<0.54
STATE ACTION LEVELS				50	100

Sample depth provided in parentheses as part of the Sample ID.

All results in milligrams per kilogram (mg/Kg).

< = Less than method detection limit

TABLE 3
SUMMARY OF GROUNDWATER LABORATORY RESULTS
EPA Method 625 and Standard Method 6200B

N.S. Holdings LLC
1813 N. Berkeley Blvd., Goldsboro, North Carolina

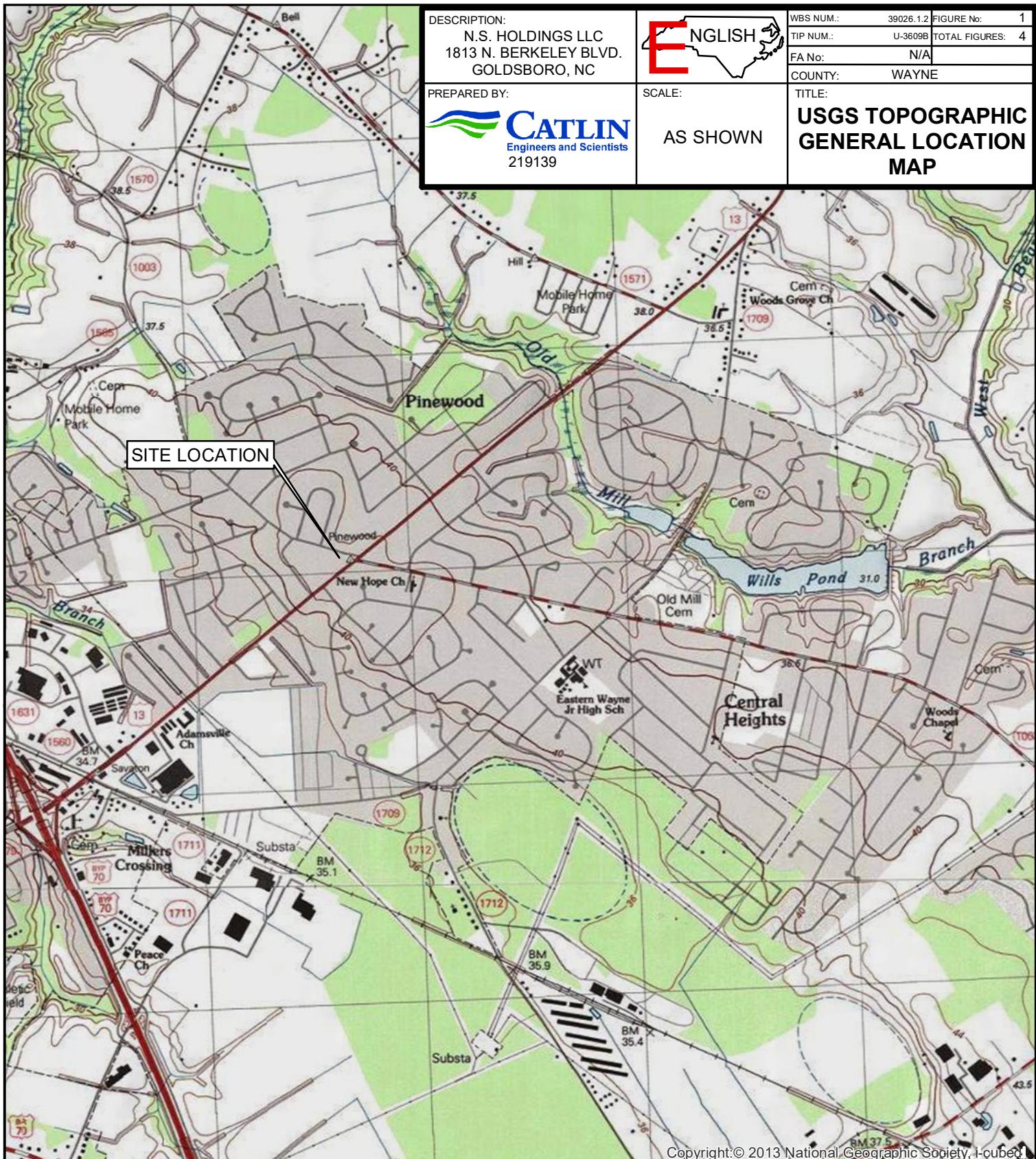
Method →		EPA Method 625	Standard Method 6200B
Contaminant of Concern →		All Parameters	All Parameters
Sample ID	Date Collected		
1813DPT-03	12/10/2019	BMDL	BMDL
	GCL (µg/L) 2L GWQS (µg/L)	Varies Varies	Varies Varies

BMDL = Below Method Detection Limit. Refer to analytical report for a complete list of parameters and reporting limits.

GCL = Gross Contaminant Level

2L GWQS = NCAC T15A:02L Groundwater Quality Standards

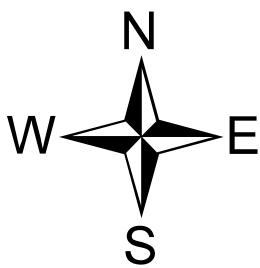
FIGURES



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2,000 1,000 0 2,000 4,000 Feet

SCALE



STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line
County Line
Township Line
City Line
Reservation Line
Property Line

Existing Iron Pin EP
Computed Property Corner

Property Monument ECM
Parcel/Sequence Number I23

Existing Fence Line x-x-x

Proposed Woven Wire Fence o

Proposed Chain Link Fence o

Proposed Barbed Wire Fence o

Existing Wetland Boundary NLB

Proposed Wetland Boundary NLB

Existing Endangered Animal Boundary EAB

Existing Endangered Plant Boundary EPB

Existing Historic Property Boundary HPB

Known Contamination Area: Soil s

Potential Contamination Area: Soil s

Known Contamination Area: Water w

Potential Contamination Area: Water w

Contaminated Site: Known or Potential skull

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap o

Sign s

Well w

Small Mine x

Foundation

Area Outline

Cemetery +

Building t

School t

Church t

Dam

HYDROLOGY:

Stream or Body of Water

Hydro, Pool or Reservoir -

Jurisdictional Stream JS

Buffer Zone 1 BZ 1

Buffer Zone 2 BZ 2

Flow Arrow -

Disappearing Stream x

Spring o

Wetland *

Proposed Lateral, Tail, Head Ditch x

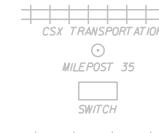
False Sump x

RAILROADS:

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

Standard Gauge
RR Signal Milepost
Switch
RR Abandoned
RR Dismantled

**RIGHT OF WAY & PROJECT CONTROL:**

Secondary Horiz and Vert Control Point
Primary Horiz Control Point
Primary Horiz and Vert Control Point
Exist Permanent Easement Pin and Cap
New Permanent Easement Pin and Cap
Vertical Benchmark
Existing Right of Way Marker
Existing Right of Way Line
New Right of Way Line
New Right of Way Line with Pin and Cap R W

New Right of Way Line with Concrete or Granite RW Marker R W

New Control of Access Line with Concrete CA Marker A A

Existing Control of Access C A

New Control of Access A

Existing Easement Line E

New Temporary Construction Easement E

New Temporary Drainage Easement TDE

New Permanent Drainage Easement PDE

New Permanent Drainage / Utility Easement DUE

New Permanent Utility Easement PUE

New Temporary Utility Easement TUE

New Aerial Utility Easement AUE

ROADS AND RELATED FEATURES:

Existing Edge of Pavement
Existing Curb
Proposed Slope Stakes Cut C
Proposed Slope Stakes Fill F
Proposed Curb Ramp CR
Existing Metal Guardrail
Proposed Guardrail
Existing Cable Guiderail
Proposed Cable Guiderail
Equality Symbol
Pavement Removal

VEGETATION:

Single Tree
Single Shrub

Hedge
Woods Line
Orchard
Vineyard Vineyard

EXISTING STRUCTURES:

MAJOR:
Bridge, Tunnel or Box Culvert CONC
Bridge Wing Wall, Head Wall and End Wall CONC WW
MINOR:
Head and End Wall CONC HW
Pipe Culvert
Footbridge
Drainage Box: Catch Basin, DI or JB CB
Paved Ditch Gutter
Storm Sewer Manhole S
Storm Sewer

UTILITIES:

POWER:
Existing Power Pole
Proposed Power Pole
Existing Joint Use Pole
Proposed Joint Use Pole
Power Manhole
Power Line Tower
Power Transformer
U/G Power Cable Hand Hole
H-Frame Pole
U/G Power Line LOS B (S.U.E.*).
U/G Power Line LOS C (S.U.E.*).
U/G Power Line LOS D (S.U.E.*).

TELEPHONE:
Existing Telephone Pole
Proposed Telephone Pole
Telephone Manhole T
Telephone Pedestal T
Telephone Cell Tower T
U/G Telephone Cable Hand Hole H
U/G Telephone Cable LOS B (S.U.E.*).
U/G Telephone Cable LOS C (S.U.E.*).
U/G Telephone Cable LOS D (S.U.E.*).
U/G Telephone Conduit LOS B (S.U.E.*). TC
U/G Telephone Conduit LOS C (S.U.E.*). TC
U/G Telephone Conduit LOS D (S.U.E.*). TC
U/G Fiber Optics Cable LOS B (S.U.E.*). T FO
U/G Fiber Optics Cable LOS C (S.U.E.*). T FO
U/G Fiber Optics Cable LOS D (S.U.E.*). T FO

WATER:

Water Manhole
Water Meter O
Water Valve X
Water Hydrant D
U/G Water Line LOS B (S.U.E.*).
U/G Water Line LOS C (S.U.E.*).
U/G Water Line LOS D (S.U.E.*).
Above Ground Water Line A/G Water

TV:

TV Pedestal O
TV Tower X
U/G TV Cable Hand Hole H
U/G TV Cable LOS B (S.U.E.*). TV
U/G TV Cable LOS C (S.U.E.*). TV
U/G TV Cable LOS D (S.U.E.*). TV
U/G Fiber Optic Cable LOS B (S.U.E.*). TV FO
U/G Fiber Optic Cable LOS C (S.U.E.*). TV FO
U/G Fiber Optic Cable LOS D (S.U.E.*). TV FO

GAS:

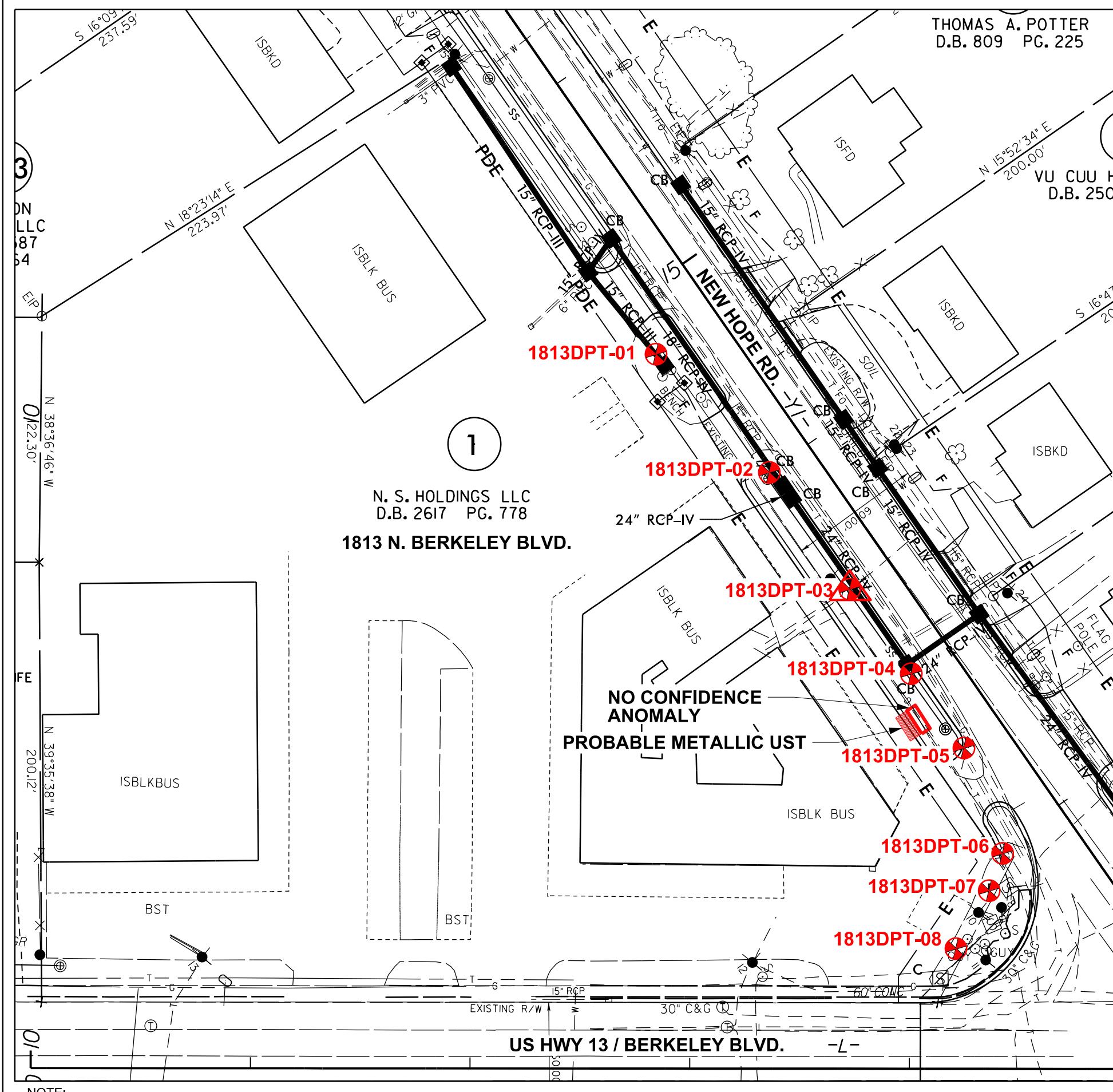
Gas Valve D
Gas Meter D
U/G Gas Line LOS B (S.U.E.*).
U/G Gas Line LOS C (S.U.E.*).
U/G Gas Line LOS D (S.U.E.*).
Above Ground Gas Line A/G Gas

SANITARY SEWER:

Sanitary Sewer Manhole G
Sanitary Sewer Cleanout H
U/G Sanitary Sewer Line SS
Above Ground Sanitary Sewer A/G Sanitary Sewer
SS Forced Main Line LOS B (S.U.E.*). FSS
SS Forced Main Line LOS C (S.U.E.*). FSS
SS Forced Main Line LOS D (S.U.E.*). FSS

MISCELLANEOUS:

Utility Pole
Utility Pole with Base
Utility Located Object O
Utility Traffic Signal Box S
Utility Unknown U/G Line LOS B (S.U.E.*). UT
U/G Tank; Water, Gas, Oil
Underground Storage Tank, Approx. Loc. UST
A/G Tank; Water, Gas, Oil
Geoenvironmental Boring
U/G Test Hole LOS A (S.U.E.*). T
Abandoned According to Utility Records AATUR
End of Information E.O.I.



SUMMARY OF GROUNDWATER LABORATORY RESULTS

Method →	EPA Method 625	Standard Method 6200B
Contaminant of Concern →		
Sample ID	Date Collected	All Parameters
1813DPT-03	12/10/2019	BMDL
GCL (µg/L)	Varies	Varies
2L GWQS (µg/L)	Varies	Varies

BMDL = Below Method Detection Limit. Refer to analytical report for a complete list of parameters and reporting limits.

GCL = Gross Contaminant Level

2L GWQS = NCAC T15A:02L Groundwater Quality Standards

APPENDICES

APPENDIX A
PYRAMID GEOPHYSICAL SURVEY



P Y R A M I D G E O P H Y S I C A L S E R V I C E S
(P R O J E C T 2 0 1 9 - 3 5 9)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION:
1813 N. BERKELEY BLVD.
NCDOT PROJECT U-3609B (39026.1.2)

1813 N. BERKELEY BLVD., GOLDSBORO, NC

December 20, 2019

Report prepared for: Benjamin Ashba, P.G.
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NC License #2181

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

5 0 3 I N D U S T R I A L A V E N U E , G R E E N S B O R O , N C 2 7 4 0 6

P : 3 3 6 . 3 3 5 . 3 1 7 4 F : 3 3 6 . 6 9 1 . 0 6 4 8

C 2 5 7 : G E O L O G Y C 1 2 5 1 : E N G I N E E R I N G

GEOPHYSICAL INVESTIGATION REPORT
1813 N. Berkeley Blvd.
Goldsboro, Wayne County, North Carolina

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Discussion of Results	3
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Summary & Conclusions	5
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Figures

Figure 1 – 1813 N. Berkeley Blvd. – Geophysical Survey Boundaries and Site Photographs

Figure 2 – 1813 N. Berkeley Blvd. – EM61 Results Contour Map

Figure 3 – 1813 N. Berkeley Blvd. – GPR Transect Locations and Select Images

Figure 4 – 1813 N. Berkeley Blvd. – Locations and Sizes of One Probable UST and One No Confidence Anomaly

Figure 5 – Overlay of Metal Detection Results, One Probable UST, and One No Confidence Anomaly on NCDOT Engineering Plans

Appendices

Appendix A – GPR Transect Images

LIST OF ACRONYMS

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

EXECUTIVE SUMMARY

Project Description:

Pyramid Environmental conducted a geophysical investigation for Catlin Engineers & Scientists at 1813 N. Berkeley Blvd. in Goldsboro, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project U-3609B). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from December 4-5, 2019, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results:

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of eleven EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR and EM recorded evidence of buried utilities and reinforcement within some of the concrete slabs at the site.

GPR and EM also recorded evidence of a probable UST and a no confidence anomaly under an apparent gravel-fill surface to the north of the easternmost building in the survey area. Probable UST #1 is approximately 12.5 feet long by 6 feet wide. No Confidence Anomaly #1 is approximately 12.5 feet long by 4.5 feet wide. Collectively, the geophysical data recorded evidence of one probable metallic UST and one no confidence anomaly at the parcel.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Catlin Engineers & Scientists at 1813 N. Berkeley Blvd. in Goldsboro, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project U-3609B). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from December 4-5, 2019, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included several retail buildings surrounded by concrete, grass, and asphalt surfaces. An aerial photograph showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. Pyramid collected the EM data using a Geonics EM61-MK2 (EM61) metal detector integrated with a Geode External GPS/GLONASS receiver. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at approximately 0.8-foot intervals along north-south trending or east-west trending, generally parallel survey lines, spaced five feet apart. The data were downloaded to a

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

GPR data were acquired across select EM anomalies on December 5, 2019, using a Geophysical Survey Systems, Inc. (GSSI) SIR 4000 controller coupled to a 350 MHz HS antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 6 feet, based on dielectric constants calculated by the DF unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the DF unit for post-processing and figure generation.

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

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

DISCUSSION OF RESULTS

Discussion of EM Results

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

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Vehicle	✓
2	Reinforced Concrete Pipes	
3	Manhole	
4	Suspected Utility	✓
5	Reinforced Concrete Pipes	
6	Signs/Utilities	
7	Reinforced Concrete	✓
8	One Probable UST/One No Confidence Anomaly	✓
9	Manhole	
10	Reinforced Concrete	✓
11	Sign/Bench	

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface, including a vehicle, reinforced concrete pipes, manholes, signs, utilities, reinforced concrete, and a bench. GPR was performed around a vehicle at the site (EM Anomaly 1) and across multiple concrete slabs within the survey area (EM Anomalies 7 and 10) to confirm the presence of reinforcement within the slab and to investigate for more significant structures such as USTs that may have been obscured due to the EM interference caused by the vehicle or reinforcement in the concrete. EM Anomaly 4 was a smaller, low- to medium-amplitude anomaly, suspected to be a result of a utility, and was further investigated with GPR. EM Anomaly 8 was a larger, medium-amplitude anomaly located under an apparent gravel-fill surface and was further investigated with GPR.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects performed at the property as well as select transect images. All of the transect images are included in **Appendix A**. A total of nineteen formal GPR transects were performed at the site.

GPR Transects 1-3 were performed across EM Anomaly 1 to confirm that the metallic interference from the vehicle did not obscure any larger structures. No evidence of significant structures such as USTs were observed.

GPR Transects 4-11 and 13-16 were performed across EM Anomalies 7 and 10 and confirmed the presence of reinforcement within the concrete slabs. No evidence of significant structures such as USTs were observed.

GPR Transect 12 was performed across EM Anomaly 4 and showed several discrete hyperbolic reflectors consistent with possible utilities.

GPR Transects 17 and 19 recorded high-amplitude hyperbolic and lateral reflectors consistent with a probable UST. Probable UST #1 is approximately 12.5 feet long by 6 feet wide. GPR Transects 17 and 18 also recorded apparent weak, distorted hyperbolic and lateral reflectors and is classified as a no confidence anomaly. No Confidence Anomaly #1 is approximately 12.5 feet long by 4.5 feet wide. Probable UST #1 and No Confidence Anomaly #1 are located under an apparent gravel-fill surface to the north of the easternmost building in the survey area. **Figure 4** presents the locations and sizes of one probable UST and one no confidence anomaly as well as ground-level photographs.

Collectively, the geophysical data recorded evidence of one probable metallic UST and one no confidence anomaly at the parcel. **Figure 5** provides an overlay of the metal detection results, one probable UST, and one no confidence anomaly on the NCDOT engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at 1813 N. Berkeley Blvd. in Goldsboro, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR and EM recorded evidence of buried utilities and reinforcement within some of the concrete slabs at the site.
- GPR and EM also recorded evidence of a probable UST and a no confidence

anomaly under an apparent gravel-fill surface to the north of the easternmost building in the survey area.

- Probable UST #1 is approximately 12.5 feet long by 6 feet wide. No Confidence Anomaly #1 is approximately 12.5 feet long by 4.5 feet wide.
- Collectively, the geophysical data recorded evidence of one probable metallic USTs and one no confidence anomaly at the parcel.

LIMITATIONS

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

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



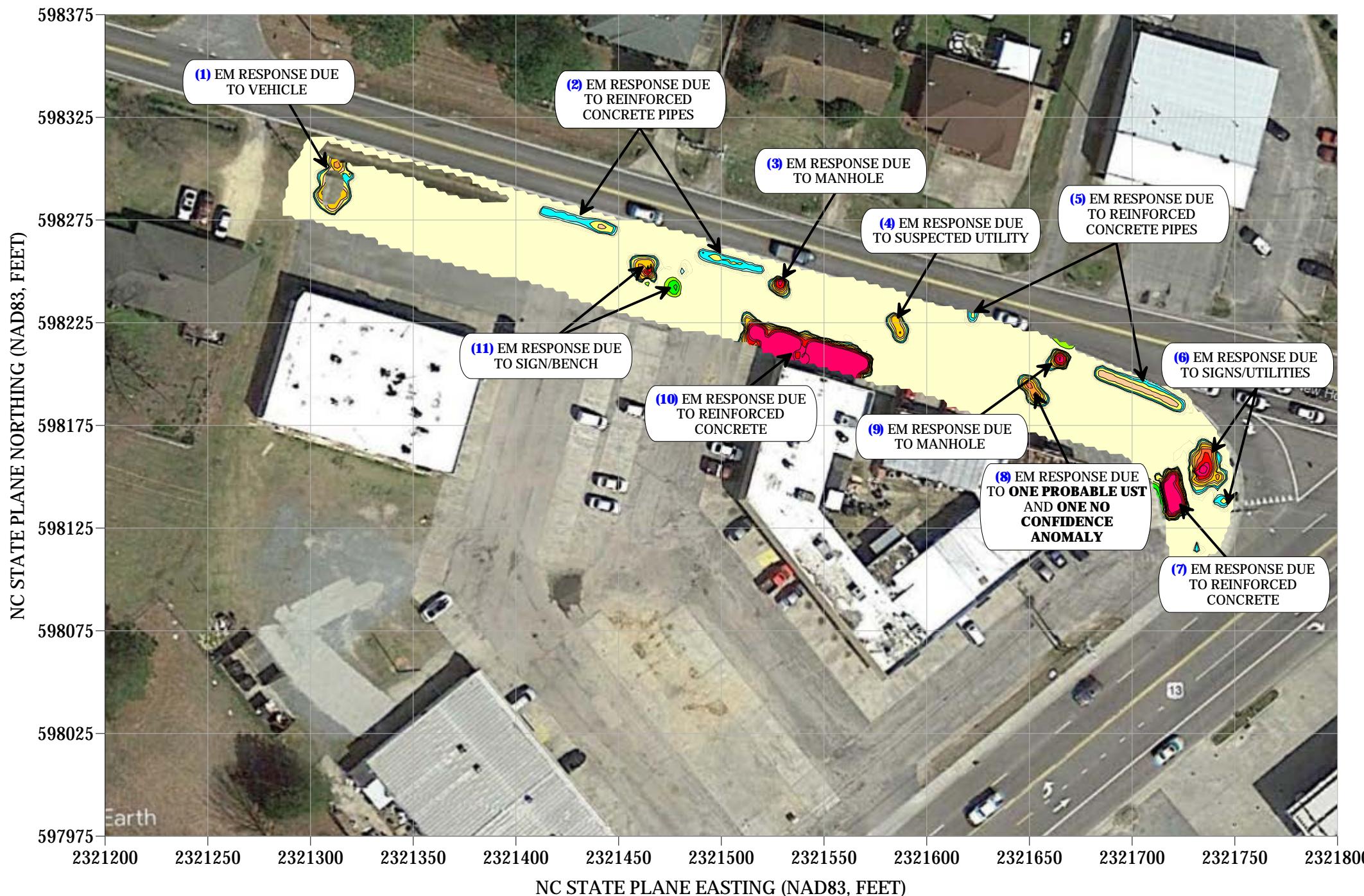
View of Survey Area
(Facing Approximately East)



View of Survey Area
(Facing Approximately East)



EM61 METAL DETECTION RESULTS

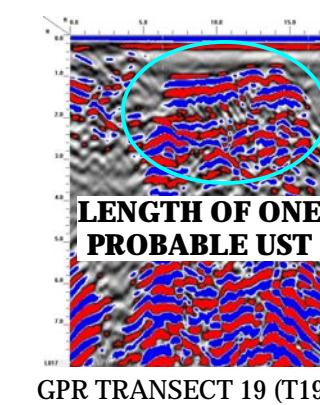
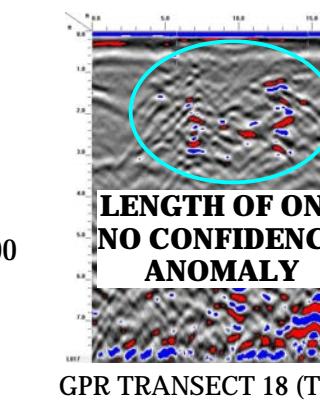
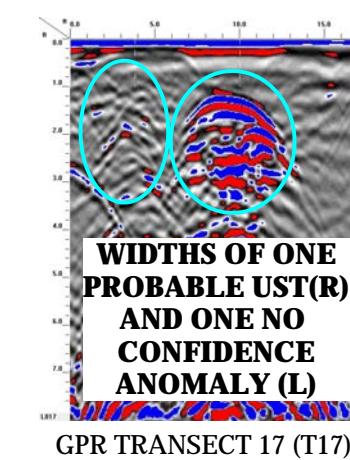
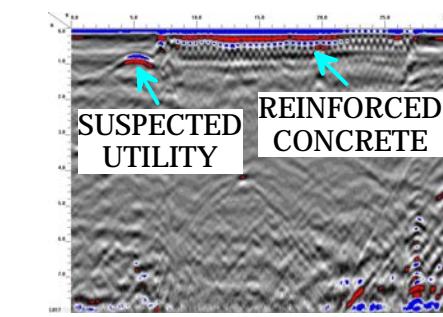
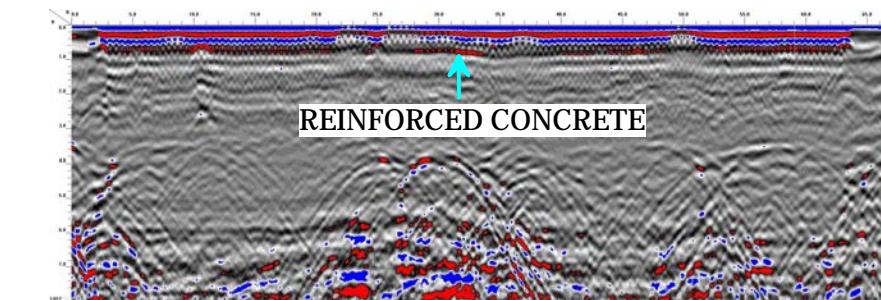


EVIDENCE OF ONE PROBABLE METALLIC UST AND ONE NO CONFIDENCE ANOMALY WAS OBSERVED.

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM data were collected on December 4, 2019, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI SIR 4000 instrument with a 350 MHz HS antenna on December 5, 2019.



GPR TRANSECT LOCATIONS



LOCATIONS OF ONE PROBABLE UST AND ONE NO CONFIDENCE ANOMALY

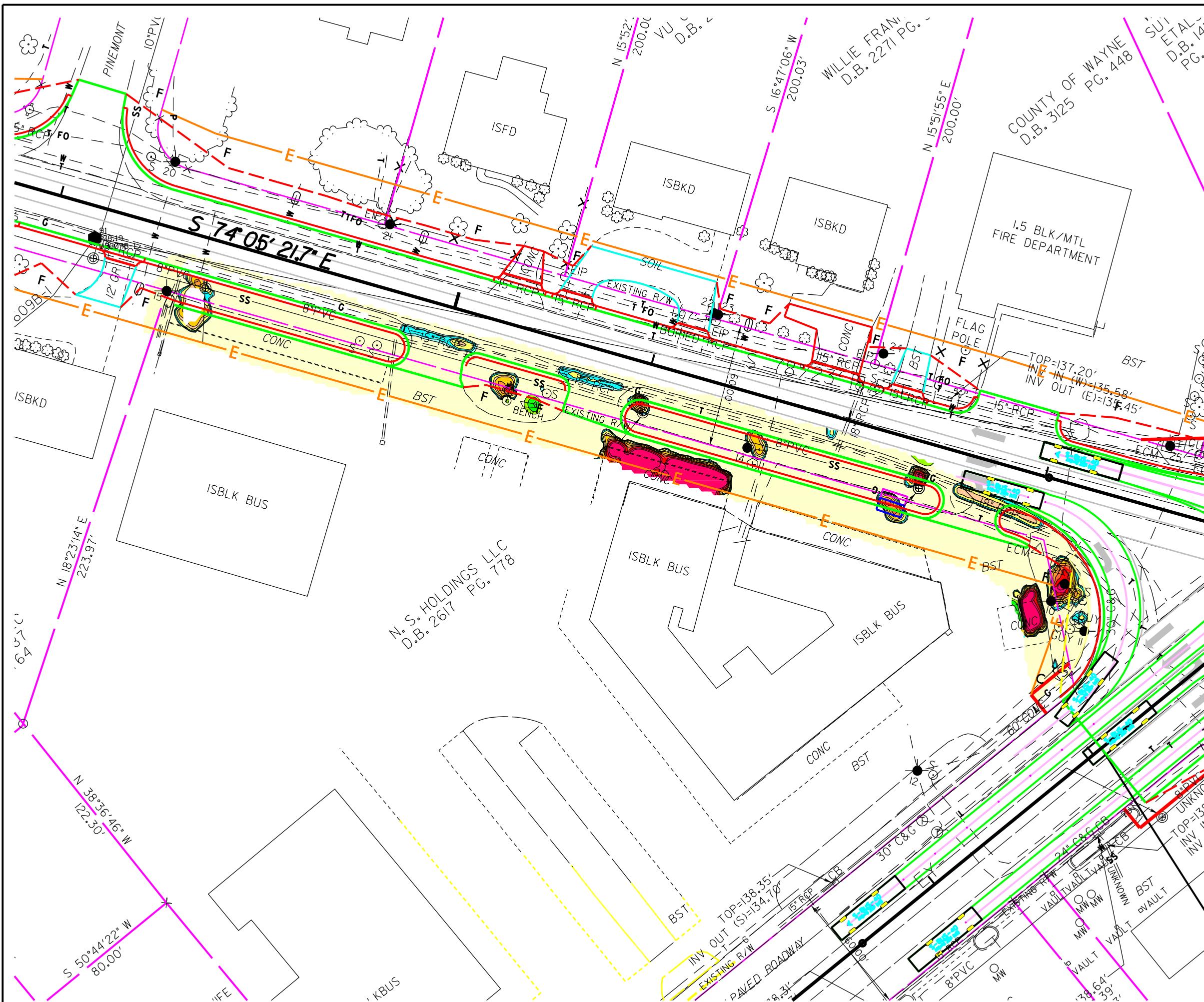


View of Probable UST #1 and No Confidence Anomaly #1 Facing Approximately West

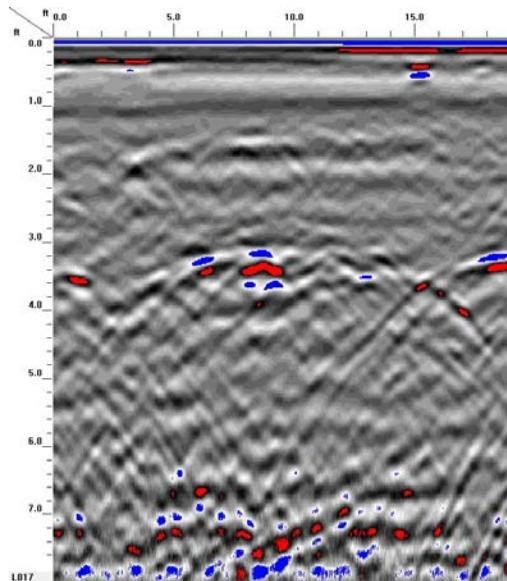


View of Probable UST #1 and No Confidence Anomaly #1 Facing Approximately South

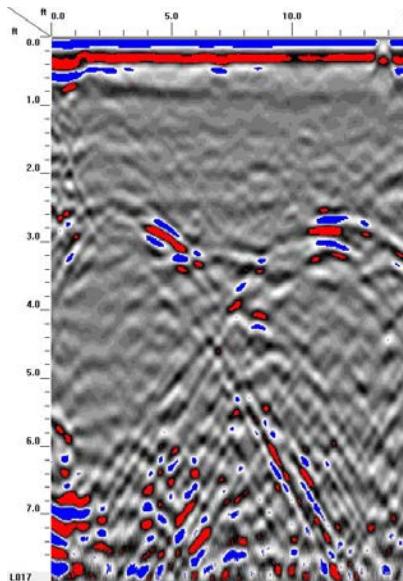




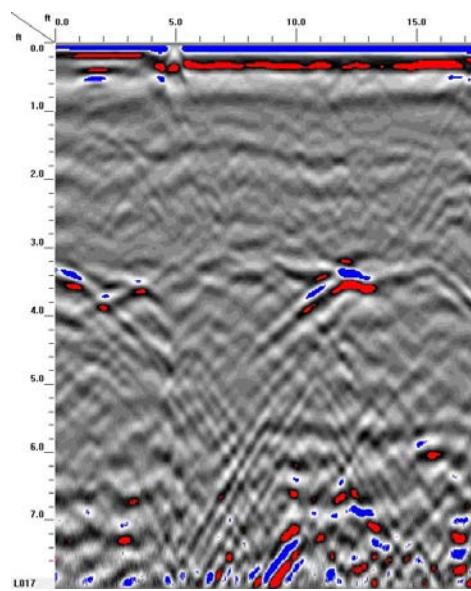
Appendix A – GPR Transect Images



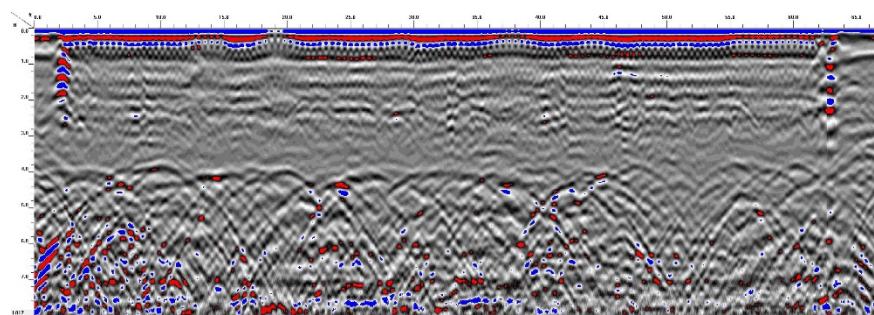
GPR TRANSECT 1



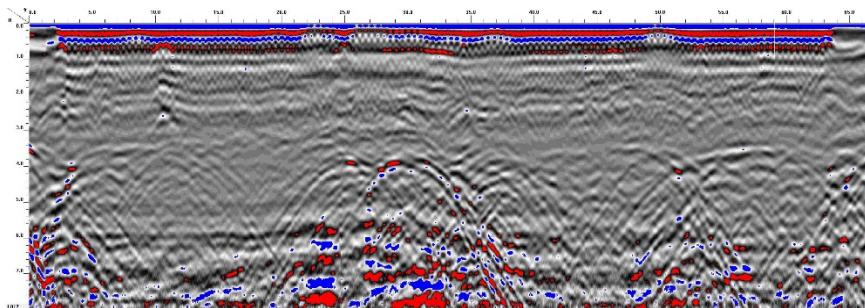
GPR TRANSECT 3



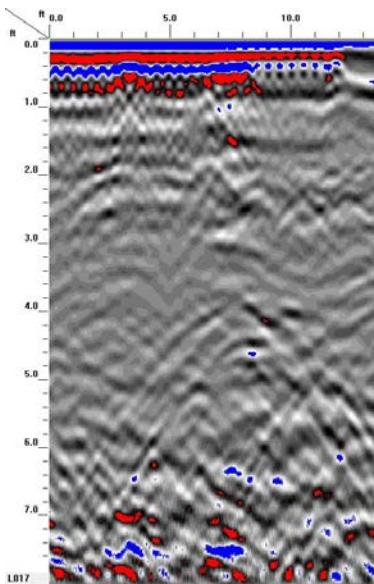
GPR TRANSECT 2



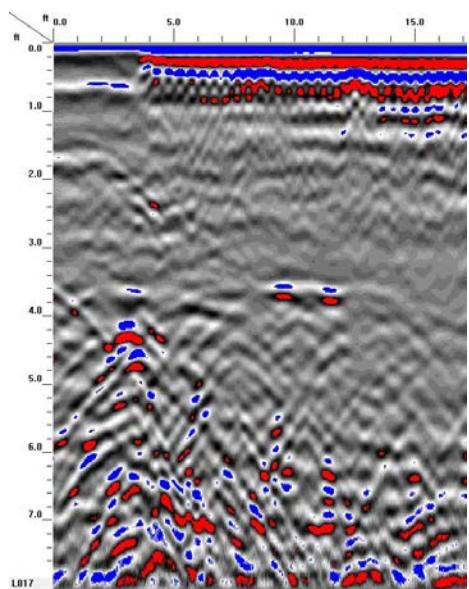
GPR TRANSECT 4



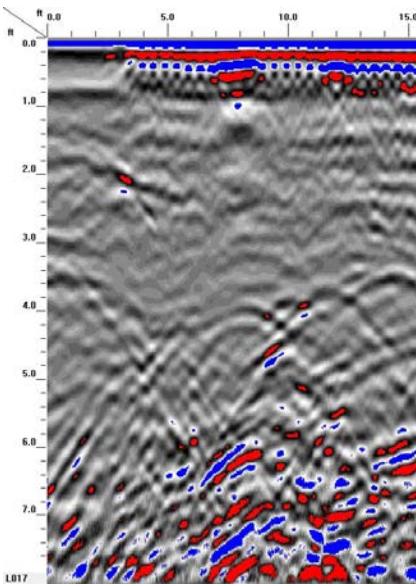
GPR TRANSECT 5



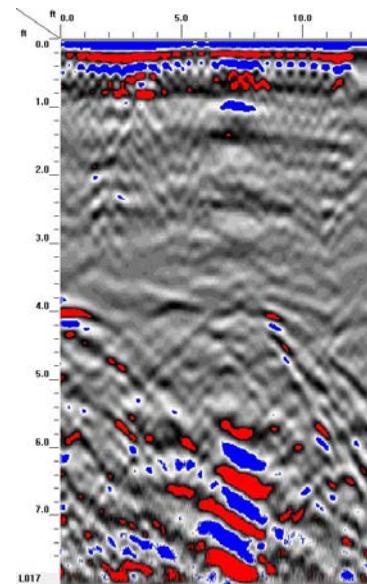
GPR TRANSECT 7



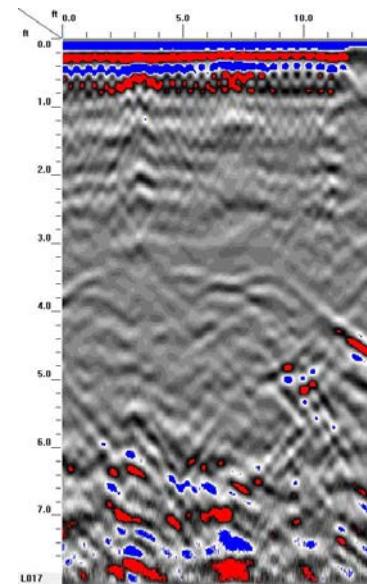
GPR TRANSECT 6



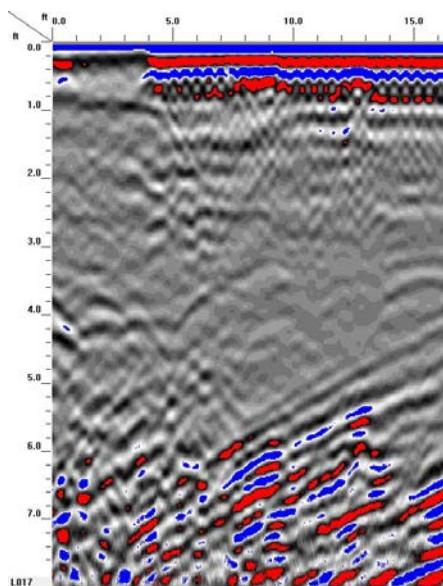
GPR TRANSECT 8



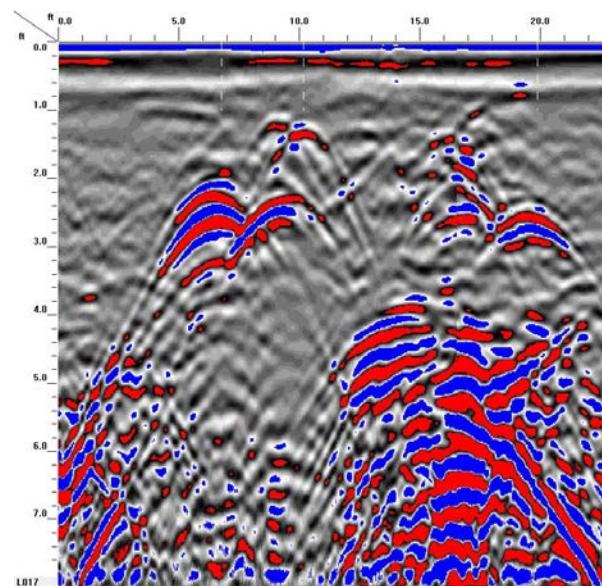
GPR TRANSECT 9



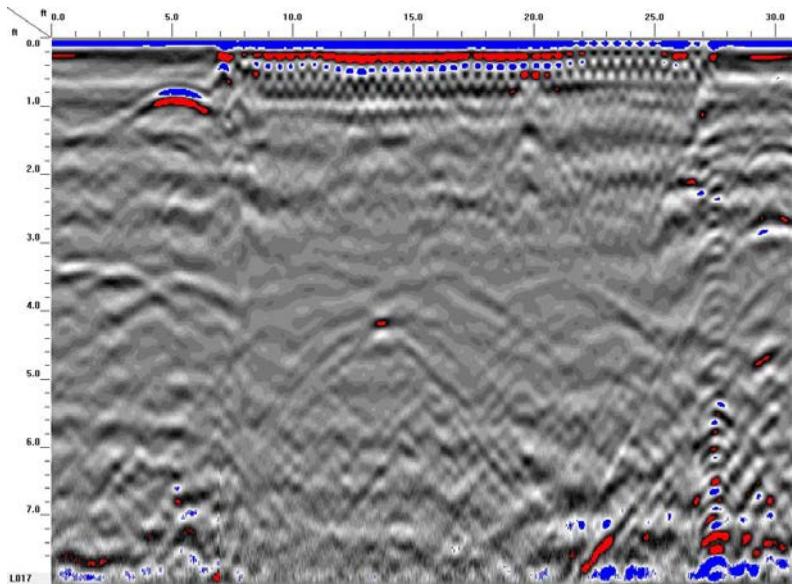
GPR TRANSECT 11



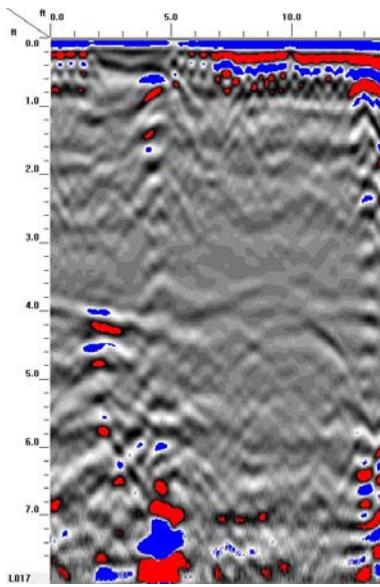
GPR TRANSECT 10



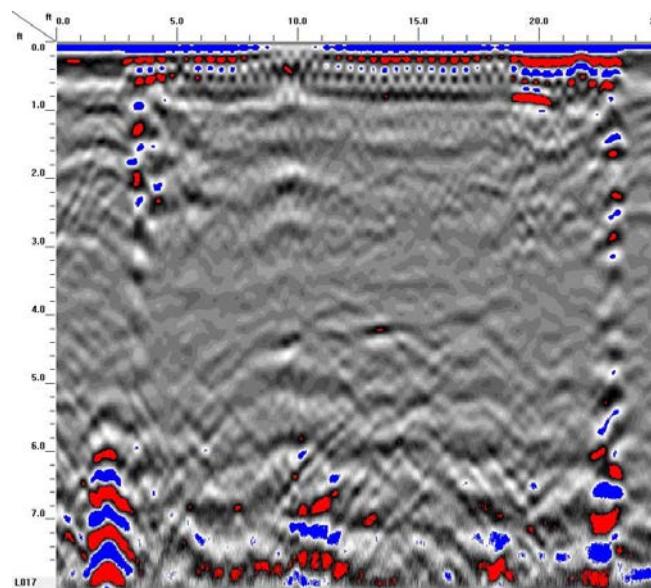
GPR TRANSECT 12



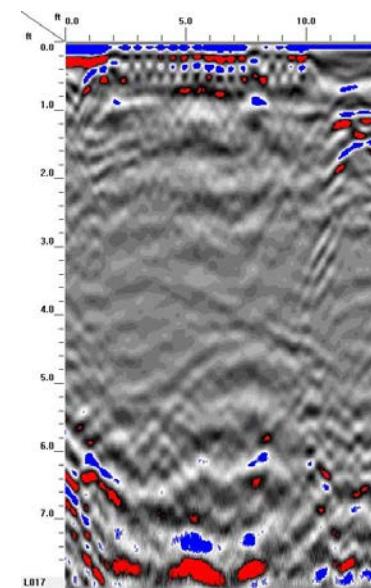
GPR TRANSECT 13



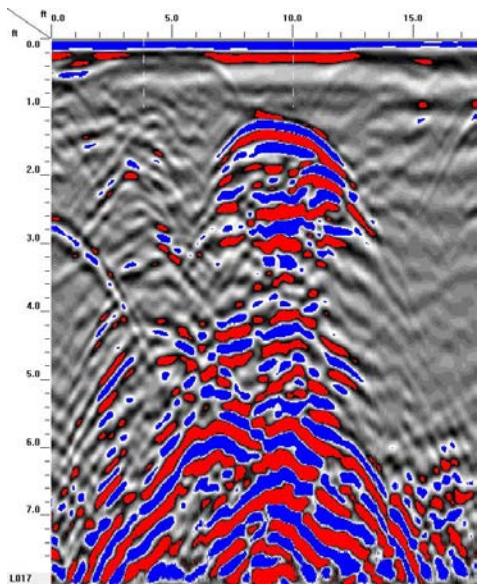
GPR TRANSECT 15



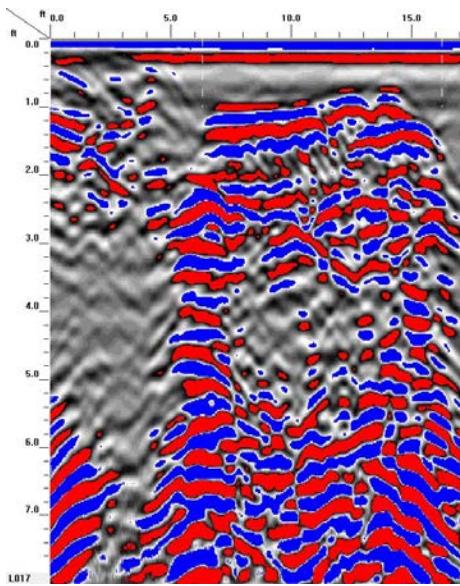
GPR TRANSECT 14



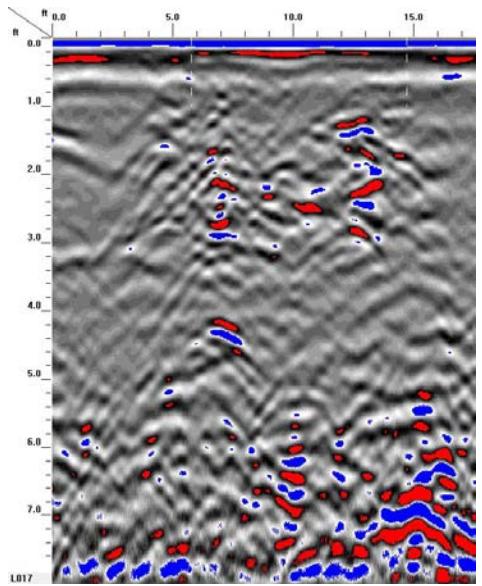
GPR TRANSECT 16



GPR TRANSECT 17



GPR TRANSECT 19



GPR TRANSECT 18

APPENDIX B

BORING LOGS, WELL CONSTRUCTION AND ABANDONMENT RECORDS

BORING LOG


 WBS #: 39026.1.2
 TIP #: U-3609B

219139

PROJECT NO.:	219139	STATE:	N.C.	COUNTY:	WAYNE	LOCATION:	GOLDSBORO
PROJECT NAME:	GOLDSBORO-US13 (BERKELEY BLVD) FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)			LOGGED BY:	Corey Futral	BORING ID:	
				DRILLER:	E. Swain		
NORTHING:	598,250	EASTING:	2,321,455	CREW:	CATLIN		
SYSTEM:	NCSP NAD 83 (ft)	BORING LOCATION:	1813 N. Berkeley Blvd			LAND ELEV.:	NM
DRILL MACHINE:	GeoProbe	METHOD:	DPT		0 HOUR DTW:	N/A	BORING DEPTH: 8.0
START DATE:	12/10/19	FINISH DATE:	12/10/19		24 HOUR DTW:	N/A	WATER DEPTH: --
DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	SCREENING RESULTS (ppm)	LAB. ID.	U S C S	L O G	SOIL AND ROCK DESCRIPTION ELEVATION
0.0			0 250 500 750 1,000				0.0 LAND SURFACE
2.0	Direct Push	D	▲0.9				
4.0	Direct Push	D	▲1.5		SP		Brown grading to tan with tr. black streaks, lt. gray from 4.0-7.0' BLS, F. SAND
6.0	Direct Push	D	▲1.4	1813 DPT-01 (6')			
8.0	Direct Push	M	▲0.7		CL	7.0	Gray with tan and tr. orange mottling, Sandy and Silty mod. plastic CLAY
						8.0	BORING TERMINATED AT DEPTH 8.0 ft in Sandy and Silty CLAY

BORING LOG


 WBS #: 39026.1.2
 TIP #: U-3609B

219139

PROJECT NO.:	219139	STATE:	N.C.	COUNTY:	WAYNE	LOCATION:	GOLDSBORO
PROJECT NAME:	GOLDSBORO-US13 (BERKELEY BLVD) FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)			LOGGED BY:	Corey Futral	BORING ID:	
NORTHING:	598,241	EASTING:	2,321,529	DRILLER:	E. Swain		1813DPT-02
SYSTEM:	NCSP NAD 83 (ft)	BORING LOCATION:	1813 N. Berkeley Blvd	CREW:	CATLIN	LAND ELEV.:	NM
DRILL MACHINE:	GeoProbe	METHOD:	DPT	0 HOUR DTW:	N/A	BORING DEPTH:	8.0
START DATE:	12/10/19	FINISH DATE:	12/10/19	24 HOUR DTW:	N/A	WATER DEPTH:	--
DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	SCREENING RESULTS (ppm)	LAB. ID.	U S C S	L O G	SOIL AND ROCK DESCRIPTION ELEVATION
0.0			0 250 500 750 1,000				0.0 LAND SURFACE
4.0	Direct Push	D	▲1.0	1813 DPT-02 (4')		SC-SM	Tan to gray with orange and brown, Silty and Clayey F. SAND
8.0	Direct Push	Sat.	▲0.8				8.0 BORING TERMINATED AT DEPTH 8.0 ft in Silty and Clayey F. SAND

BORING LOG


 219139
 WBS #: 39026.1.2
 TIP #: U-3609B

PROJECT NO.:	219139	STATE:	N.C.	COUNTY:	WAYNE	LOCATION:	GOLDSBORO
PROJECT NAME:	GOLDSBORO-US13 (BERKELEY BLVD) FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)			LOGGED BY:	Corey Futral	BORING ID:	
NORTHING:	598,223	EASTING:	2,321,591	DRILLER:	E. Swain		
SYSTEM:	NCSP NAD 83 (ft)	BORING LOCATION:	1813 N. Berkeley Blvd			LAND ELEV.:	NM
DRILL MACHINE:	GeoProbe	METHOD:	DPT			0 HOUR DTW:	N/A
START DATE:	12/10/19	FINISH DATE:	12/10/19			24 HOUR DTW:	N/A
DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	SCREENING RESULTS (ppm)	LAB. ID.	U S C S L O G	DEPTH	SOIL AND ROCK DESCRIPTION ELEVATION
0.0			0 250 500 750 1,000			0.0	LAND SURFACE
2.0	Direct Push	D	▲0.0				
4.0	Direct Push	D	▲0.6		SP		Brown to tan with orange grading to lt. gray at 6.0' BLS, F. SAND with tr. silt throughout
6.0	Direct Push	D	▲0.1			7.0	
8.0	Direct Push	W	▲0.2	Soil 1813 DPT-03 (7')	CL	8.0	Gray with orange mottling, Sandy mod. plastic CLAY
10.0	Direct Push	Sat.	▲0.5		SP		Tan with orange mottling, F. SAND
12.0	Direct Push	Sat.	▲0.3	Water 1813 DPT-03		12.0	BORING TERMINATED AT DEPTH 12.0 ft in F. SAND 1" PVC Well set to 12.0' BLS Sampled and Abandoned

BORING LOG


 WBS #: 39026.1.2
 TIP #: U-3609B

219139

PROJECT NO.:	219139	STATE:	N.C.	COUNTY:	WAYNE	LOCATION:	GOLDSBORO
PROJECT NAME:	GOLDSBORO-US13 (BERKELEY BLVD) FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)			LOGGED BY:	Corey Futral	BORING ID:	
NORTHING:	598,211	EASTING:	2,321,637	DRILLER:	E. Swain		
SYSTEM:	NCSP NAD 83 (ft)	BORING LOCATION:	1813 N. Berkeley Blvd			LAND ELEV.:	NM
DRILL MACHINE:	GeoProbe	METHOD:	DPT		0 HOUR DTW:	N/A	BORING DEPTH: 8.0
START DATE:	12/10/19	FINISH DATE:	12/10/19		24 HOUR DTW:	N/A	WATER DEPTH: --
DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	SCREENING RESULTS (ppm)	LAB. ID.	U S C S	L O G	SOIL AND ROCK DESCRIPTION ELEVATION
0.0			0 250 500 750 1,000				0.0 LAND SURFACE
2.0	Direct Push	M	▲0.4				
4.0	Direct Push	M	▲0.4		SM		Brown grading to tan with orange mottling, Silty F. SAND with tr. clay
6.0	Direct Push	M	▲0.7				
8.0	Direct Push	M	▲0.7	1813 DPT-04 (7')	CL	7.5	Gray with orange and red mottling, Sandy and Silty mod. plastic CLAY
						8.0	BORING TERMINATED AT DEPTH 8.0 ft in Sandy and Silty mod. plastic CLAY

BORING LOG


 WBS #: 39026.1.2
 TIP #: U-3609B

219139

PROJECT NO.:	219139	STATE:	N.C.	COUNTY:	WAYNE	LOCATION:	GOLDSBORO
PROJECT NAME:	GOLDSBORO-US13 (BERKELEY BLVD) FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)			LOGGED BY:	Corey Futral	BORING ID:	
				DRILLER:	E. Swain		
NORTHING:	598,200	EASTING:	2,321,677	CREW:	CATLIN		
SYSTEM:	NCSP NAD 83 (ft)	BORING LOCATION:	1813 N. Berkeley Blvd			LAND ELEV.:	NM
DRILL MACHINE:	GeoProbe	METHOD:	DPT		0 HOUR DTW:	N/A	BORING DEPTH: 8.0
START DATE:	12/10/19	FINISH DATE:	12/10/19		24 HOUR DTW:	N/A	WATER DEPTH: --
DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	SCREENING RESULTS (ppm)	LAB. ID.	U S C S	L O G	SOIL AND ROCK DESCRIPTION ELEVATION
0.0			0 250 500 750 1,000				0.0 LAND SURFACE
2.0	Direct Push	M	▲0.0				Brown grading to orange and tan, Silty F. SAND
4.0	Direct Push	M	▲0.3				Tan with orange and red mottling, Sandy and Silty highly plastic CLAY
6.0	Direct Push	M	▲0.6	1813 DPT-05 (6')	CH	4.0 4.5	
8.0	Direct Push	W	▲0.1		SM	8.0	Tan with orange grading to lt. gray, Silty F. SAND with clay throughout
							BORING TERMINATED AT DEPTH 8.0 ft in Silty F. SAND with clay throughout

BORING LOG


 WBS #: 39026.1.2
 TIP #: U-3609B

219139

PROJECT NO.:	219139	STATE:	N.C.	COUNTY:	WAYNE	LOCATION:	GOLDSBORO
PROJECT NAME:	GOLDSBORO-US13 (BERKELEY BLVD) FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)			LOGGED BY:	Corey Futral	BORING ID:	
NORTHING:	598,174	EASTING:	2,321,721	DRILLER:	E. Swain		
SYSTEM:	NCSP NAD 83 (ft)	BORING LOCATION:	1813 N. Berkeley Blvd			LAND ELEV.:	NM
DRILL MACHINE:	GeoProbe	METHOD:	DPT			0 HOUR DTW:	N/A
START DATE:	12/10/19	FINISH DATE:	12/10/19			24 HOUR DTW:	N/A
DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	SCREENING RESULTS (ppm)	LAB. ID.	U S C S L O G	DEPTH	SOIL AND ROCK DESCRIPTION ELEVATION
0.0			0 250 500 750 1,000			0.0	LAND SURFACE
2.0	Direct Push	M	▲0.1				
4.0	Direct Push	M	▲2.9		SM		Brown to tan with black staining, tan with orange mottling from 4.0-6.5' BLS, Silty F. SAND with tr. clay
6.0	Direct Push	M	▲3.6	1813 DPT-06 (6')		6.5	
8.0	Direct Push	M	▲2.0		SC-SM	8.0	Tan with orange mottling, Silty and Clayey F. SAND
							BORING TERMINATED AT DEPTH 8.0 ft in Silty and Clayey F. SAND

BORING LOG


 WBS #: 39026.1.2
 TIP #: U-3609B

219139

PROJECT NO.:	219139	STATE:	N.C.	COUNTY:	WAYNE	LOCATION:	GOLDSBORO
PROJECT NAME:	GOLDSBORO-US13 (BERKELEY BLVD) FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)			LOGGED BY:	Corey Futral	BORING ID:	
				DRILLER:	E. Swain		
NORTHING:	598,157	EASTING:	2,321,727	CREW:	CATLIN		
SYSTEM:	NCSP NAD 83 (ft)	BORING LOCATION:	1813 N. Berkeley Blvd			LAND ELEV.:	NM
DRILL MACHINE:	GeoProbe	METHOD:	DPT		0 HOUR DTW:	N/A	BORING DEPTH: 8.0
START DATE:	12/10/19	FINISH DATE:	12/10/19		24 HOUR DTW:	N/A	WATER DEPTH: --
DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	SCREENING RESULTS (ppm)	LAB. ID.	U S C S	L O G	SOIL AND ROCK DESCRIPTION ELEVATION
0.0			0 250 500 750 1,000				0.0 LAND SURFACE
2.0	Direct Push	M	▲0.5		SP		Brown to tan with black staining, F. SAND
4.0	Direct Push	W	▲0.4		SC	3.0	Tan to orange, Clayey F. SAND
6.0	Direct Push	M	▲0.9		SP	4.0	Lt. tan, F. SAND
8.0	Direct Push	M	▲1.6	1813 DPT-07 (7')	SC	5.0	Tan with orange and red mottling, Clayey F. SAND
						8.0	BORING TERMINATED AT DEPTH 8.0 ft in Clayey F. SAND

BORING LOG


 WBS #: 39026.1.2
 TIP #: U-3609B

219139

PROJECT NO.:	219139	STATE:	N.C.	COUNTY:	WAYNE	LOCATION:	GOLDSBORO
PROJECT NAME:	GOLDSBORO-US13 (BERKELEY BLVD) FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)			LOGGED BY:	Corey Futral	BORING ID:	
				DRILLER:	E. Swain		
NORTHING:	598,127	EASTING:	2,321,732	CREW:	CATLIN		
SYSTEM:	NCSP NAD 83 (ft)	BORING LOCATION:	1813 N. Berkeley Blvd			LAND ELEV.:	NM
DRILL MACHINE:	GeoProbe	METHOD:	DPT		0 HOUR DTW:	N/A	BORING DEPTH: 8.0
START DATE:	12/10/19	FINISH DATE:	12/10/19		24 HOUR DTW:	N/A	WATER DEPTH: --
DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	SCREENING RESULTS (ppm)	LAB. ID.	U S C S	L O G	SOIL AND ROCK DESCRIPTION ELEVATION
0.0			0 250 500 750 1,000				0.0 LAND SURFACE
2.0	Direct Push	M	▲0.3		SP		Brown to tan with black staining, F. SAND
4.0	Direct Push	W	▲0.6		SC	3.0	Tan to orange, Clayey F. SAND
6.0	Direct Push	M	▲0.6	1813 DPT-08 (6')	SP	4.0 5.0	Lt. tan, F. SAND
8.0	Direct Push	M	▲0.5		SC	8.0	Tan with orange and red mottling, Clayey F. SAND
							BORING TERMINATED AT DEPTH 8.0 ft in Clayey F. SAND

WELL CONSTRUCTION RECORD (GW-1)

1. Well Contractor Information:

Corey Futral

Well Contractor Name

4330-B

NC Well Contractor Certification Number

CATLIN Engineers and Scientists

Company Name

2. Well Construction Permit #:

List all applicable well construction permits (i.e. UIC, County, State, Variance, etc.)

3. Well Use (check well use):

Water Supply Well:

<input type="checkbox"/> Agricultural	<input type="checkbox"/> Municipal/Public
<input type="checkbox"/> Geothermal (Heating/Cooling Supply)	<input type="checkbox"/> Residential Water Supply (single)
<input type="checkbox"/> Industrial/Commercial	<input type="checkbox"/> Residential Water Supply (shared)

 Irrigation

Non-Water Supply Well:

<input checked="" type="checkbox"/> Monitoring	<input type="checkbox"/> Recovery
--	-----------------------------------

Injection Well:

<input type="checkbox"/> Aquifer Recharge	<input type="checkbox"/> Groundwater Remediation
<input type="checkbox"/> Aquifer Storage and Recovery	<input type="checkbox"/> Salinity Barrier
<input type="checkbox"/> Aquifer Test	<input type="checkbox"/> Stormwater Drainage
<input type="checkbox"/> Experimental Technology	<input type="checkbox"/> Subsidence Control
<input type="checkbox"/> Geothermal (Closed Loop)	<input type="checkbox"/> Tracer
<input type="checkbox"/> Geothermal (Heating/Cooling Return)	<input type="checkbox"/> Other (explain under #21 Remarks)

4. Date Well(s) Completed: 12/10/19 Well ID# 1813DPT-03

5a. Well Location:

NCDOT

Facility/Owner Name

Facility ID# (if applicable)

1813 N. Berkeley Blvd. Goldsboro, NC 27534

Physical Address, City, and Zip

Wayne

County

Parcel Identification No. (PIN)

5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees:

(if well field, one lat/long is sufficient)

35.388570 N -77.920947 W6. Is(are) the well(s): Permanent or Temporary7. Is this a repair to an existing well: Yes or No

If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. For Geoprobe/DPT or Closed-Loop Geothermal Wells having the same construction, only 1 GW-1 is needed. Indicate TOTAL NUMBER of wells drilled: 19. Total well depth below land surface: 12.0 (ft.)
For multiple wells list all depths if different (example- 3@200' and 2@100')10. Static water level below top of casing: ~8.0' (ft.)
If water level is above casing, use "+"11. Borehole diameter: 2 (in.)12. Well construction method: Direct Push
(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ Method of test: _____

13b. Disinfection type: _____ Amount: _____

For Internal Use Only:

14. WATER ZONES					
FROM	TO	DESCRIPTION			
ft.	ft.				
ft.	ft.				

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)				
FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		

16. INNER CASING OR TUBING (geothermal closed-loop)				
FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		

17. SCREEN					
FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
0 ft.	12.0 ft.	1 in.	.010	Sch 40	PVC
ft.	ft.	in.			

18. GROUT			
FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
ft.	ft.		
ft.	ft.		
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)			
FROM	TO	MATERIAL	EMPLACEMENT METHOD
ft.	ft.		
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)			
FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)	
ft.	ft.		

21. REMARKS			

22. Certification:



1/24/20

Signature of Certified Well Contractor

Date

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTRUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells: In addition to sending the form to the address in 24a above, also submit one copy of this form within 30 days of completion of well construction to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells: In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

WELL ABANDONMENT RECORD

1. Well Contractor Information:**Corey Futral**

Well Contractor Name (or well owner personally abandoning well on his/her property)

4330-B

NC Well Contractor Certification Number

CATLIN Engineers and Scientists

Company Name

2. Well Construction Permit #:

List all applicable well construction permits (i.e. UIC, County, State, Variance, etc.) if known

3. Well use (check well use):**Water Supply Well:**

<input type="checkbox"/> Agricultural	<input type="checkbox"/> Municipal/Public
<input type="checkbox"/> Geothermal (Heating/Cooling Supply)	<input type="checkbox"/> Residential Water Supply (single)
<input type="checkbox"/> Industrial/Commercial	<input type="checkbox"/> Residential Water Supply (shared)
<input type="checkbox"/> Irrigation	

Non-Water Supply Well:

<input checked="" type="checkbox"/> Monitoring	<input type="checkbox"/> Recovery
--	-----------------------------------

Injection Well:

<input type="checkbox"/> Aquifer Recharge	<input type="checkbox"/> Groundwater Remediation
<input type="checkbox"/> Aquifer Storage and Recovery	<input type="checkbox"/> Salinity Barrier
<input type="checkbox"/> Aquifer Test	<input type="checkbox"/> Stormwater Drainage
<input type="checkbox"/> Experimental Technology	<input type="checkbox"/> Subsidence Control
<input type="checkbox"/> Geothermal (Closed Loop)	<input type="checkbox"/> Tracer
<input type="checkbox"/> Geothermal (Heating/Cooling Return)	<input type="checkbox"/> Other (explain under 7g)

4. Date well(s) abandoned: 12/10/19**5a. Well location:****NCDOT**Facility/Owner Name 1813 N. Berkeley Blvd., Goldsboro, NC 27534 Facility ID# (if applicable)

Physical Address, City, and Zip

WayneCounty Parke Parcel Identification No. (PIN)**5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees:**
(if well field, one lat/long is sufficient)35.388570 N -77.920947 W**CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED**

Attach well construction record(s) if available. For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

6a. Well ID#: 1813DPT-03**6b. Total well depth:** 12.0 (ft.)**6c. Borehole diameter:** 2 (in.)**6d. Water level below ground surface:** -8.0 (ft.)**6e. Outer casing length (if known):** _____ (ft.)**6f. Inner casing/tubing length (if known):** _____ (ft.)**6g. Screen length (if known):** 12.0 (ft.)

For Internal Use ONLY:

WELL ABANDONMENT DETAILS**7a. For Geoprobe/DPT or Closed-Loop Geothermal Wells** having the same well construction/depth, only 1 GW-30 is needed. Indicate TOTAL NUMBER of wells abandoned: 1**7b. Approximate volume of water remaining in well(s):** _____ (gal.)**FOR WATER SUPPLY WELLS ONLY:****7c. Type of disinfectant used:** _____**7d. Amount of disinfectant used:** _____**7e. Sealing materials used (check all that apply):**

<input type="checkbox"/> Neat Cement Grout	<input type="checkbox"/> Bentonite Chips or Pellets
<input type="checkbox"/> Sand Cement Grout	<input type="checkbox"/> Dry Clay
<input type="checkbox"/> Concrete Grout	<input type="checkbox"/> Drill Cuttings
<input type="checkbox"/> Specialty Grout	<input type="checkbox"/> Gravel
<input type="checkbox"/> Bentonite Slurry	<input type="checkbox"/> Other (explain under 7g)

7f. For each material selected above, provide amount of materials used:**Bentonite Pellets** -19 lbs.**7g. Provide a brief description of the abandonment procedure:**

All well material pulled, surface pured bentonite pellets and hydrated.

8. Certification:1/24/20

Signature of Certified Well Contractor or Well Owner

Date

By signing this form, I hereby certify that the well(s) was (were) abandoned in accordance with 15A NCAC 02C .0100 or 2C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

9. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well abandonment details. You may also attach additional pages if necessary.

SUBMITTAL INSTRUCTIONS**10a. For All Wells:** Submit this form within 30 days of completion of well abandonment to the following:Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617**10b. For Injection Wells:** In addition to sending the form to the address in 10a above, also submit one copy of this form within 30 days of completion of well abandonment to the following:Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636**10c. For Water Supply & Injection Wells:** In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well abandonment to the county health department of the county where abandoned.

APPENDIX C
LABORATORY REPORTS AND CHAIN OF CUSTODY RECORDS



Hydrocarbon Analysis Results

Client: CATLIN
Address: 220 OLD DAIRY RD
WILMINGTON, NC 28405

Samples taken Tuesday, December 10, 2019
Samples extracted Tuesday, December 10, 2019
Samples analysed Tuesday, December 17, 2019

Contact: BEN ASHBA

Operator Harry Wooten

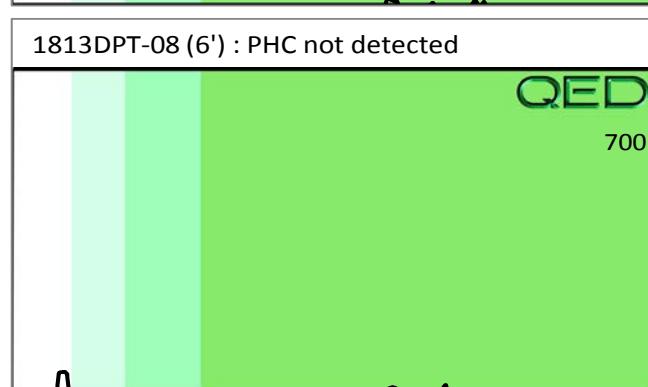
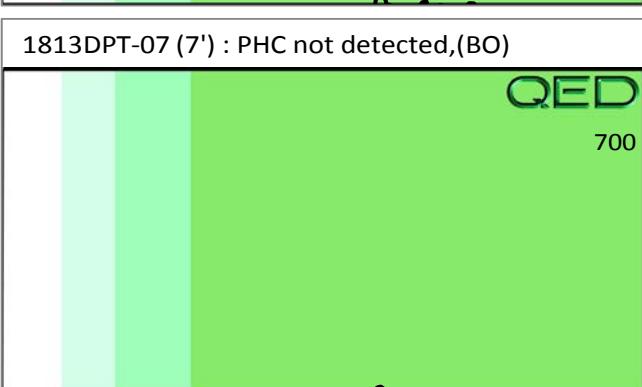
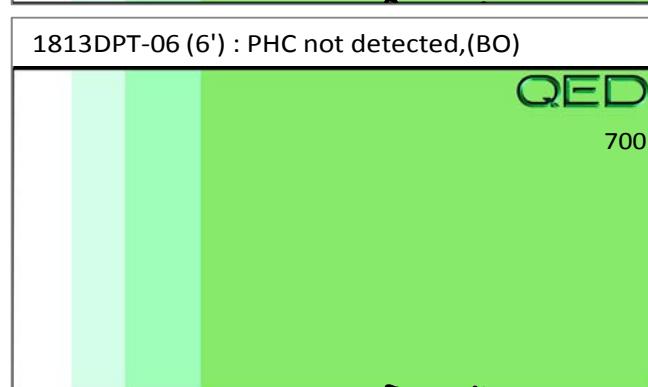
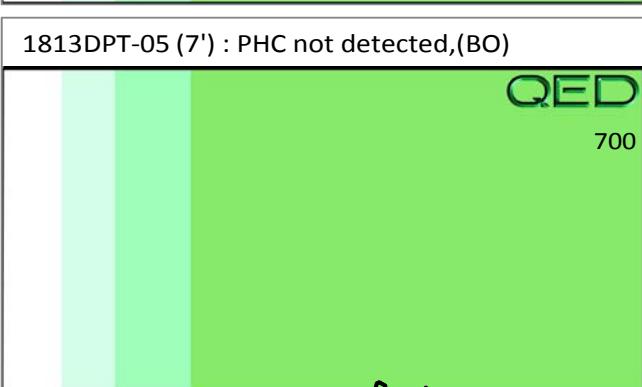
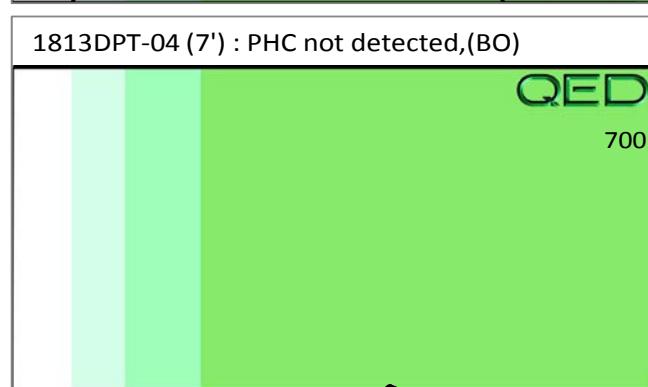
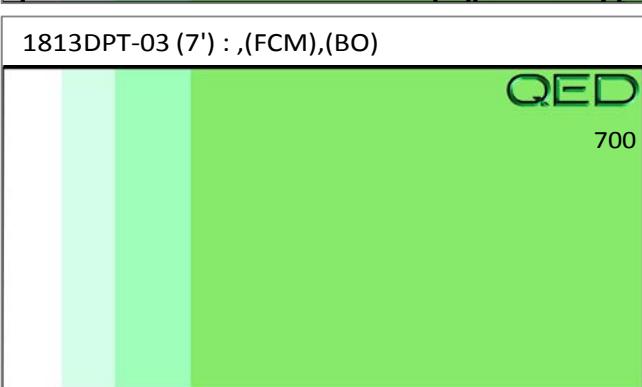
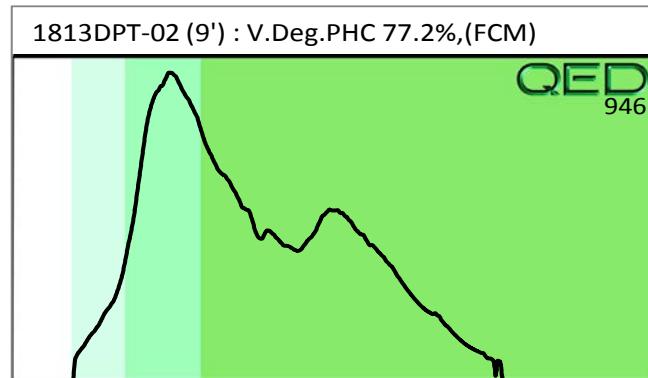
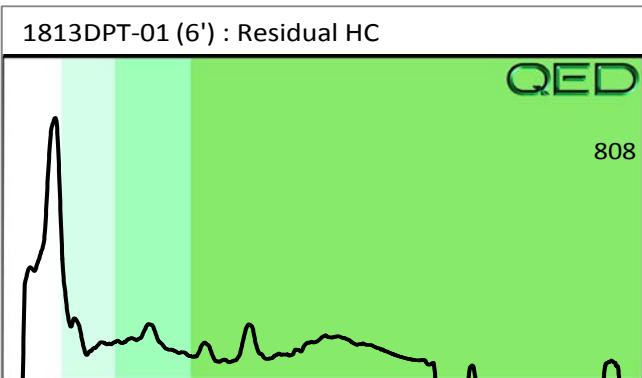
Project: 219139 (1813)

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



Client Name:	CATLIN										
Address:	220 OLD DARRARD, WILMINGTTON, NC 28405										
Contact:	BRIAN HIBBETT										
Project Ref.:	219139 (1013)										
Email:	ben.cahoon@etchnet.com										
Phone #:	(910) 452-5861										
Collected by:	Cory Futral										
CHAIN OF CUSTODY AND ANALYTICAL REQUEST FORM											
Sample Collection	TAT Requested		Analysis Type	Initials	Sample ID		Total Wt.	Tare Wt.	Sample Wt.		
Date/Time	24 Hour	48 Hour	UVF	GC							
12/10/19 @ 1045	✓	✓	CDF	1813 DPT-01 (6')			56.7	45.5	11.2		
12/10/19 @ 1100	✓	✓	CDF	1813 DPT-02 (4')			57.3	44.1	13.2		
12/10/19 @ 1115	✓	✓	CDF	1813 DPT-03 (7')			57.1	45.3	11.8		
12/10/19 @ 1130	✓	✓	CDF	1813 DPT-04 (7')			57.8	45.1	12.7		
12/10/19 @ 1145	✓	✓	CDF	1813 DPT-05 (7')			56.9	44.5	12.4		
12/10/19 @ 1330	✓	✓	CDF	1813 DPT-06 (6')			55.9	45.0	10.9		
12/10/19 @ 1345	✓	✓	CDF	1813 DPT-07 (7')			56.5	45.3	11.2		
12/10/19 @ 1400	✓	✓	CDF	1813 DPT-08 (6')			57.6	49.7	7.9		
COMMENTS/REQUESTS:											
Relinquished by <i>Andy Jette</i>		Accepted by <i>CCS</i>		Date/Time 12/16/19 16:30		RED Lab USE ONLY <i>8</i>		Accepted by <i> </i>		Date/Time 12/16/19 16:30	
TARGET GC/UVF ANALYTES:											
Ref. No. <i>B141</i>											



ENCO Laboratories

Accurate. Timely. Responsive. Innovative.

102-A Woodwinds Industrial Court

Cary NC, 27511

Phone: 919.467.3090 FAX: 919.467.3515

Monday, January 6, 2020

Catlin Engineers & Scientists (CA038)

Attn: Ben Ashba

220 Old Dairy Road

Wilmington, NC 28405

RE: Laboratory Results for

Project Number: [none], Project Name/Desc: NCDOT Goldsboro

ENCO Workorder(s): CC20427

Dear Ben Ashba,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Tuesday, December 17, 2019.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative if applicable. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Cary. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "Chuck Smith".

Chuck Smith

Project Manager

Enclosure(s)

PROJECT NARRATIVE

Client: Catlin Engineers & Scientists (CA038)
Project: NCDOT Goldsboro
Lab ID: CC20427

Overview

Environmental Conservation Laboratories, Inc. (ENCO) analyzed all submitted samples in accordance with the methods referenced in the laboratory report. Any particular difficulties encountered during sample handling by ENCO are discussed in the QC Remarks section below.

Quality Control Samples

No Comments

Quality Control Remarks

Due to failing QC, the original inhold extraction of method 625.1 was re-extracted outside of the hold time. Both sets of data have been reported.

Other Comments

The analytical data presented in this report are consistent with the methods as referenced in the analytical report. Any exceptions or deviations are noted in the QC remarks section of this narrative or in the Flags/Notes and Definitions section of the report.

Released By:
Environmental Conservation Laboratories, Inc.

Chuck Smith
Project Manager

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: 1813DPT-03		Lab ID: CC20427-02	Sampled: 12/10/19 12:30	Received: 12/17/19 11:00
Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 625.1	EPA 3510C_MS	12/17/19	01/26/20	12/17/19 07:53
SM 6200B-2011	Same	12/24/19		12/18/19 10:21
Client ID: 1813DPT-03		Lab ID: CC20427-02RE1	Sampled: 12/10/19 12:30	Received: 12/17/19 11:00
Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 625.1	EPA 3510C_MS	12/17/19	02/05/20	12/27/19 08:32

SAMPLE DETECTION SUMMARY

No positive results detected.

ANALYTICAL RESULTS

Description: 1813DPT-03

Lab Sample ID: CC20427-02

Received: 12/17/19 11:00

Matrix: Ground Water

Sampled: 12/10/19 12:30

Work Order: CC20427

Project: NCDOT Goldsboro

Sampled By: Corey Futral

Volatile Organic Compounds by GCMS

^ - ENCLABS Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	POL	Batch	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6]^	0.091	U	ug/L	1	0.091	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,1,1-Trichloroethane [71-55-6]^	0.15	U	ug/L	1	0.15	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,1,2,2-Tetrachloroethane [79-34-5]^	0.085	U	ug/L	1	0.085	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,1,2-Trichloroethane [79-00-5]^	0.068	U	ug/L	1	0.068	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,1-Dichloroethane [75-34-3]^	0.050	U	ug/L	1	0.050	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,1-Dichloroethene [75-35-4]^	0.15	U	ug/L	1	0.15	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,1-Dichloropropene [563-58-6]^	0.063	U	ug/L	1	0.063	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,2,3-Trichlorobenzene [87-61-6]^	0.25	U	ug/L	1	0.25	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,2,3-Trichloropropane [96-18-4]^	0.15	U	ug/L	1	0.15	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,2,4-Trichlorobenzene [120-82-1]^	0.097	U	ug/L	1	0.097	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,2,4-Trimethylbenzene [95-63-6]^	0.067	U	ug/L	1	0.067	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,2-Dibromo-3-chloropropane [96-12-8]^	0.48	U	ug/L	1	0.48	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,2-Dibromoethane [106-93-4]^	0.42	U	ug/L	1	0.42	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,2-Dichlorobenzene [95-50-1]^	0.052	U	ug/L	1	0.052	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,2-Dichloroethane [107-06-2]^	0.082	U	ug/L	1	0.082	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,2-Dichloropropane [78-87-5]^	0.098	U	ug/L	1	0.098	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,3,5-Trimethylbenzene [108-67-8]^	0.10	U	ug/L	1	0.10	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,3-Dichlorobenzene [541-73-1]^	0.092	U	ug/L	1	0.092	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,3-Dichloropropane [142-28-9]^	0.15	U	ug/L	1	0.15	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
1,4-Dichlorobenzene [106-46-7]^	0.10	U	ug/L	1	0.10	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
2,2-Dichloropropane [594-20-7]^	0.12	U	ug/L	1	0.12	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
2-Chlorotoluene [95-49-8]^	0.10	U	ug/L	1	0.10	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
4-Chlorotoluene [106-43-4]^	0.10	U	ug/L	1	0.10	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
4-Isopropyltoluene [99-87-6]^	0.066	U	ug/L	1	0.066	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Benzene [71-43-2]^	0.050	U	ug/L	1	0.050	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Bromobenzene [108-86-1]^	0.13	U	ug/L	1	0.13	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Bromochloromethane [74-97-5]^	0.11	U	ug/L	1	0.11	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Bromodichloromethane [75-27-4]^	0.10	U	ug/L	1	0.10	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Bromoform [75-25-2]^	0.20	U	ug/L	1	0.20	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Bromomethane [74-83-9]^	0.28	U	ug/L	1	0.28	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Carbon Tetrachloride [56-23-5]^	0.082	U	ug/L	1	0.082	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Chlorobenzene [108-90-7]^	0.069	U	ug/L	1	0.069	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Chloroethane [75-00-3]^	0.18	U	ug/L	1	0.18	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Chloroform [67-66-3]^	0.083	U	ug/L	1	0.083	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Chloromethane [74-87-3]^	0.050	U	ug/L	1	0.050	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
cis-1,2-Dichloroethene [156-59-2]^	0.075	U	ug/L	1	0.075	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
cis-1,3-Dichloropropene [10061-01-5]^	0.073	U	ug/L	1	0.073	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Dibromochloromethane [124-48-1]^	0.067	U	ug/L	1	0.067	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Dibromomethane [74-95-3]^	0.13	U	ug/L	1	0.13	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Dichlorodifluoromethane [75-71-8]^	0.091	U	ug/L	1	0.091	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Ethylbenzene [100-41-4]^	0.10	U	ug/L	1	0.10	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Freon 113 [76-13-1]^	0.35	U	ug/L	1	0.35	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Hexachlorobutadiene [87-68-3]^	0.15	U	ug/L	1	0.15	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Isopropyl Ether [108-20-3]^	0.21	U	ug/L	1	0.21	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Isopropylbenzene [98-82-8]^	0.13	U	ug/L	1	0.13	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
m,p-Xylenes [108-38-3/106-42-3]^	0.18	U	ug/L	1	0.18	2.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Methylene Chloride [75-09-2]^	0.070	U	ug/L	1	0.070	2.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	

ANALYTICAL RESULTS

Description: 1813DPT-03

Lab Sample ID: CC20427-02

Received: 12/17/19 11:00

Matrix: Ground Water

Sampled: 12/10/19 12:30

Work Order: CC20427

Project: NCDOT Goldsboro

Sampled By: Corey Futral

Volatile Organic Compounds by GCMS

^ - ENCLABS Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Methyl-tert-Butyl Ether [1634-04-4]^	0.12	U	ug/L	1	0.12	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Naphthalene [91-20-3]^	0.086	U	ug/L	1	0.086	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
n-Butyl Benzene [104-51-8]^	0.074	U	ug/L	1	0.074	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
n-Propyl Benzene [103-65-1]^	0.073	U	ug/L	1	0.073	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
o-Xylene [95-47-6]^	0.088	U	ug/L	1	0.088	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
sec-Butylbenzene [135-98-8]^	0.053	U	ug/L	1	0.053	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Styrene [100-42-5]^	0.082	U	ug/L	1	0.082	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
tert-Butylbenzene [98-06-6]^	0.094	U	ug/L	1	0.094	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Tetrachloroethene [127-18-4]^	0.099	U	ug/L	1	0.099	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Toluene [108-88-3]^	0.053	U	ug/L	1	0.053	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
trans-1,2-Dichloroethene [156-60-5]^	0.11	U	ug/L	1	0.11	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
trans-1,3-Dichloropropene [10061-02-6]^	0.080	U	ug/L	1	0.080	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Trichloroethene [79-01-6]^	0.13	U	ug/L	1	0.13	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Trichlorofluoromethane [75-69-4]^	0.15	U	ug/L	1	0.15	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Vinyl chloride [75-01-4]^	0.083	U	ug/L	1	0.083	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Xylenes (Total) [1330-20-7]^	0.22	U	ug/L	1	0.22	1.0	9L18018	SM 6200B-2011	12/18/19 18:31	REF	
Surrogates	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes	
4-Bromofluorobenzene	48	1	50.0	96 %	70-130	9L18018	SM 6200B-2011	12/18/19 18:31	REF		
Dibromofluoromethane	37	1	50.0	73 %	70-130	9L18018	SM 6200B-2011	12/18/19 18:31	REF		
Toluene-d8	41	1	50.0	83 %	70-130	9L18018	SM 6200B-2011	12/18/19 18:31	REF		

Semivolatile Organic Compounds by GCMS

^ - ENCLABS Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,4-Trichlorobenzene [120-82-1]^	3.3	U	ug/L	1	3.3	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
1,2,4-Trichlorobenzene [120-82-1]^	3.3	U	ug/L	1	3.3	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
1,2-Dichlorobenzene [95-50-1]	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
1,2-Dichlorobenzene [95-50-1]	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
1,3-Dichlorobenzene [541-73-1]	3.4	U	ug/L	1	3.4	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
1,3-Dichlorobenzene [541-73-1]	3.4	U	ug/L	1	3.4	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
1,4-Dichlorobenzene [106-46-7]	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
1,4-Dichlorobenzene [106-46-7]	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
2,4,6-Trichlorophenol [88-06-2]^	6.4	U	ug/L	1	6.4	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
2,4,6-Trichlorophenol [88-06-2]^	6.4	U	ug/L	1	6.4	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
2,4-Dichlorophenol [120-83-2]^	6.5	U	ug/L	1	6.5	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
2,4-Dichlorophenol [120-83-2]^	6.5	U	ug/L	1	6.5	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
2,4-Dimethylphenol [105-67-9]^	6.4	U	ug/L	1	6.4	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
2,4-Dimethylphenol [105-67-9]^	6.4	U	ug/L	1	6.4	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
2,4-Dinitrophenol [51-28-5]^	7.7	U	ug/L	1	7.7	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
2,4-Dinitrophenol [51-28-5]^	7.7	U	ug/L	1	7.7	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
2,4-Dinitrotoluene [121-14-2]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
2,4-Dinitrotoluene [121-14-2]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
2,6-Dinitrotoluene [606-20-2]^	2.9	U	ug/L	1	2.9	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
2,6-Dinitrotoluene [606-20-2]^	2.9	U	ug/L	1	2.9	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
2-Chloronaphthalene [91-58-7]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
2-Chloronaphthalene [91-58-7]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
2-Chlorophenol [95-57-8]^	7.4	U	ug/L	1	7.4	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	

ANALYTICAL RESULTS

Description: 1813DPT-03

Lab Sample ID: CC20427-02

Received: 12/17/19 11:00

Matrix: Ground Water

Sampled: 12/10/19 12:30

Work Order: CC20427

Project: NCDOT Goldsboro

Sampled By: Corey Futral

Semivolatile Organic Compounds by GCMS

^ - ENCLABS certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	POL	Batch	Method	Analyzed	By	Notes
2-Chlorophenol [95-57-8]^	7.4	U	ug/L	1	7.4	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
2-Methyl-4,6-dinitrophenol [534-52-1]^	6.0	U	ug/L	1	6.0	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
2-Methyl-4,6-dinitrophenol [534-52-1]^	6.0	U	ug/L	1	6.0	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
2-Nitrophenol [88-75-5]^	5.2	U	ug/L	1	5.2	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
2-Nitrophenol [88-75-5]^	5.2	U	ug/L	1	5.2	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
3,3'-Dichlorobenzidine [91-94-1]^	3.3	U	ug/L	1	3.3	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
3,3'-Dichlorobenzidine [91-94-1]^	3.3	U	ug/L	1	3.3	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
4-Bromophenyl-phenylether [101-55-3]^	3.3	U	ug/L	1	3.3	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
4-Bromophenyl-phenylether [101-55-3]^	3.3	U	ug/L	1	3.3	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
4-Chloro-3-methylphenol [59-50-7]^	7.3	U	ug/L	1	7.3	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
4-Chloro-3-methylphenol [59-50-7]^	7.3	U	ug/L	1	7.3	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
4-Chlorophenyl-phenylether [7005-72-3]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
4-Chlorophenyl-phenylether [7005-72-3]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
4-Nitrophenol [100-02-7]^	7.9	U	ug/L	1	7.9	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
4-Nitrophenol [100-02-7]^	7.9	U	ug/L	1	7.9	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Acenaphthene [83-32-9]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Acenaphthene [83-32-9]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Acenaphthylene [208-96-8]^	9.6	U	ug/L	1	9.6	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Acenaphthylene [208-96-8]^	9.6	U	ug/L	1	9.6	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Anthracene [120-12-7]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Anthracene [120-12-7]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Benzidine [92-87-5]^	7.1	U	ug/L	1	7.1	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Benzidine [92-87-5]^	7.1	U	ug/L	1	7.1	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Benzo(a)anthracene [56-55-3]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Benzo(a)anthracene [56-55-3]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Benzo(a)pyrene [50-32-8]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Benzo(a)pyrene [50-32-8]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Benzo(b)fluoranthene [205-99-2]^	3.4	U	ug/L	1	3.4	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Benzo(b)fluoranthene [205-99-2]^	3.4	U	ug/L	1	3.4	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Benzo(g,h,i)perylene [191-24-2]^	3.7	U	ug/L	1	3.7	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Benzo(g,h,i)perylene [191-24-2]^	3.7	U	ug/L	1	3.7	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Benzo(k)fluoranthene [207-08-9]^	3.8	U	ug/L	1	3.8	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Benzo(k)fluoranthene [207-08-9]^	3.8	U	ug/L	1	3.8	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Bis(2-chloroethoxy)methane [111-91-1]^	3.3	U	ug/L	1	3.3	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Bis(2-chloroethoxy)methane [111-91-1]^	3.3	U	ug/L	1	3.3	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Bis(2-chloroethyl)ether [111-44-4]^	3.8	U	ug/L	1	3.8	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Bis(2-chloroethyl)ether [111-44-4]^	3.8	U	ug/L	1	3.8	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Bis(2-chloroisopropyl)ether [108-60-1]^	3.5	U	ug/L	1	3.5	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Bis(2-chloroisopropyl)ether [108-60-1]^	3.5	U	ug/L	1	3.5	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Bis(2-ethylhexyl)phthalate [117-81-7]^	3.5	U	ug/L	1	3.5	5.0	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Bis(2-ethylhexyl)phthalate [117-81-7]^	3.5	U	ug/L	1	3.5	5.0	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Butylbenzylphthalate [85-68-7]^	5.1	U	ug/L	1	5.1	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Butylbenzylphthalate [85-68-7]^	5.1	U	ug/L	1	5.1	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Chrysene [218-01-9]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Chrysene [218-01-9]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Dibenzo(a,h)anthracene [53-70-3]^	3.8	U	ug/L	1	3.8	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Dibenzo(a,h)anthracene [53-70-3]^	3.8	U	ug/L	1	3.8	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05

ANALYTICAL RESULTS

Description: 1813DPT-03

Lab Sample ID: CC20427-02

Received: 12/17/19 11:00

Matrix: Ground Water

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^ - ENCLABS Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	POL	Batch	Method	Analyzed	By	Notes
Diethylphthalate [84-66-2]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Diethylphthalate [84-66-2]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Dimethylphthalate [131-11-3]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Dimethylphthalate [131-11-3]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Di-n-butylphthalate [84-74-2]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Di-n-butylphthalate [84-74-2]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Di-n-octylphthalate [117-84-0]^	4.7	U	ug/L	1	4.7	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Di-n-octylphthalate [117-84-0]^	4.7	U	ug/L	1	4.7	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Fluoranthene [206-44-0]^	4.0	U	ug/L	1	4.0	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Fluoranthene [206-44-0]^	4.0	U	ug/L	1	4.0	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Fluorene [86-73-7]^	2.9	U	ug/L	1	2.9	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Fluorene [86-73-7]^	2.9	U	ug/L	1	2.9	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Hexachlorobenzene [118-74-1]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Hexachlorobenzene [118-74-1]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Hexachlorobutadiene [87-68-3]^	4.1	U	ug/L	1	4.1	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Hexachlorobutadiene [87-68-3]^	4.1	U	ug/L	1	4.1	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Hexachlorocyclopentadiene [77-47-4]^	3.8	U	ug/L	1	3.8	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Hexachlorocyclopentadiene [77-47-4]^	3.8	U	ug/L	1	3.8	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Hexachloroethane [67-72-1]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Hexachloroethane [67-72-1]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Indeno(1,2,3-cd)pyrene [193-39-5]^	4.1	U	ug/L	1	4.1	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Indeno(1,2,3-cd)pyrene [193-39-5]^	4.1	U	ug/L	1	4.1	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Isophorone [78-59-1]^	4.5	U	ug/L	1	4.5	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Isophorone [78-59-1]^	4.5	U	ug/L	1	4.5	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Naphthalene [91-20-3]^	3.6	U	ug/L	1	3.6	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Naphthalene [91-20-3]^	3.6	U	ug/L	1	3.6	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Nitrobenzene [98-95-3]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Nitrobenzene [98-95-3]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
N-Nitrosodimethylamine [62-75-9]^	3.8	U	ug/L	1	3.8	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
N-Nitrosodimethylamine [62-75-9]^	3.8	U	ug/L	1	3.8	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
N-Nitroso-di-n-propylamine [621-64-7]^	4.5	U	ug/L	1	4.5	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
N-Nitroso-di-n-propylamine [621-64-7]^	4.5	U	ug/L	1	4.5	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
N-nitrosodiphenylamine/Diphenylamine [86-30-6/122-39-4]^	5.4	U	ug/L	1	5.4	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
N-nitrosodiphenylamine/Diphenylamine [86-30-6/122-39-4]^	5.4	U	ug/L	1	5.4	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Pentachlorophenol [87-86-5]^	8.2	U	ug/L	1	8.2	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Pentachlorophenol [87-86-5]^	8.2	U	ug/L	1	8.2	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Phenanthrene [85-01-8]^	2.8	U	ug/L	1	2.8	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Phenanthrene [85-01-8]^	2.8	U	ug/L	1	2.8	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Phenol [108-95-2]^	5.6	U	ug/L	1	5.6	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Phenol [108-95-2]^	5.6	U	ug/L	1	5.6	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Pyrene [129-00-0]^	4.1	U	ug/L	1	4.1	10	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Pyrene [129-00-0]^	4.1	U	ug/L	1	4.1	10	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05

Surrogates

	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes
2,4,6-Tribromophenol	88	1	100	88 %	47-128	9L17003	EPA 625.1	12/20/19 00:58	DFM	
2,4,6-Tribromophenol	77	1	100	77 %	47-128	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05

ANALYTICAL RESULTS

Description: 1813DPT-03

Lab Sample ID: CC20427-02

Received: 12/17/19 11:00

Matrix: Ground Water

Sampled: 12/10/19 12:30

Work Order: CC20427

Project: NCDOT Goldsboro

Sampled By: Corey Futral

Semivolatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

<u>Surrogates</u>	<u>Results</u>	<u>DF</u>	<u>Spike Lvl</u>	<u>% Rec</u>	<u>% Rec Limits</u>	<u>Batch</u>	<u>Method</u>	<u>Analyzed</u>	<u>By</u>	<u>Notes</u>
2-Fluorobiphenyl	45	1	50.0	90 %	44-102	9L17003	EPA 625.1	12/20/19 00:58	DFM	
2-Fluorobiphenyl	47	1	50.0	93 %	44-102	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
2-Fluorophenol	65	1	100	65 %	25-79	9L17003	EPA 625.1	12/20/19 00:58	DFM	
2-Fluorophenol	68	1	100	68 %	25-79	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Nitrobenzene-d5	39	1	50.0	78 %	43-112	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Nitrobenzene-d5	38	1	50.0	77 %	43-112	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05
Phenol-d5	55	1	100	55 %	14-54	9L17003	EPA 625.1	12/20/19 00:58	DFM	QS-03
Phenol-d5	62	1	100	62 %	14-54	9L27002	EPA 625.1	12/31/19 00:17	DFM	QS-03, O-05
Terphenyl-d14	53	1	50.0	106 %	65-122	9L17003	EPA 625.1	12/20/19 00:58	DFM	
Terphenyl-d14	47	1	50.0	95 %	65-122	9L27002	EPA 625.1	12/31/19 00:17	DFM	O-05

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 9L18018 - EPA 5030B_MS

Blank (9L18018-BLK1)

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 13:40

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
1,1,1,2-Tetrachloroethane	0.091	U	1.0	ug/L							
1,1,1-Trichloroethane	0.15	U	1.0	ug/L							
1,1,2,2-Tetrachloroethane	0.085	U	1.0	ug/L							
1,1,2-Trichloroethane	0.068	U	1.0	ug/L							
1,1-Dichloroethane	0.050	U	1.0	ug/L							
1,1-Dichloroethene	0.15	U	1.0	ug/L							
1,1-Dichloropropene	0.063	U	1.0	ug/L							
1,2,3-Trichlorobenzene	0.25	U	1.0	ug/L							
1,2,3-Trichloropropane	0.15	U	1.0	ug/L							
1,2,4-Trichlorobenzene	0.097	U	1.0	ug/L							
1,2,4-Trimethylbenzene	0.067	U	1.0	ug/L							
1,2-Dibromo-3-chloropropane	0.48	U	1.0	ug/L							
1,2-Dibromoethane	0.42	U	1.0	ug/L							
1,2-Dichlorobenzene	0.052	U	1.0	ug/L							
1,2-Dichloroethane	0.082	U	1.0	ug/L							
1,2-Dichloropropane	0.098	U	1.0	ug/L							
1,3,5-Trimethylbenzene	0.10	U	1.0	ug/L							
1,3-Dichlorobenzene	0.092	U	1.0	ug/L							
1,3-Dichloropropane	0.15	U	1.0	ug/L							
1,4-Dichlorobenzene	0.10	U	1.0	ug/L							
2,2-Dichloropropane	0.12	U	1.0	ug/L							
2-Chlorotoluene	0.10	U	1.0	ug/L							
4-Chlorotoluene	0.10	U	1.0	ug/L							
4-Isopropyltoluene	0.066	U	1.0	ug/L							
Benzene	0.050	U	1.0	ug/L							
Bromobenzene	0.13	U	1.0	ug/L							
Bromochloromethane	0.11	U	1.0	ug/L							
Bromodichloromethane	0.10	U	1.0	ug/L							
Bromoform	0.20	U	1.0	ug/L							
Bromomethane	0.28	U	1.0	ug/L							
Carbon Tetrachloride	0.082	U	1.0	ug/L							
Chlorobenzene	0.069	U	1.0	ug/L							
Chloroethane	0.18	U	1.0	ug/L							
Chloroform	0.083	U	1.0	ug/L							
Chloromethane	0.050	U	1.0	ug/L							
cis-1,2-Dichloroethene	0.075	U	1.0	ug/L							
cis-1,3-Dichloropropene	0.073	U	1.0	ug/L							
Dibromochloromethane	0.067	U	1.0	ug/L							
Dibromomethane	0.13	U	1.0	ug/L							
Dichlorodifluoromethane	0.091	U	1.0	ug/L							
Ethylbenzene	0.10	U	1.0	ug/L							
Freon 113	0.35	U	1.0	ug/L							
Hexachlorobutadiene	0.15	U	1.0	ug/L							
Isopropyl Ether	0.21	U	1.0	ug/L							
Isopropylbenzene	0.13	U	1.0	ug/L							
m,p-Xylenes	0.18	U	2.0	ug/L							
Methylene Chloride	0.070	U	2.0	ug/L							
Methyl-tert-Butyl Ether	0.12	U	1.0	ug/L							
Naphthalene	0.086	U	1.0	ug/L							

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 9L18018 - EPA 5030B_MS - Continued

Blank (9L18018-BLK1) Continued

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 13:40

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
n-Butyl Benzene	0.074	U	1.0	ug/L							
n-Propyl Benzene	0.073	U	1.0	ug/L							
o-Xylene	0.088	U	1.0	ug/L							
sec-Butylbenzene	0.053	U	1.0	ug/L							
Styrene	0.082	U	1.0	ug/L							
tert-Butylbenzene	0.094	U	1.0	ug/L							
Tetrachloroethene	0.099	U	1.0	ug/L							
Toluene	0.053	U	1.0	ug/L							
trans-1,2-Dichloroethene	0.11	U	1.0	ug/L							
trans-1,3-Dichloropropene	0.080	U	1.0	ug/L							
Trichloroethene	0.13	U	1.0	ug/L							
Trichlorofluoromethane	0.15	U	1.0	ug/L							
Vinyl chloride	0.083	U	1.0	ug/L							
Xylenes (Total)	0.22	U	1.0	ug/L							
<i>4-Bromofluorobenzene</i>	<i>46</i>			<i>ug/L</i>	<i>50.0</i>		<i>92</i>	<i>70-130</i>			
<i>Dibromofluoromethane</i>	<i>38</i>			<i>ug/L</i>	<i>50.0</i>		<i>76</i>	<i>70-130</i>			
<i>Toluene-d8</i>	<i>42</i>			<i>ug/L</i>	<i>50.0</i>		<i>84</i>	<i>70-130</i>			

LCS (9L18018-BS1)

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 11:23

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
1,1,1,2-Tetrachloroethane	17		1.0	ug/L	20.0		87	70-130			
1,1,1-Trichloroethane	18		1.0	ug/L	20.0		92	70-130			
1,1,2,2-Tetrachloroethane	17		1.0	ug/L	20.0		87	70-130			
1,1,2-Trichloroethane	18		1.0	ug/L	20.0		88	70-130			
1,1-Dichloroethane	17		1.0	ug/L	20.0		86	70-130			
1,1-Dichloroethene	17		1.0	ug/L	20.0		87	70-130			
1,1-Dichloropropene	18		1.0	ug/L	20.0		88	70-130			
1,2,3-Trichlorobenzene	19		1.0	ug/L	20.0		94	70-130			
1,2,3-Trichloropropane	15		1.0	ug/L	20.0		75	70-130			
1,2,4-Trichlorobenzene	18		1.0	ug/L	20.0		92	70-130			
1,2,4-Trimethylbenzene	16		1.0	ug/L	20.0		78	70-130			
1,2-Dibromo-3-chloropropane	14		1.0	ug/L	20.0		68	70-130			
1,2-Dibromoethane	16		1.0	ug/L	20.0		82	70-130			
1,2-Dichlorobenzene	17		1.0	ug/L	20.0		85	70-130			
1,2-Dichloroethane	18		1.0	ug/L	20.0		92	70-130			
1,2-Dichloropropane	18		1.0	ug/L	20.0		91	70-130			
1,3,5-Trimethylbenzene	15		1.0	ug/L	20.0		76	70-130			
1,3-Dichlorobenzene	17		1.0	ug/L	20.0		83	70-130			
1,3-Dichloropropane	16		1.0	ug/L	20.0		81	70-130			
1,4-Dichlorobenzene	16		1.0	ug/L	20.0		81	70-130			
2,2-Dichloropropane	22		1.0	ug/L	20.0		109	70-130			
2-Chlorotoluene	15		1.0	ug/L	20.0		76	70-130			
4-Chlorotoluene	15		1.0	ug/L	20.0		77	70-130			
4-Isopropyltoluene	16		1.0	ug/L	20.0		80	70-130			
Benzene	19		1.0	ug/L	20.0		96	70-130			
Bromobenzene	19		1.0	ug/L	20.0		95	70-130			
Bromochloromethane	19		1.0	ug/L	20.0		97	70-130			
Bromodichloromethane	17		1.0	ug/L	20.0		84	70-130			

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 9L18018 - EPA 5030B_MS - Continued

LCS (9L18018-BS1) Continued

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 11:23

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bromoform	16		1.0	ug/L	20.0		78	70-130			
Bromomethane	21		1.0	ug/L	20.0		105	60-140			
Carbon Tetrachloride	17		1.0	ug/L	20.0		86	70-130			
Chlorobenzene	17		1.0	ug/L	20.0		85	70-130			
Chloroethane	20		1.0	ug/L	20.0		101	60-140			
Chloroform	17		1.0	ug/L	20.0		86	70-130			
Chloromethane	18		1.0	ug/L	20.0		89	60-140			
cis-1,2-Dichloroethene	18		1.0	ug/L	20.0		91	70-130			
cis-1,3-Dichloropropene	18		1.0	ug/L	20.0		92	70-130			
Dibromochloromethane	16		1.0	ug/L	20.0		82	70-130			
Dibromomethane	17		1.0	ug/L	20.0		86	70-130			
Dichlorodifluoromethane	18		1.0	ug/L	20.0		88	60-140			
Ethylbenzene	17		1.0	ug/L	20.0		84	70-130			
Freon 113	44		1.0	ug/L	40.0		110	70-130			
Hexachlorobutadiene	20		1.0	ug/L	20.0		99	70-130			
Isopropyl Ether	16		1.0	ug/L	20.0		80	70-130			
Isopropylbenzene	17		1.0	ug/L	20.0		87	70-130			
m,p-Xylenes	31		2.0	ug/L	40.0		77	70-130			
Methylene Chloride	17		2.0	ug/L	20.0		87	70-130			
Methyl-tert-Butyl Ether	16		1.0	ug/L	20.0		82	70-130			
Naphthalene	17		1.0	ug/L	20.0		84	70-130			
n-Butyl Benzene	16		1.0	ug/L	20.0		80	70-130			
n-Propyl Benzene	17		1.0	ug/L	20.0		86	70-130			
o-Xylene	16		1.0	ug/L	20.0		82	70-130			
sec-Butylbenzene	16		1.0	ug/L	20.0		79	70-130			
Styrene	17		1.0	ug/L	20.0		84	70-130			
tert-Butylbenzene	16		1.0	ug/L	20.0		79	70-130			
Tetrachloroethene	19		1.0	ug/L	20.0		94	70-130			
Toluene	19		1.0	ug/L	20.0		93	70-130			
trans-1,2-Dichloroethene	17		1.0	ug/L	20.0		85	70-130			
trans-1,3-Dichloropropene	17		1.0	ug/L	20.0		85	70-130			
Trichloroethene	20		1.0	ug/L	20.0		100	70-130			
Trichlorofluoromethane	18		1.0	ug/L	20.0		92	60-140			
Vinyl chloride	19		1.0	ug/L	20.0		93	60-140			
Xylenes (Total)	47		1.0	ug/L	60.0		79	70-130			
4-Bromofluorobenzene	47			ug/L	50.0		93	70-130			
Dibromofluoromethane	39			ug/L	50.0		77	70-130			
Toluene-d8	41			ug/L	50.0		83	70-130			

Matrix Spike (9L18018-MS1)

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 12:02

Source: CC21287-05

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	16		1.0	ug/L	20.0	0.091 U	81	71-117			
1,1,1-Trichloroethane	18		1.0	ug/L	20.0	0.15 U	89	72-143			
1,1,2,2-Tetrachloroethane	17		1.0	ug/L	20.0	0.085 U	84	59-133			
1,1,2-Trichloroethane	17		1.0	ug/L	20.0	0.068 U	85	67-118			
1,1-Dichloroethane	17		1.0	ug/L	20.0	0.050 U	85	79-141			
1,1-Dichloroethene	17		1.0	ug/L	20.0	0.15 U	85	75-133			
1,1-Dichloropropene	17		1.0	ug/L	20.0	0.063 U	85	70-129			

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 9L18018 - EPA 5030B_MS - Continued

Matrix Spike (9L18018-MS1) Continued

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 12:02

Source: CC21287-05

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	18		1.0	ug/L	20.0	0.45	85	62-117			
1,2,3-Trichloropropane	13		1.0	ug/L	20.0	0.15 U	67	58-140			
1,2,4-Trichlorobenzene	17		1.0	ug/L	20.0	0.097 U	85	59-122			
1,2,4-Trimethylbenzene	15		1.0	ug/L	20.0	0.067 U	75	74-123			
1,2-Dibromo-3-chloropropane	11		1.0	ug/L	20.0	0.48 U	53	37-157			
1,2-Dibromoethane	17		1.0	ug/L	20.0	0.42 U	85	66-123			
1,2-Dichlorobenzene	17		1.0	ug/L	20.0	0.052 U	84	76-116			
1,2-Dichloroethane	16		1.0	ug/L	20.0	0.082 U	82	72-151			
1,2-Dichloropropane	17		1.0	ug/L	20.0	0.098 U	86	78-125			
1,3,5-Trimethylbenzene	15		1.0	ug/L	20.0	0.10 U	75	77-129			QM-07
1,3-Dichlorobenzene	16		1.0	ug/L	20.0	0.092 U	78	76-119			
1,3-Dichloropropane	16		1.0	ug/L	20.0	0.15 U	82	60-129			
1,4-Dichlorobenzene	16		1.0	ug/L	20.0	0.10 U	81	76-122			
2,2-Dichloropropane	20		1.0	ug/L	20.0	0.12 U	101	21-167			
2-Chlorotoluene	14		1.0	ug/L	20.0	0.10 U	71	73-135			QM-07
4-Chlorotoluene	15		1.0	ug/L	20.0	0.10 U	73	76-134			QM-07
4-Isopropyltoluene	16		1.0	ug/L	20.0	0.066 U	80	75-127			
Benzene	19		1.0	ug/L	20.0	0.050 U	95	81-134			
Bromobenzene	18		1.0	ug/L	20.0	0.13 U	88	72-115			
Bromochloromethane	19		1.0	ug/L	20.0	0.11 U	95	74-128			
Bromodichloromethane	16		1.0	ug/L	20.0	0.10 U	81	72-129			
Bromoform	17		1.0	ug/L	20.0	0.20 U	83	73-119			
Bromomethane	21		1.0	ug/L	20.0	0.28 U	107	38-189			
Carbon Tetrachloride	15		1.0	ug/L	20.0	0.082 U	77	68-142			
Chlorobenzene	17		1.0	ug/L	20.0	0.069 U	83	83-117			
Chloroethane	21		1.0	ug/L	20.0	0.18 U	104	45-213			
Chloroform	17		1.0	ug/L	20.0	0.083 U	84	78-138			
Chloromethane	18		1.0	ug/L	20.0	0.050 U	88	56-171			
cis-1,2-Dichloroethene	18		1.0	ug/L	20.0	0.075 U	92	69-120			
cis-1,3-Dichloropropene	18		1.0	ug/L	20.0	0.073 U	92	63-125			
Dibromochloromethane	16		1.0	ug/L	20.0	0.067 U	80	73-117			
Dibromomethane	16		1.0	ug/L	20.0	0.13 U	81	76-124			
Dichlorodifluoromethane	17		1.0	ug/L	20.0	0.091 U	86	25-161			
Ethylbenzene	16		1.0	ug/L	20.0	0.10 U	80	68-124			
Freon 113	44		1.0	ug/L	40.0	0.35 U	109	0-200			
Hexachlorobutadiene	17		1.0	ug/L	20.0	0.15 U	87	63-114			
Isopropyl Ether	16		1.0	ug/L	20.0	0.21 U	78	70-130			
Isopropylbenzene	17		1.0	ug/L	20.0	0.13 U	85	81-136			
m,p-Xylenes	31		2.0	ug/L	40.0	0.18 U	78	79-121			QM-07
Methylene Chloride	18		2.0	ug/L	20.0	0.070 U	89	68-128			
Methyl-tert-Butyl Ether	17		1.0	ug/L	20.0	0.12 U	84	10-127			
Naphthalene	16		1.0	ug/L	20.0	0.086 U	78	50-127			
n-Butyl Benzene	15		1.0	ug/L	20.0	0.074 U	77	68-126			
n-Propyl Benzene	17		1.0	ug/L	20.0	0.073 U	84	76-125			
o-Xylene	16		1.0	ug/L	20.0	0.088 U	81	71-125			
sec-Butylbenzene	15		1.0	ug/L	20.0	0.053 U	76	75-122			
Styrene	17		1.0	ug/L	20.0	0.082 U	84	73-120			
tert-Butylbenzene	15		1.0	ug/L	20.0	0.094 U	73	70-137			
Tetrachloroethene	18		1.0	ug/L	20.0	0.099 U	91	40-181			

QUALITY CONTROL DATA
Volatile Organic Compounds by GCMS - Quality Control
Batch 9L18018 - EPA 5030B_MS - Continued
Matrix Spike (9L18018-MS1) Continued

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 12:02

Source: CC21287-05

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Toluene	18		1.0	ug/L	20.0	0.053 U	89	71-118			
trans-1,2-Dichloroethene	17		1.0	ug/L	20.0	0.11 U	86	75-139			
trans-1,3-Dichloropropene	17		1.0	ug/L	20.0	0.080 U	83	62-152			
Trichloroethene	18		1.0	ug/L	20.0	0.13 U	90	75-115			
Trichlorofluoromethane	17		1.0	ug/L	20.0	0.15 U	85	68-183			
Vinyl chloride	17		1.0	ug/L	20.0	0.083 U	83	49-150			
Xylenes (Total)	47		1.0	ug/L	60.0	0.22 U	79	77-121			
<i>4-Bromofluorobenzene</i>	<i>47</i>			<i>ug/L</i>	<i>50.0</i>		<i>95</i>	<i>70-130</i>			
<i>Dibromofluoromethane</i>	<i>38</i>			<i>ug/L</i>	<i>50.0</i>		<i>77</i>	<i>70-130</i>			
<i>Toluene-d8</i>	<i>41</i>			<i>ug/L</i>	<i>50.0</i>		<i>82</i>	<i>70-130</i>			

Matrix Spike Dup (9L18018-MSD1)

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 12:35

Source: CC21287-05

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
1,1,1,2-Tetrachloroethane	15		1.0	ug/L	20.0	0.091 U	77	71-117	5	16	
1,1,1-Trichloroethane	16		1.0	ug/L	20.0	0.15 U	78	72-143	13	18	
1,1,2,2-Tetrachloroethane	17		1.0	ug/L	20.0	0.085 U	83	59-133	2	16	
1,1,2-Trichloroethane	18		1.0	ug/L	20.0	0.068 U	89	67-118	4	18	
1,1-Dichloroethane	16		1.0	ug/L	20.0	0.050 U	78	79-141	9	19	QM-07
1,1-Dichloroethene	15		1.0	ug/L	20.0	0.15 U	76	75-133	11	20	
1,1-Dichloropropene	15		1.0	ug/L	20.0	0.063 U	76	70-129	12	17	
1,2,3-Trichlorobenzene	17		1.0	ug/L	20.0	0.45	80	62-117	6	17	
1,2,3-Trichloropropane	15		1.0	ug/L	20.0	0.15 U	74	58-140	10	17	
1,2,4-Trichlorobenzene	17		1.0	ug/L	20.0	0.097 U	84	59-122	1	17	
1,2,4-Trimethylbenzene	14		1.0	ug/L	20.0	0.067 U	69	74-123	9	18	QM-07
1,2-Dibromo-3-chloropropane	14		1.0	ug/L	20.0	0.48 U	68	37-157	26	18	QM-11
1,2-Dibromoethane	16		1.0	ug/L	20.0	0.42 U	80	66-123	6	15	
1,2-Dichlorobenzene	16		1.0	ug/L	20.0	0.052 U	78	76-116	8	16	
1,2-Dichloroethane	16		1.0	ug/L	20.0	0.082 U	81	72-151	2	16	
1,2-Dichloropropane	18		1.0	ug/L	20.0	0.098 U	88	78-125	2	19	
1,3,5-Trimethylbenzene	14		1.0	ug/L	20.0	0.10 U	70	77-129	7	16	QM-07
1,3-Dichlorobenzene	15		1.0	ug/L	20.0	0.092 U	76	76-119	3	17	
1,3-Dichloropropane	16		1.0	ug/L	20.0	0.15 U	79	60-129	3	16	
1,4-Dichlorobenzene	14		1.0	ug/L	20.0	0.10 U	72	76-122	12	16	QM-07
2,2-Dichloropropane	19		1.0	ug/L	20.0	0.12 U	93	21-167	8	20	
2-Chlorotoluene	14		1.0	ug/L	20.0	0.10 U	70	73-135	2	16	QM-07
4-Chlorotoluene	14		1.0	ug/L	20.0	0.10 U	68	76-134	7	16	QM-07
4-Isopropyltoluene	14		1.0	ug/L	20.0	0.066 U	71	75-127	12	17	QM-07
Benzene	18		1.0	ug/L	20.0	0.050 U	89	81-134	6	17	
Bromobenzene	17		1.0	ug/L	20.0	0.13 U	85	72-115	4	17	
Bromochloromethane	17		1.0	ug/L	20.0	0.11 U	86	74-128	10	18	
Bromodichloromethane	17		1.0	ug/L	20.0	0.10 U	83	72-129	2	16	
Bromoform	16		1.0	ug/L	20.0	0.20 U	82	73-119	2	44	
Bromomethane	18		1.0	ug/L	20.0	0.28 U	91	38-189	16	27	
Carbon Tetrachloride	14		1.0	ug/L	20.0	0.082 U	70	68-142	10	17	
Chlorobenzene	16		1.0	ug/L	20.0	0.069 U	79	83-117	5	16	QM-07
Chloroethane	19		1.0	ug/L	20.0	0.18 U	93	45-213	11	26	
Chloroform	15		1.0	ug/L	20.0	0.083 U	76	78-138	9	17	QM-07
Chloromethane	15		1.0	ug/L	20.0	0.050 U	77	56-171	13	28	

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 9L18018 - EPA 5030B_MS - Continued

Matrix Spike Dup (9L18018-MSD1) Continued

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 12:35

Source: CC21287-05

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
cis-1,2-Dichloroethene	17		1.0	ug/L	20.0	0.075 U	84	69-120	10	18	
cis-1,3-Dichloropropene	17		1.0	ug/L	20.0	0.073 U	86	63-125	6	17	
Dibromochloromethane	15		1.0	ug/L	20.0	0.067 U	73	73-117	9	16	
Dibromomethane	17		1.0	ug/L	20.0	0.13 U	83	76-124	3	15	
Dichlorodifluoromethane	14		1.0	ug/L	20.0	0.091 U	71	25-161	19	48	
Ethylbenzene	15		1.0	ug/L	20.0	0.10 U	75	68-124	7	16	
Freon 113	37		1.0	ug/L	40.0	0.35 U	94	0-200	15	25	
Hexachlorobutadiene	14		1.0	ug/L	20.0	0.15 U	72	63-114	19	19	
Isopropyl Ether	14		1.0	ug/L	20.0	0.21 U	71	70-130	9	30	
Isopropylbenzene	16		1.0	ug/L	20.0	0.13 U	78	81-136	8	16	QM-07
m,p-Xylenes	28		2.0	ug/L	40.0	0.18 U	71	79-121	9	16	QM-07
Methylene Chloride	16		2.0	ug/L	20.0	0.070 U	80	68-128	11	17	
Methyl-tert-Butyl Ether	16		1.0	ug/L	20.0	0.12 U	79	10-127	6	21	
Naphthalene	15		1.0	ug/L	20.0	0.086 U	76	50-127	2	19	
n-Butyl Benzene	14		1.0	ug/L	20.0	0.074 U	70	68-126	9	15	
n-Propyl Benzene	16		1.0	ug/L	20.0	0.073 U	78	76-125	7	16	
o-Xylene	15		1.0	ug/L	20.0	0.088 U	75	71-125	8	15	
sec-Butylbenzene	14		1.0	ug/L	20.0	0.053 U	70	75-122	8	17	QM-07
Styrene	16		1.0	ug/L	20.0	0.082 U	82	73-120	3	23	
tert-Butylbenzene	13		1.0	ug/L	20.0	0.094 U	67	70-137	9	22	QM-07
Tetrachloroethene	16		1.0	ug/L	20.0	0.099 U	81	40-181	11	26	
Toluene	17		1.0	ug/L	20.0	0.053 U	83	71-118	7	17	
trans-1,2-Dichloroethene	16		1.0	ug/L	20.0	0.11 U	79	75-139	8	19	
trans-1,3-Dichloropropene	16		1.0	ug/L	20.0	0.080 U	82	62-152	0.4	16	
Trichloroethene	17		1.0	ug/L	20.0	0.13 U	86	75-115	5	18	
Trichlorofluoromethane	15		1.0	ug/L	20.0	0.15 U	74	68-183	14	22	
Vinyl chloride	15		1.0	ug/L	20.0	0.083 U	76	49-150	9	27	
Xylenes (Total)	43		1.0	ug/L	60.0	0.22 U	72	77-121	8	16	QM-07
4-Bromofluorobenzene	47			ug/L	50.0		94	70-130			
Dibromofluoromethane	37			ug/L	50.0		74	70-130			
Toluene-d8	42			ug/L	50.0		84	70-130			

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS

Blank (9L17003-BLK1)

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 15:49

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	3.3	U	10	ug/L							
1,2-Dichlorobenzene	3.2	U	10	ug/L							
1,3-Dichlorobenzene	3.4	U	10	ug/L							
1,4-Dichlorobenzene	3.2	U	10	ug/L							
2,4,6-Trichlorophenol	6.4	U	10	ug/L							
2,4-Dichlorophenol	6.5	U	10	ug/L							
2,4-Dimethylphenol	6.4	U	10	ug/L							
2,4-Dinitrophenol	7.7	U	10	ug/L							
2,4-Dinitrotoluene	3.2	U	10	ug/L							
2,6-Dinitrotoluene	2.9	U	10	ug/L							

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS - Continued

Blank (9L17003-BLK1) Continued

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 15:49

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
2-Chloronaphthalene	3.2	U	10	ug/L							
2-Chlorophenol	7.4	U	10	ug/L							
2-Methyl-4,6-dinitrophenol	6.0	U	10	ug/L							
2-Nitrophenol	5.2	U	10	ug/L							
3,3'-Dichlorobenzidine	3.3	U	10	ug/L							
4-Bromophenyl-phenylether	3.3	U	10	ug/L							
4-Chloro-3-methylphenol	7.3	U	10	ug/L							
4-Chlorophenyl-phenylether	3.2	U	10	ug/L							
4-Nitrophenol	7.9	U	10	ug/L							
Acenaphthene	3.0	U	10	ug/L							
Acenaphthylene	9.6	U	10	ug/L							
Anthracene	3.0	U	10	ug/L							
Benzidine	7.1	U	10	ug/L							
Benzo(a)anthracene	3.2	U	10	ug/L							
Benzo(a)pyrene	3.2	U	10	ug/L							
Benzo(b)fluoranthene	3.4	U	10	ug/L							
Benzo(g,h,i)perylene	3.7	U	10	ug/L							
Benzo(k)fluoranthene	3.8	U	10	ug/L							
Bis(2-chloroethoxy)methane	3.3	U	10	ug/L							
Bis(2-chloroethyl)ether	3.8	U	10	ug/L							
Bis(2-chloroisopropyl)ether	3.5	U	10	ug/L							
Bis(2-ethylhexyl)phthalate	3.5	U	5.0	ug/L							
Butylbenzylphthalate	5.1	U	10	ug/L							
Chrysene	3.0	U	10	ug/L							
Dibeno(a,h)anthracene	3.8	U	10	ug/L							
Diethylphthalate	3.0	U	10	ug/L							
Dimethylphthalate	3.0	U	10	ug/L							
Di-n-butylphthalate	3.2	U	10	ug/L							
Di-n-octylphthalate	4.7	U	10	ug/L							
Fluoranthene	4.0	U	10	ug/L							
Fluorene	2.9	U	10	ug/L							
Hexachlorobenzene	3.0	U	10	ug/L							
Hexachlorobutadiene	4.1	U	10	ug/L							
Hexachlorocyclopentadiene	3.8	U	10	ug/L							
Hexachloroethane	3.0	U	10	ug/L							
Indeno(1,2,3-cd)pyrene	4.1	U	10	ug/L							
Isophorone	4.5	U	10	ug/L							
Naphthalene	3.6	U	10	ug/L							
Nitrobenzene	3.2	U	10	ug/L							
N-Nitrosodimethylamine	3.8	U	10	ug/L							
N-Nitroso-di-n-propylamine	4.5	U	10	ug/L							
N-nitrosodiphenylamine/Diphenylamine	5.4	U	10	ug/L							
Pentachlorophenol	8.2	U	10	ug/L							
Phenanthrene	2.8	U	10	ug/L							
Phenol	5.6	U	10	ug/L							
Pyrene	4.1	U	10	ug/L							
2,4,6-Tribromophenol	35			ug/L	100		35	47-128			QS-03
2-Fluorobiphenyl	15			ug/L	50.0		29	44-102			QS-03
2-Fluorophenol	21			ug/L	100		21	25-79			QS-03

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS - Continued

Blank (9L17003-BLK1) Continued

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 15:49

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrobenzene-d5	13			ug/L	50.0		26	43-112			QS-03
Phenol-d5	16			ug/L	100		16	14-54			
Terphenyl-d14	27			ug/L	50.0		54	65-122			QS-03

LCS (9L17003-BS1)

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 16:18

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	20		10	ug/L	50.0		40	57-130			J-06
1,2-Dichlorobenzene	20		10	ug/L	50.0		41	32-129			
1,3-Dichlorobenzene	20		10	ug/L	50.0		40	10-172			
1,4-Dichlorobenzene	20		10	ug/L	50.0		41	20-124			
2,4,6-Trichlorophenol	21		10	ug/L	50.0		43	52-129			J-06
2,4-Dichlorophenol	21		10	ug/L	50.0		43	53-122			J-06
2,4-Dimethylphenol	21		10	ug/L	50.0		42	42-120			
2,4-Dinitrophenol	29		10	ug/L	50.0		58	5-173			
2,4-Dinitrotoluene	25		10	ug/L	50.0		49	48-127			
2,6-Dinitrotoluene	23		10	ug/L	50.0		46	68-137			J-06
2-Chloronaphthalene	21		10	ug/L	50.0		42	65-120			J-06
2-Chlorophenol	21		10	ug/L	50.0		43	36-120			
2-Methyl-4,6-dinitrophenol	27		10	ug/L	50.0		55	53-130			
2-Nitrophenol	20		10	ug/L	50.0		40	45-167			J-06
3,3'-Dichlorobenzidine	25		10	ug/L	50.0		49	8-213			
4-Bromophenyl-phenylether	21		10	ug/L	50.0		42	65-120			J-06
4-Chlorophenyl-phenylether	22		10	ug/L	50.0		44	41-128			
4-Nitrophenol	17		10	ug/L	50.0		34	13-129			
Acenaphthene	23		10	ug/L	50.0		45	60-132			J-06
Acenaphthylene	22		10	ug/L	50.0		45	54-126			J-06
Anthracene	26		10	ug/L	50.0		52	43-120			
Benzidine	7.1	U	10	ug/L	50.0			10-136			J-06
Benzo(a)anthracene	23		10	ug/L	50.0		47	42-133			
Benzo(a)pyrene	25		10	ug/L	50.0		50	32-148			
Benzo(b)fluoranthene	24		10	ug/L	50.0		49	42-140			
Benzo(g,h,i)perylene	24		10	ug/L	50.0		48	5-195			
Benzo(k)fluoranthene	28		10	ug/L	50.0		56	25-146			
Bis(2-chloroethoxy)methane	21		10	ug/L	50.0		42	49-165			J-06
Bis(2-chloroethyl)ether	24		10	ug/L	50.0		48	43-126			
Bis(2-chloroisopropyl)ether	20		10	ug/L	50.0		39	63-139			J-06
Bis(2-ethylhexyl)phthalate	25		5.0	ug/L	50.0		50	29-137			
Butylbenzylphthalate	29		10	ug/L	50.0		58	5-140			
Chrysene	23		10	ug/L	50.0		47	44-140			
Dibenzo(a,h)anthracene	23		10	ug/L	50.0		47	5-200			
Diethylphthalate	25		10	ug/L	50.0		51	5-120			
Dimethylphthalate	23		10	ug/L	50.0		47	10-120			
Di-n-butylphthalate	29		10	ug/L	50.0		59	8-120			
Di-n-octylphthalate	25		10	ug/L	50.0		49	19-132			
Fluoranthene	28		10	ug/L	50.0		56	43-121			
Fluorene	23		10	ug/L	50.0		45	70-120			J-06
Hexachlorobenzene	22		10	ug/L	50.0		45	8-142			

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS - Continued

LCS (9L17003-BS1) Continued

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 16:18

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Hexachlorobutadiene	19		10	ug/L	50.0		38	24-120			
Hexachlorocyclopentadiene	22		10	ug/L	50.0		43	38-120			
Hexachloroethane	19		10	ug/L	50.0		39	55-120			J-06
Indeno(1,2,3-cd)pyrene	24		10	ug/L	50.0		47	5-151			
Isophorone	21		10	ug/L	50.0		41	47-180			J-06
Naphthalene	21		10	ug/L	50.0		43	36-120			
Nitrobenzene	21		10	ug/L	50.0		43	54-158			J-06
N-Nitrosodimethylamine	19		10	ug/L	50.0		38	24-94			
N-Nitroso-di-n-propylamine	20		10	ug/L	50.0		41	14-198			
Pentachlorophenol	25		10	ug/L	50.0		51	38-152			
Phenanthrene	25		10	ug/L	50.0		51	65-120			J-06
Phenol	13		10	ug/L	50.0		26	17-120			
Pyrene	28		10	ug/L	50.0		56	70-120			J-06
<i>2,4,6-Tribromophenol</i>	40			ug/L	100		40	47-128			QS-03
<i>2-Fluorobiphenyl</i>	17			ug/L	50.0		35	44-102			QS-03
<i>2-Fluorophenol</i>	29			ug/L	100		29	25-79			
<i>Nitrobenzene-d5</i>	19			ug/L	50.0		38	43-112			QS-03
<i>Phenol-d5</i>	22			ug/L	100		22	14-54			
<i>Terphenyl-d14</i>	26			ug/L	50.0		53	65-122			QS-03

Matrix Spike (9L17003-MS1)

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 16:47

Source: CC21388-01

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	13		10	ug/L	50.0	3.3 U	26	44-142			
1,2-Dichlorobenzene	14		10	ug/L	50.0	3.2 U	28	32-129			
1,3-Dichlorobenzene	14		10	ug/L	50.0	3.4 U	28	10-172			
1,4-Dichlorobenzene	14		10	ug/L	50.0	3.2 U	28	20-124			
2,4,6-Trichlorophenol	16		10	ug/L	50.0	6.4 U	32	37-144			
2,4-Dichlorophenol	15		10	ug/L	50.0	6.5 U	29	39-135			
2,4-Dimethylphenol	8.4	J	10	ug/L	50.0	6.4 U	17	32-120			
2,4-Dinitrophenol	16		10	ug/L	50.0	7.7 U	32	5-191			
2,4-Dinitrotoluene	17		10	ug/L	50.0	3.2 U	34	53-130			
2,6-Dinitrotoluene	18		10	ug/L	50.0	2.9 U	35	50-158			
2-Chloronaphthalene	17		10	ug/L	50.0	3.2 U	33	60-120			
2-Chlorophenol	14		10	ug/L	50.0	7.4 U	28	23-134			
2-Methyl-4,6-dinitrophenol	16		10	ug/L	50.0	6.0 U	32	5-181			
2-Nitrophenol	15		10	ug/L	50.0	5.2 U	30	29-182			
3,3'-Dichlorobenzidine	8.9	J	10	ug/L	50.0	3.3 U	18	5-262			
4-Bromophenyl-phenylether	17		10	ug/L	50.0	3.3 U	33	53-127			
4-Chloro-3-methylphenol	14		10	ug/L	50.0	7.3 U	28	22-147			
4-Chlorophenyl-phenylether	18		10	ug/L	50.0	3.2 U	35	25-158			
4-Nitrophenol	7.9	U	10	ug/L	50.0	7.9 U		5-132			
Acenaphthene	15		10	ug/L	50.0	3.0 U	31	47-145			
Acenaphthylene	9.6	U	10	ug/L	50.0	9.6 U		33-145			
Anthracene	17		10	ug/L	50.0	3.0 U	34	27-133			
Benzidine	7.1	U	10	ug/L	50.0	7.1 U		10-136			
Benzo(a)anthracene	18		10	ug/L	50.0	3.2 U	36	33-143			
Benzo(a)pyrene	17		10	ug/L	50.0	3.2 U	35	17-163			
Benzo(b)fluoranthene	18		10	ug/L	50.0	3.4 U	36	24-159			

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS - Continued

Matrix Spike (9L17003-MS1) Continued

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 16:47

Source: CC21388-01

Analyst	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzo(g,h,i)perylene	19		10	ug/L	50.0	3.7 U	38	5-219			
Benzo(k)fluoranthene	19		10	ug/L	50.0	3.8 U	38	11-162			
Bis(2-chloroethoxy)methane	16		10	ug/L	50.0	3.3 U	32	33-184			
Bis(2-chloroethyl)ether	18		10	ug/L	50.0	3.8 U	36	12-158			
Bis(2-chloroisopropyl)ether	15		10	ug/L	50.0	3.5 U	29	36-166			
Bis(2-ethylhexyl)phthalate	19		5.0	ug/L	50.0	3.5 U	37	8-158			
Butylbenzylphthalate	22		10	ug/L	50.0	5.1 U	43	5-152			
Chrysene	18		10	ug/L	50.0	3.0 U	36	17-168			
Dibenzo(a,h)anthracene	18		10	ug/L	50.0	3.8 U	36	5-227			
Diethylphthalate	19		10	ug/L	50.0	3.0 U	39	5-120			
Dimethylphthalate	19		10	ug/L	50.0	3.0 U	38	5-120			
Di-n-butylphthalate	23		10	ug/L	50.0	3.2 U	45	1-120			
Di-n-octylphthalate	20		10	ug/L	50.0	4.7 U	39	4-146			
Fluoranthene	20		10	ug/L	50.0	4.0 U	40	26-137			
Fluorene	17		10	ug/L	50.0	2.9 U	34	59-121			
Hexachlorobenzene	18		10	ug/L	50.0	3.0 U	36	5-152			
Hexachlorobutadiene	13		10	ug/L	50.0	4.1 U	26	24-120			
Hexachlorocyclopentadiene	15		10	ug/L	50.0	3.8 U	31	10-99			
Hexachloroethane	13		10	ug/L	50.0	3.0 U	26	40-120			
Indeno(1,2,3-cd)pyrene	19		10	ug/L	50.0	4.1 U	37	5-171			
Isophorone	16		10	ug/L	50.0	4.5 U	32	21-196			
Naphthalene	15		10	ug/L	50.0	3.6 U	31	21-133			
Nitrobenzene	16		10	ug/L	50.0	3.2 U	33	35-180			
N-Nitrosodimethylamine	13		10	ug/L	50.0	3.8 U	27	24-94			
N-Nitroso-di-n-propylamine	15		10	ug/L	50.0	4.5 U	30	5-230			
Pentachlorophenol	16		10	ug/L	50.0	8.2 U	33	14-176			
Phenanthrene	20		10	ug/L	50.0	2.8 U	40	54-120			
Phenol	6.8	J	10	ug/L	50.0	5.6 U	14	5-120			
Pyrene	20		10	ug/L	50.0	4.1 U	39	52-120			
2,4,6-Tribromophenol	29			ug/L	100		29	47-128			QS-03
2-Fluorobiphenyl	16			ug/L	50.0		33	44-102			QS-03
2-Fluorophenol	18			ug/L	100		18	25-79			QS-03
Nitrobenzene-d5	15			ug/L	50.0		30	43-112			QS-03
Phenol-d5	12			ug/L	100		12	14-54			QS-03
Terphenyl-d14	19			ug/L	50.0		38	65-122			QS-03

Matrix Spike Dup (9L17003-MSD1)

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 17:15

Source: CC21388-01

Analyst	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	17		10	ug/L	50.0	3.3 U	33	44-142	24	50	
1,2-Dichlorobenzene	17		10	ug/L	50.0	3.2 U	33	32-129	17	25	
1,3-Dichlorobenzene	16		10	ug/L	50.0	3.4 U	32	10-172	16	25	
1,4-Dichlorobenzene	16		10	ug/L	50.0	3.2 U	33	20-124	16	25	
2,4,6-Trichlorophenol	22		10	ug/L	50.0	6.4 U	44	37-144	31	58	
2,4-Dichlorophenol	20		10	ug/L	50.0	6.5 U	40	39-135	32	50	
2,4-Dimethylphenol	19		10	ug/L	50.0	6.4 U	37	32-120	76	58	
2,4-Dinitrophenol	24		10	ug/L	50.0	7.7 U	49	5-191	41	132	
2,4-Dinitrotoluene	24		10	ug/L	50.0	3.2 U	47	53-130	33	42	
2,6-Dinitrotoluene	23		10	ug/L	50.0	2.9 U	47	50-158	28	48	

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS - Continued

Matrix Spike Dup (9L17003-MSD1) Continued

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 17:15

Source: CC21388-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
2-Chloronaphthalene	21		10	ug/L	50.0	3.2 U	42	60-120	24	24	
2-Chlorophenol	19		10	ug/L	50.0	7.4 U	37	23-134	29	61	
2-Methyl-4,6-dinitrophenol	24		10	ug/L	50.0	6.0 U	48	5-181	38	203	
2-Nitrophenol	19		10	ug/L	50.0	5.2 U	38	29-182	23	55	
3,3'-Dichlorobenzidine	15		10	ug/L	50.0	3.3 U	30	5-262	50	108	
4-Bromophenyl-phenylether	21		10	ug/L	50.0	3.3 U	43	53-127	25	43	
4-Chloro-3-methylphenol	22		10	ug/L	50.0	7.3 U	43	22-147	42	73	
4-Chlorophenyl-phenylether	23		10	ug/L	50.0	3.2 U	46	25-158	27	61	
4-Nitrophenol	15		10	ug/L	50.0	7.9 U	29	5-132		131	
Acenaphthene	22		10	ug/L	50.0	3.0 U	45	47-145	37	48	
Acenaphthylene	19		10	ug/L	50.0	9.6 U	38	33-145		74	
Anthracene	25		10	ug/L	50.0	3.0 U	50	27-133	38	66	
Benzidine	7.1	U	10	ug/L	50.0	7.1 U		10-136		25	
Benzo(a)anthracene	23		10	ug/L	50.0	3.2 U	46	33-143	25	53	
Benzo(a)pyrene	25		10	ug/L	50.0	3.2 U	49	17-163	35	72	
Benzo(b)fluoranthene	24		10	ug/L	50.0	3.4 U	47	24-159	27	71	
Benzo(g,h,i)perylene	24		10	ug/L	50.0	3.7 U	47	5-219	21	97	
Benzo(k)fluoranthene	27		10	ug/L	50.0	3.8 U	54	11-162	34	63	
Bis(2-chloroethoxy)methane	20		10	ug/L	50.0	3.3 U	40	33-184	23	54	
Bis(2-chloroethyl)ether	21		10	ug/L	50.0	3.8 U	42	12-158	16	108	
Bis(2-chloroisopropyl)ether	17		10	ug/L	50.0	3.5 U	34	36-166	14	76	
Bis(2-ethylhexyl)phthalate	24		5.0	ug/L	50.0	3.5 U	48	8-158	25	82	
Butylbenzylphthalate	29		10	ug/L	50.0	5.1 U	58	5-152	29	60	
Chrysene	23		10	ug/L	50.0	3.0 U	47	17-168	27	87	
Dibenzo(a,h)anthracene	23		10	ug/L	50.0	3.8 U	47	5-227	25	126	
Diethylphthalate	25		10	ug/L	50.0	3.0 U	51	5-120	27	100	
Dimethylphthalate	24		10	ug/L	50.0	3.0 U	49	5-120	26	183	
Di-n-butylphthalate	29		10	ug/L	50.0	3.2 U	58	1-120	25	47	
Di-n-octylphthalate	26		10	ug/L	50.0	4.7 U	51	4-146	26	69	
Fluoranthene	27		10	ug/L	50.0	4.0 U	53	26-137	28	66	
Fluorene	22		10	ug/L	50.0	2.9 U	45	59-121	28	38	
Hexachlorobenzene	22		10	ug/L	50.0	3.0 U	45	5-152	23	55	
Hexachlorobutadiene	16		10	ug/L	50.0	4.1 U	33	24-120	25	62	
Hexachlorocyclopentadiene	19		10	ug/L	50.0	3.8 U	37	10-99	19	25	
Hexachloroethane	15		10	ug/L	50.0	3.0 U	31	40-120	18	52	
Indeno(1,2,3-cd)pyrene	24		10	ug/L	50.0	4.1 U	48	5-171	25	99	
Isophorone	20		10	ug/L	50.0	4.5 U	40	21-196	22	93	
Naphthalene	18		10	ug/L	50.0	3.6 U	37	21-133	18	65	
Nitrobenzene	19		10	ug/L	50.0	3.2 U	39	35-180	17	62	
N-Nitrosodimethylamine	16		10	ug/L	50.0	3.8 U	32	24-94	18	25	
N-Nitroso-di-n-propylamine	19		10	ug/L	50.0	4.5 U	37	5-230	21	87	
Pentachlorophenol	23		10	ug/L	50.0	8.2 U	47	14-176	35	86	
Phenanthrene	25		10	ug/L	50.0	2.8 U	51	54-120	24	39	
Phenol	16		10	ug/L	50.0	5.6 U	32	5-120	79	64	
Pyrene	27		10	ug/L	50.0	4.1 U	53	52-120	31	49	
<i>2,4,6-Tribromophenol</i>	44			ug/L	100		44	47-128			QS-03
<i>2-Fluorobiphenyl</i>	24			ug/L	50.0		47	44-102			
<i>2-Fluorophenol</i>	31			ug/L	100		31	25-79			
<i>Nitrobenzene-d5</i>	19			ug/L	50.0		38	43-112			QS-03

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS - Continued

Matrix Spike Dup (9L17003-MSD1) Continued

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 17:15

Source: CC21388-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Phenol-d5	30			ug/L	100		30	14-54			
Terphenyl-d14	33			ug/L	50.0		65	65-122			

Batch 9L27002 - EPA 3510C_MS

Blank (9L27002-BLK1)

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 12:51

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	3.3	U	10	ug/L							
1,2-Dichlorobenzene	3.2	U	10	ug/L							
1,3-Dichlorobenzene	3.4	U	10	ug/L							
1,4-Dichlorobenzene	3.2	U	10	ug/L							
2,4,6-Trichlorophenol	6.4	U	10	ug/L							
2,4-Dichlorophenol	6.5	U	10	ug/L							
2,4-Dimethylphenol	6.4	U	10	ug/L							
2,4-Dinitrophenol	7.7	U	10	ug/L							
2,4-Dinitrotoluene	3.2	U	10	ug/L							
2,6-Dinitrotoluene	2.9	U	10	ug/L							
2-Chloronaphthalene	3.2	U	10	ug/L							
2-Chlorophenol	7.4	U	10	ug/L							
2-Methyl-4,6-dinitrophenol	6.0	U	10	ug/L							
2-Nitrophenol	5.2	U	10	ug/L							
3,3'-Dichlorobenzidine	3.3	U	10	ug/L							
4-Bromophenyl-phenylether	3.3	U	10	ug/L							
4-Chloro-3-methylphenol	7.3	U	10	ug/L							
4-Chlorophenyl-phenylether	3.2	U	10	ug/L							
4-Nitrophenol	7.9	U	10	ug/L							
Acenaphthene	3.0	U	10	ug/L							
Acenaphthylene	9.6	U	10	ug/L							
Anthracene	3.0	U	10	ug/L							
Benzidine	7.1	U	10	ug/L							
Benzo(a)anthracene	3.2	U	10	ug/L							
Benzo(a)pyrene	3.2	U	10	ug/L							
Benzo(b)fluoranthene	3.4	U	10	ug/L							
Benzo(g,h,i)perylene	3.7	U	10	ug/L							
Benzo(k)fluoranthene	3.8	U	10	ug/L							
Bis(2-chloroethoxy)methane	3.3	U	10	ug/L							
Bis(2-chloroethyl)ether	3.8	U	10	ug/L							
Bis(2-chloroisopropyl)ether	3.5	U	10	ug/L							
Bis(2-ethylhexyl)phthalate	3.5	U	5.0	ug/L							
Butylbenzylphthalate	5.1	U	10	ug/L							
Chrysene	3.0	U	10	ug/L							
Dibenz(a,h)anthracene	3.8	U	10	ug/L							
Diethylphthalate	3.0	U	10	ug/L							
Dimethylphthalate	3.0	U	10	ug/L							
Di-n-butylphthalate	3.2	U	10	ug/L							
Di-n-octylphthalate	4.7	U	10	ug/L							
Fluoranthene	4.0	U	10	ug/L							
Fluorene	2.9	U	10	ug/L							

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L27002 - EPA 3510C_MS - Continued

Blank (9L27002-BLK1) Continued

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 12:51

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Hexachlorobenzene	3.0	U	10	ug/L							
Hexachlorobutadiene	4.1	U	10	ug/L							
Hexachlorocyclopentadiene	3.8	U	10	ug/L							
Hexachloroethane	3.0	U	10	ug/L							
Indeno(1,2,3-cd)pyrene	4.1	U	10	ug/L							
Isophorone	4.5	U	10	ug/L							
Naphthalene	3.6	U	10	ug/L							
Nitrobenzene	3.2	U	10	ug/L							
N-Nitrosodimethylamine	3.8	U	10	ug/L							
N-Nitroso-di-n-propylamine	4.5	U	10	ug/L							
N-nitrosodiphenylamine/Diphenylamine	5.4	U	10	ug/L							
Pentachlorophenol	8.2	U	10	ug/L							
Phenanthrene	2.8	U	10	ug/L							
Phenol	5.6	U	10	ug/L							
Pyrene	4.1	U	10	ug/L							
<i>2,4,6-Tribromophenol</i>	<i>76</i>			<i>ug/L</i>	<i>100</i>		<i>76</i>	<i>47-128</i>			
<i>2-Fluorobiphenyl</i>	<i>45</i>			<i>ug/L</i>	<i>50.0</i>		<i>90</i>	<i>44-102</i>			
<i>2-Fluorophenol</i>	<i>58</i>			<i>ug/L</i>	<i>100</i>		<i>58</i>	<i>25-79</i>			
<i>Nitrobenzene-d5</i>	<i>38</i>			<i>ug/L</i>	<i>50.0</i>		<i>75</i>	<i>43-112</i>			
<i>Phenol-d5</i>	<i>47</i>			<i>ug/L</i>	<i>100</i>		<i>47</i>	<i>14-54</i>			
<i>Terphenyl-d14</i>	<i>49</i>			<i>ug/L</i>	<i>50.0</i>		<i>99</i>	<i>65-122</i>			

LCS (9L27002-BS1)

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 13:23

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	43		10	ug/L	50.0		87	57-130			
1,2-Dichlorobenzene	41		10	ug/L	50.0		83	32-129			
1,3-Dichlorobenzene	39		10	ug/L	50.0		79	10-172			
1,4-Dichlorobenzene	41		10	ug/L	50.0		82	20-124			
2,4,6-Trichlorophenol	52		10	ug/L	50.0		104	52-129			
2,4-Dichlorophenol	49		10	ug/L	50.0		97	53-122			
2,4-Dimethylphenol	47		10	ug/L	50.0		95	42-120			
2,4-Dinitrophenol	51		10	ug/L	50.0		102	5-173			
2,4-Dinitrotoluene	50		10	ug/L	50.0		100	48-127			
2,6-Dinitrotoluene	51		10	ug/L	50.0		103	68-137			
2-Chloronaphthalene	48		10	ug/L	50.0		96	65-120			
2-Chlorophenol	45		10	ug/L	50.0		90	36-120			
2-Methyl-4,6-dinitrophenol	52		10	ug/L	50.0		103	53-130			
2-Nitrophenol	49		10	ug/L	50.0		98	45-167			
3,3'-Dichlorobenzidine	49		10	ug/L	50.0		98	8-213			
4-Bromophenyl-phenylether	51		10	ug/L	50.0		102	65-120			
4-Chlorophenyl-phenylether	48		10	ug/L	50.0		96	41-128			
4-Chlorophenyl-phenylether	50		10	ug/L	50.0		101	38-145			
4-Nitrophenol	34		10	ug/L	50.0		69	13-129			
Acenaphthene	50		10	ug/L	50.0		100	60-132			
Acenaphthylene	50		10	ug/L	50.0		100	54-126			
Anthracene	51		10	ug/L	50.0		102	43-120			
Benzidine	17		10	ug/L	50.0		34	10-136			
Benzo(a)anthracene	50		10	ug/L	50.0		101	42-133			

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L27002 - EPA 3510C_MS - Continued

LCS (9L27002-BS1) Continued

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 13:23

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzo(a)pyrene	52		10	ug/L	50.0		104	32-148			
Benzo(b)fluoranthene	49		10	ug/L	50.0		98	42-140			
Benzo(g,h,i)perylene	60		10	ug/L	50.0		119	5-195			
Benzo(k)fluoranthene	52		10	ug/L	50.0		103	25-146			
Bis(2-chloroethoxy)methane	46		10	ug/L	50.0		92	49-165			
Bis(2-chloroethyl)ether	50		10	ug/L	50.0		101	43-126			
Bis(2-chloroisopropyl)ether	46		10	ug/L	50.0		92	63-139			
Bis(2-ethylhexyl)phthalate	49		5.0	ug/L	50.0		99	29-137			
Butylbenzylphthalate	41		10	ug/L	50.0		83	5-140			
Chrysene	52		10	ug/L	50.0		103	44-140			
Dibenzo(a,h)anthracene	59		10	ug/L	50.0		118	5-200			
Diethylphthalate	51		10	ug/L	50.0		102	5-120			
Dimethylphthalate	51		10	ug/L	50.0		102	10-120			
Di-n-butylphthalate	48		10	ug/L	50.0		96	8-120			
Di-n-octylphthalate	46		10	ug/L	50.0		92	19-132			
Fluoranthene	47		10	ug/L	50.0		95	43-121			
Fluorene	49		10	ug/L	50.0		99	70-120			
Hexachlorobenzene	50		10	ug/L	50.0		100	8-142			
Hexachlorobutadiene	45		10	ug/L	50.0		89	24-120			
Hexachlorocyclopentadiene	42		10	ug/L	50.0		85	38-120			
Hexachloroethane	39		10	ug/L	50.0		78	55-120			
Indeno(1,2,3-cd)pyrene	59		10	ug/L	50.0		117	5-151			
Isophorone	46		10	ug/L	50.0		92	47-180			
Naphthalene	45		10	ug/L	50.0		90	36-120			
Nitrobenzene	46		10	ug/L	50.0		91	54-158			
N-Nitrosodimethylamine	36		10	ug/L	50.0		73	24-94			
N-Nitroso-di-n-propylamine	44		10	ug/L	50.0		87	14-198			
Pentachlorophenol	54		10	ug/L	50.0		107	38-152			
Phenanthrene	51		10	ug/L	50.0		102	65-120			
Phenol	30		10	ug/L	50.0		61	17-120			
Pyrene	47		10	ug/L	50.0		93	70-120			
2,4,6-Tribromophenol	91			ug/L	100		91	47-128			
2-Fluorobiphenyl	49			ug/L	50.0		98	44-102			
2-Fluorophenol	67			ug/L	100		67	25-79			
Nitrobenzene-d5	45			ug/L	50.0		90	43-112			
Phenol-d5	56			ug/L	100		56	14-54			QS-03
Terphenyl-d14	47			ug/L	50.0		95	65-122			

Matrix Spike (9L27002-MS1)

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 13:54

Source: CC21739-04

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	39		10	ug/L	50.0	3.3 U	79	44-142			
1,2-Dichlorobenzene	38		10	ug/L	50.0	3.2 U	75	32-129			
1,3-Dichlorobenzene	36		10	ug/L	50.0	3.4 U	73	10-172			
1,4-Dichlorobenzene	38		10	ug/L	50.0	3.2 U	76	20-124			
2,4,6-Trichlorophenol	48		10	ug/L	50.0	6.4 U	97	37-144			
2,4-Dichlorophenol	44		10	ug/L	50.0	6.5 U	88	39-135			
2,4-Dimethylphenol	16		10	ug/L	50.0	6.4 U	31	32-120			QM-07
2,4-Dinitrophenol	52		10	ug/L	50.0	7.7 U	103	5-191			

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L27002 - EPA 3510C_MS - Continued

Matrix Spike (9L27002-MS1) Continued

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 13:54

Source: CC21739-04

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
2,4-Dinitrotoluene	47		10	ug/L	50.0	3.2 U	94	53-130			
2,6-Dinitrotoluene	47		10	ug/L	50.0	2.9 U	93	50-158			
2-Chloronaphthalene	42		10	ug/L	50.0	3.2 U	85	60-120			
2-Chlorophenol	40		10	ug/L	50.0	7.4 U	80	23-134			
2-Methyl-4,6-dinitrophenol	52		10	ug/L	50.0	6.0 U	105	5-181			
2-Nitrophenol	46		10	ug/L	50.0	5.2 U	91	29-182			
3,3'-Dichlorobenzidine	32		10	ug/L	50.0	3.3 U	64	5-262			
4-Bromophenyl-phenylether	47		10	ug/L	50.0	3.3 U	95	53-127			
4-Chloro-3-methylphenol	44		10	ug/L	50.0	7.3 U	88	22-147			
4-Chlorophenyl-phenylether	47		10	ug/L	50.0	3.2 U	93	25-158			
4-Nitrophenol	32		10	ug/L	50.0	7.9 U	65	5-132			
Acenaphthene	44		10	ug/L	50.0	3.0 U	89	47-145			
Acenaphthylene	36		10	ug/L	50.0	9.6 U	73	33-145			
Anthracene	45		10	ug/L	50.0	3.0 U	90	27-133			
Benzidine	7.1	U	10	ug/L	50.0	7.1 U		10-136			QM-07
Benzo(a)anthracene	47		10	ug/L	50.0	3.2 U	94	33-143			
Benzo(a)pyrene	46		10	ug/L	50.0	3.2 U	92	17-163			
Benzo(b)fluoranthene	50		10	ug/L	50.0	3.4 U	100	24-159			
Benzo(g,h,i)perylene	49		10	ug/L	50.0	3.7 U	99	5-219			
Benzo(k)fluoranthene	49		10	ug/L	50.0	3.8 U	99	11-162			
Bis(2-chloroethoxy)methane	42		10	ug/L	50.0	3.3 U	84	33-184			
Bis(2-chloroethyl)ether	49		10	ug/L	50.0	3.8 U	97	12-158			
Bis(2-chloroisopropyl)ether	42		10	ug/L	50.0	3.5 U	84	36-166			
Bis(2-ethylhexyl)phthalate	47		5.0	ug/L	50.0	3.5 U	94	8-158			
Butylbenzylphthalate	47		10	ug/L	50.0	5.1 U	93	5-152			
Chrysene	49		10	ug/L	50.0	3.0 U	97	17-168			
Dibenzo(a,h)anthracene	50		10	ug/L	50.0	3.8 U	101	5-227			
Diethylphthalate	47		10	ug/L	50.0	3.0 U	95	5-120			
Dimethylphthalate	47		10	ug/L	50.0	3.0 U	94	5-120			
Di-n-butylphthalate	47		10	ug/L	50.0	3.2 U	94	1-120			
Di-n-octylphthalate	48		10	ug/L	50.0	4.7 U	95	4-146			
Fluoranthene	47		10	ug/L	50.0	4.0 U	93	26-137			
Fluorene	45		10	ug/L	50.0	2.9 U	90	59-121			
Hexachlorobenzene	46		10	ug/L	50.0	3.0 U	92	5-152			
Hexachlorobutadiene	40		10	ug/L	50.0	4.1 U	80	24-120			
Hexachlorocyclopentadiene	43		10	ug/L	50.0	3.8 U	87	10-99			
Hexachloroethane	36		10	ug/L	50.0	3.0 U	72	40-120			
Indeno(1,2,3-cd)pyrene	50		10	ug/L	50.0	4.1 U	100	5-171			
Isophorone	42		10	ug/L	50.0	4.5 U	83	21-196			
Naphthalene	41		10	ug/L	50.0	3.6 U	82	21-133			
Nitrobenzene	42		10	ug/L	50.0	3.2 U	83	35-180			
N-Nitrosodimethylamine	31		10	ug/L	50.0	3.8 U	61	24-94			
N-Nitroso-di-n-propylamine	40		10	ug/L	50.0	4.5 U	80	5-230			
Pentachlorophenol	53		10	ug/L	50.0	8.2 U	107	14-176			
Phenanthrene	47		10	ug/L	50.0	2.8 U	95	54-120			
Phenol	26		10	ug/L	50.0	5.6 U	53	5-120			
Pyrene	47		10	ug/L	50.0	4.1 U	93	52-120			
2,4,6-Tribromophenol	84			ug/L	100		84	47-128			
2-Fluorobiphenyl	43			ug/L	50.0		86	44-102			

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L27002 - EPA 3510C_MS - Continued

Matrix Spike (9L27002-MS1) Continued

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 13:54

Source: CC21739-04

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
2-Fluorophenol	58			ug/L	100		58	25-79			
Nitrobenzene-d5	40			ug/L	50.0		81	43-112			
Phenol-d5	47			ug/L	100		47	14-54			
Terphenyl-d14	49			ug/L	50.0		98	65-122			

Matrix Spike Dup (9L27002-MSD1)

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 14:26

Source: CC21739-04

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	39		10	ug/L	50.0	3.3 U	77	44-142	2	50	
1,2-Dichlorobenzene	36		10	ug/L	50.0	3.2 U	73	32-129	3	25	
1,3-Dichlorobenzene	35		10	ug/L	50.0	3.4 U	71	10-172	2	25	
1,4-Dichlorobenzene	37		10	ug/L	50.0	3.2 U	74	20-124	2	25	
2,4,6-Trichlorophenol	48		10	ug/L	50.0	6.4 U	95	37-144	2	58	
2,4-Dichlorophenol	43		10	ug/L	50.0	6.5 U	85	39-135	3	50	
2,4-Dimethylphenol	9.7	J	10	ug/L	50.0	6.4 U	19	32-120	46	58	QM-07
2,4-Dinitrophenol	48		10	ug/L	50.0	7.7 U	97	5-191	7	132	
2,4-Dinitrotoluene	44		10	ug/L	50.0	3.2 U	88	53-130	6	42	
2,6-Dinitrotoluene	45		10	ug/L	50.0	2.9 U	90	50-158	4	48	
2-Chloronaphthalene	42		10	ug/L	50.0	3.2 U	85	60-120	0.4	24	
2-Chlorophenol	39		10	ug/L	50.0	7.4 U	78	23-134	3	61	
2-Methyl-4,6-dinitrophenol	48		10	ug/L	50.0	6.0 U	97	5-181	8	203	
2-Nitrophenol	45		10	ug/L	50.0	5.2 U	90	29-182	2	55	
3,3'-Dichlorobenzidine	26		10	ug/L	50.0	3.3 U	52	5-262	22	108	
4-Bromophenyl-phenylether	47		10	ug/L	50.0	3.3 U	93	53-127	2	43	
4-Chloro-3-methylphenol	41		10	ug/L	50.0	7.3 U	82	22-147	7	73	
4-Chlorophenyl-phenylether	45		10	ug/L	50.0	3.2 U	90	25-158	3	61	
4-Nitrophenol	30		10	ug/L	50.0	7.9 U	59	5-132	8	131	
Acenaphthene	44		10	ug/L	50.0	3.0 U	88	47-145	0.6	48	
Acenaphthylene	36		10	ug/L	50.0	9.6 U	71	33-145	2	74	
Anthracene	43		10	ug/L	50.0	3.0 U	86	27-133	4	66	
Benzidine	7.1	U	10	ug/L	50.0	7.1 U		10-136		25	QM-07
Benzo(a)anthracene	47		10	ug/L	50.0	3.2 U	94	33-143	0.5	53	
Benzo(a)pyrene	43		10	ug/L	50.0	3.2 U	85	17-163	8	72	
Benzo(b)fluoranthene	46		10	ug/L	50.0	3.4 U	92	24-159	9	71	
Benzo(g,h,i)perylene	54		10	ug/L	50.0	3.7 U	107	5-219	8	97	
Benzo(k)fluoranthene	47		10	ug/L	50.0	3.8 U	94	11-162	5	63	
Bis(2-chloroethoxy)methane	41		10	ug/L	50.0	3.3 U	82	33-184	2	54	
Bis(2-chloroethyl)ether	46		10	ug/L	50.0	3.8 U	92	12-158	5	108	
Bis(2-chloroisopropyl)ether	41		10	ug/L	50.0	3.5 U	82	36-166	2	76	
Bis(2-ethylhexyl)phthalate	45		5.0	ug/L	50.0	3.5 U	91	8-158	3	82	
Butylbenzylphthalate	41		10	ug/L	50.0	5.1 U	83	5-152	11	60	
Chrysene	47		10	ug/L	50.0	3.0 U	94	17-168	3	87	
Dibenzo(a,h)anthracene	55		10	ug/L	50.0	3.8 U	110	5-227	9	126	
Diethylphthalate	45		10	ug/L	50.0	3.0 U	90	5-120	5	100	
Dimethylphthalate	45		10	ug/L	50.0	3.0 U	90	5-120	4	183	
Di-n-butylphthalate	45		10	ug/L	50.0	3.2 U	89	1-120	5	47	
Di-n-octylphthalate	46		10	ug/L	50.0	4.7 U	92	4-146	4	69	
Fluoranthene	45		10	ug/L	50.0	4.0 U	89	26-137	4	66	
Fluorene	44		10	ug/L	50.0	2.9 U	89	59-121	1	38	

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L27002 - EPA 3510C_MS - Continued

Matrix Spike Dup (9L27002-MSD1) Continued

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 14:26

Source: CC21739-04

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Hexachlorobenzene	46		10	ug/L	50.0	3.0 U	91	5-152	1	55	
Hexachlorobutadiene	40		10	ug/L	50.0	4.1 U	79	24-120	0.8	62	
Hexachlorocyclopentadiene	42		10	ug/L	50.0	3.8 U	84	10-99	3	25	
Hexachloroethane	35		10	ug/L	50.0	3.0 U	70	40-120	3	52	
Indeno(1,2,3-cd)pyrene	55		10	ug/L	50.0	4.1 U	109	5-171	9	99	
Isophorone	40		10	ug/L	50.0	4.5 U	80	21-196	4	93	
Naphthalene	40		10	ug/L	50.0	3.6 U	81	21-133	0.9	65	
Nitrobenzene	41		10	ug/L	50.0	3.2 U	82	35-180	1	62	
N-Nitrosodimethylamine	30		10	ug/L	50.0	3.8 U	61	24-94	0.3	25	
N-Nitroso-di-n-propylamine	38		10	ug/L	50.0	4.5 U	77	5-230	4	87	
Pentachlorophenol	50		10	ug/L	50.0	8.2 U	99	14-176	7	86	
Phenanthrene	47		10	ug/L	50.0	2.8 U	94	54-120	0.9	39	
Phenol	26		10	ug/L	50.0	5.6 U	52	5-120	1	64	
Pyrene	44		10	ug/L	50.0	4.1 U	88	52-120	5	49	
<i>2,4,6-Tribromophenol</i>	82			ug/L	100		82	47-128			
<i>2-Fluorobiphenyl</i>	44			ug/L	50.0		88	44-102			
<i>2-Fluorophenol</i>	59			ug/L	100		59	25-79			
<i>Nitrobenzene-d5</i>	41			ug/L	50.0		82	43-112			
<i>Phenol-d5</i>	48			ug/L	100		48	14-54			
<i>Terphenyl-d14</i>	47			ug/L	50.0		93	65-122			

FLAGS/NOTES AND DEFINITIONS

- B** The analyte was detected in the associated method blank.
- D** The sample was analyzed at dilution.
- J** The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content, where applicable.
- U** The analyte was analyzed for but not detected to the level shown, adjusted for actual sample preparation data and moisture content, where applicable.
- E** The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
- MRL** Method Reporting Limit. The MRL is roughly equivalent to the practical quantitation limit (PQL) and is based on the low point of the calibration curve, when applicable, sample preparation factor, dilution factor, and, in the case of soil samples, moisture content.
- PQL** PQL: Practical Quantitation Limit. The PQL presented is the laboratory MRL.
- N** The analysis indicates the presence of an analyte for which there is presumptive evidence (85% or greater confidence) to make a "tentative identification".
- P** Greater than 25% concentration difference was observed between the primary and secondary GC column. The lower concentration is reported.
- [CALC]** Calculated analyte - MDL/MRL reported to the highest reporting limit of the component analyses.
- J-06** The associated laboratory control sample exhibited low bias; the reported result should be considered to be a minimum estimate.
- O-05** This sample was extracted outside of the EPA recommended holding time.
- QM-07** The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- QM-11** Precision between duplicate matrix spikes of the same sample was outside acceptance limits.
- QS-03** Surrogate recovery outside acceptance limits
- QV-01** The associated continuing calibration verification standard exhibited high bias; since the result is ND, there is no impact.
- QV-02** The associated continuing calibration verification standard exhibited low bias; the reported result should be considered to be a minimum estimate.

GEOENVIRONMENTAL PHASE II INVESTIGATION

**ROBERT W. SUTTON
1903-1905 N. BERKELEY BLVD.
GOLDSBORO, NORTH CAROLINA**

**TIP NUMBER: U-3609B
WBS NUMBER: 39026.1.2
COUNTY: WAYNE**

**DESCRIPTION: GOLDSBORO - US 13 (BERKELEY BLVD)
FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)**

PREPARED FOR:



**NCDOT GEOTECHNICAL ENGINEERING UNIT
GEOENVIRONMENTAL SECTION
1589 MSC
RALEIGH, NORTH CAROLINA 27699-1589**

JANUARY 27, 2020

PREPARED BY:

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**CATLIN PROJECT NO. 219139
CORPORATE GEOLOGY LICENSE CERTIFICATION NO. C-118
CORPORATE LICENSURE NO. FOR ENGINEERING SERVICES C-0585**

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GEOENVIRONMENTAL PHASE II INVESTIGATION

**ROBERT W. SUTTON
1903-1905 N. BERKELEY BLVD.
GOLDSBORO, NORTH CAROLINA**

**TIP NUMBER: U-3609B
WBS NUMBER: 39026.1.2**

JANUARY 27, 2020

1.0 INTRODUCTION

Acquisition of the right-of-way (ROW) and/or easement is necessary for the US 13 improvements (including drainage) in Goldsboro, North Carolina. The North Carolina Department of Transportation (NCDOT) has indicated a site investigation is necessary to determine if underground storage tanks (UST), contaminated groundwater and/or contaminated soils are present.

2.0 PURPOSE OF INVESTIGATION AND DESCRIPTION

CATLIN Engineers and Scientists (CATLIN) was retained by the NCDOT Geotechnical Engineering Unit to provide field investigations concluding with GeoEnvironmental Phase II Investigation reports for nine (9) sites. In response to a request for proposal by Mr. John Pilipchuk, L.G., P.E. dated November 12, 2019 and subsequent work scope discussions with Mr. Craig Haden, CATLIN submitted a proposal for conducting an investigation at 1903-1905 N. Berkeley Blvd. – Robert W. Sutton, along the NCDOT Project “Goldsboro – US 13 (Berkeley Blvd) from SR 1003 (New Hope Rd) to SR 1572 (Saulston Rd)” in Goldsboro, North Carolina. Figure 1 illustrates the general site location. The NCDOT Conventional Plan Sheet Symbols are provided on Figure 2.

According to NCDOT, ROW and/or easement acquisition is necessary for the roadway construction (TIP Number U-3609B) and specifically at the above referenced address (1903-1905 N. Berkeley Blvd). A site investigation was requested before complete parcel acquisition and roadway construction. The work scope as requested includes:

- Notify property owners/occupants of schedule and scope of work.
- Locate all drums and/or USTs, determine approximate size and contents (if any).
- Determine if contaminated soils are present.
- Test soil for contaminants relevant to the site's past use and/or possible release(s). For petroleum contaminants, Ultra-Violet Fluorescence (UVF) analysis is the preferred method.
- Advance four (4) borings and collect one (1) soil sample from each boring to determine if contaminated soils are present.
- Submit four (4) soil samples for UVF analyses.

- Collect one (1) groundwater sample and submit for volatile and semi-volatile organics analyses per Standard Method 6200B and Environmental Protection Agency (EPA) Method 625.
- Include (as a standard delivery item) the RED Lab, LLC (RED Lab) graphs in reports and send the GeoEnvironmental Section a copy of the RED Lab Excel file(s).
- If soil and groundwater contamination are evident, estimate the quantity of impacted soils and indicate the approximate area of soil and groundwater contamination on report figures.
- Provide a MicroStation file with the location of soil borings, USTs, soil contamination and monitoring wells.
- Prepare a report including field activities, findings, and recommendations and submit one electronic copy to the NCDOT GeoEnvironmental Section.

This report documents our activities and findings for the Robert W. Sutton property at 1903-1905 N. Berkeley Blvd., Goldsboro, North Carolina.

3.0 METHODS

Proposed boring/sample locations were discussed and agreed upon before boring advancement.

CATLIN coordinated geophysical activities with Pyramid Geophysical Services (Pyramid). The geophysical investigation methods and site photographs are detailed in the Pyramid Geophysical Survey provided in Appendix A.

CATLIN proposed utilizing QROS On-Site Rapid Measurement Techniques and Tools (QED™ Analyzer) by RED Lab to evaluate potential for petroleum and Poly Aromatic Hydrocarbon (PAH) impacts to soil in a cost-effective manner. Soil samples collected from above the approximate water table depth with total petroleum hydrocarbon (TPH) concentrations greater than the North Carolina Department of Environmental Quality (NCDEQ) Action Levels [100 milligrams per kilogram (mg/kg) diesel range organics (DRO) or 50 mg/kg gasoline range organics (GRO)] will be considered contaminated for estimated impacted vadose soil volume calculations. Contaminated soil volume is estimated from the surface to the water table and/or the midpoint distance between a “clean” sample location and contaminated sample location or the property line/easement.

Soil sample borings advanced during this investigation are identified with “1903DPT” and numbered sequentially 01 through 04. Soil samples for analysis per QROS QED™ Analyzer were identified by boring number and depth [example: 1903DPT-01 (5')]. A groundwater sample for analysis per Standard Method 6200B and EPA Method 625 was identified by boring number [example: 1903DPT-02]. CATLIN’s field activities at the site began and concluded on December 10, 2019.

3.1 FIELD METHODS

All field work was conducted in general accordance with state and federal guidelines and industry standards.

Underground utility locating was coordinated by CATLIN personnel. The North Carolina One Call Center (NC-1-Call) was contacted for underground utility location. The areas around the proposed boring locations were checked and underground utilities were indicated by NC-1-Call personnel. Pyramid also marked private underground utilities and cleared the boring locations.

CATLIN personnel gathered subsurface soil data by Direct Push Technology boring advancement using a GeoProbe 5400 (GeoProbe). When using the GeoProbe, the borings are advanced to depth by static force and a hydraulic percussion hammer. Two and one-quarter inch diameter by four-foot length steel is used as casing. Soil samples are continuously collected in one and one-half inch clear liners. Liners are removed from the casing and then cut in half longitudinally to allow for visual/manual classification utilizing the Unified Soil Classification System (USCS). Boring information was recorded on field logs and transferred to boring logs (see Appendix B). Soils were removed from the liner in two (2) foot intervals and placed in sealable polyethylene bags for organic volatile (headspace) analysis (OVA) utilizing a MiniRAE 3000 Photoionization Detector (PID). The OVA results were documented on field logs and are included on the boring logs in Appendix B. Soil samples were selected and packed in appropriate glassware for analysis. One (1) soil sample was collected from each soil boring location.

New disposable nitrile gloves were worn during sampling activities. Soils selected for QROS QED™ analysis were placed into new glassware provided by QROS. All samples were placed on ice in an insulated cooler for transportation to RED Lab in Wilmington, NC. Sample integrity was maintained by following proper Chain of Custody (COC) procedures. A copy of the COC is provided following the analytical report in Appendix C.

Following boring termination and tooling removal, new one-inch slotted poly vinyl chloride (PVC) well screen and casing was installed in a selected borehole for groundwater sampling. A grab groundwater sample was collected utilizing a peristaltic pump and new polyethylene tubing. Groundwater was pumped directly into laboratory provided glassware. New, disposable nitrile gloves were worn when handling well material and while collecting groundwater samples. The samples were packed on ice in an insulated cooler for transportation to the laboratory. Sample integrity was maintained by following proper COC procedures (see Appendix C).

The PVC materials were subsequently removed from the boring. Boreholes were abandoned to the surface in grassy areas and just below existing asphalt in asphalt areas using three-eighth inch bentonite chips. Bentonite

and water were poured into the borehole simultaneously to facilitate hydration. Boreholes in asphalt were finished with asphalt patch to the surface.

3.2 ANALYTICAL TESTING

The QROS QED™ Analyzer methods have been approved by the NCDEQ for petroleum contamination determination. Complete QROS QED™ procedures are on file with the NCDEQ and are available upon request. The QROS QED™ analysis was conducted by RED Lab personnel at their laboratory in Wilmington, North Carolina. QROS QED™ analysis provides Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX), DRO, GRO, TPH, total Aromatics (C10-C35) and 16 EPA PAH concentrations. A total of four (4) soil samples were submitted to RED Lab. The COC documentation is included in Appendix C.

One (1) groundwater sample was submitted to ENCO Laboratories (ENCO) for analysis per EPA Methods 625 and Standard Method 6200B for the presence of semi-volatile and volatile organics (including potential petroleum and chlorinated solvent parameters). The COC documentation is included in Appendix C.

4.0 FIELD ACTIVITIES

4.1 CURRENT SITE CONDITIONS AND FIELD OBSERVATIONS

The site currently operates as a retail used car dealership with financial services. No buildings are within the proposed ROW and/or easement. No signs of USTs were observed.

Photographs taken during the geophysical investigation are included in the geophysical survey provided in Appendix A.

Figure 3 illustrates the subject site soil borings and sample locations.

4.2 SOIL SAMPLING

A total of four (4) borings were advanced as part of this investigation. The four (4) soil samples collected (one from each boring) were submitted for analysis. Boring/sample locations are illustrated on Figure 3. Boring logs are included in Appendix B.

Soil borings were advanced to eight (8) or 12 feet below land surface (BLS) and terminated in moist to saturated fine sand except in borings 1903DPT-01 and -04, which was terminated in sandy clay. Soils were collected continuously to boring termination. After retrieving the drive, soil was visually/manually classified for USCS and screened for organic vapor head space. Soil samples collected from each boring for analysis were packed in

the appropriate glassware, labeled, and placed in a cooler on ice. The four (4) soil samples were submitted to RED Lab for QED™ analyses. The COC documentation is included in Appendix C.

4.3 GROUNDWATER SAMPLING

One (1) groundwater sample (1903DPT-02) was collected and submitted for analysis per Standard Method 6200B and EPA Method 625 under proper COC protocol (see Appendix C).

4.4 SURVEYING

Boring/sample locations were recorded utilizing a Trimble® global positioning survey instrument and data collector. Boring coordinates are on the boring logs provided in Appendix B and Table 2. Boring locations are indicated on plan sheets provided by NCDOT and illustrated on Figure 3.

5.0 RESULTS

Historical review

Review of the NCDEQ Division of Waste Management Site Locator Tool indicated no registered USTs, ASTs, or incidents at the subject site.

Geophysical Investigation

The geophysical investigation inadvertently included the proposed ROW adjacent to and southwest of the subject site. The additional investigation area was in front of a former Burger King at 1901 N. Berkeley Blvd. The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of nine (9) EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface and reinforced concrete. EM and GPR showed evidence of several buried utilities at the site. Geophysical data recorded evidence of one (1) probable UST at the 1901 N. Berkeley Blvd., former Burger King site. The UST appears outside the easement. The complete geophysical survey report by Pyramid is included in Appendix A.

Soil

Soil borings 1903DPT-01 and -04 were terminated in sandy clay at eight (8) feet BLS. Borings 1903DPT-02 and -03 were terminated at 12 and eight (8) feet BLS respectively and were terminated in fine sands. Complete boring logs are provided in Appendix B. A soil sample was collected from each boring at approximately five (5) feet BLS (+/- 1 foot) and submitted for laboratory analysis. The complete analytical reports and chain of custody documents are provided in Appendix C.

The soil headspace OVA results ranged from 0.3 ppm [1903DPT-04 (0-2')] to 3.4 ppm [1903DPT-01 (4-6')]. The soil headspace screening is summarized in Table 1.

The soil samples collected from borings (1903DPT-01 through 1903DPT-04) did not reveal TPH DRO and/or TPH GRO above the State Action Levels (100 ppm DRO, 50 ppm GRO). Summarized TPH results are provided on Table 2 and illustrated on Figure 3. No impacted soils are suspected to be encountered during construction.

Groundwater

Based on the saturated soils found in the temporary monitoring well at 1903DPT-02, depth to groundwater is assumed at approximately eight (8) feet BLS. No Standard Method 6200B or EPA Method 625 compounds were detected above the North Carolina Administrative Code (NCAC) T15A:02L Groundwater Quality Standards (2L GWQS). The original extraction (within "Hold Time") for EPA Method 625 was re-extracted outside of the hold time and both sets of data have been reported. The groundwater sample results are summarized on Table 3. The groundwater sample locations and summarized results are illustrated on Figure 4. The complete laboratory analytical report is provided in Appendix C. A monitoring well constructions and abandonment record were submitted to NCDEQ. Copies of the records are provided in Appendix B.

6.0 SUMMARY AND CONCLUSIONS

The Robert W. Sutton property at 1903-1905 N. Berkeley Blvd. currently operates as a retail used car dealership. No buildings are located within the proposed ROW and/or easement. No signs of USTs were observed during site reconnaissance; however, one (1) probable UST was observed through geophysical surveying. The probable UST location is outside the ROW and/or easement at the adjacent property, 1901 N. Berkeley Blvd. Review of the NCDEQ Division of Waste Management Site Locator Tool indicated no registered USTs, ASTs, or incidents at the site.

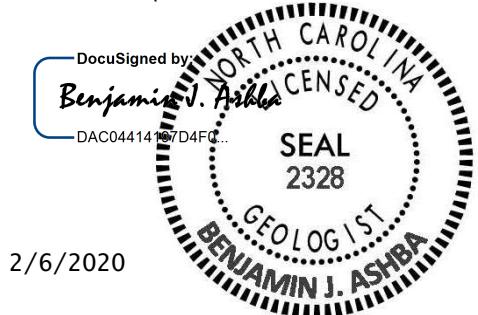
Soil and groundwater samples (4 soil, 1 groundwater) did not reveal TPH DRO/ GRO or semi-volatile/volatile organic concentrations, respectively. The proposed construction at the site is not suspected to encounter contaminated soil or groundwater.

7.0 LIMITATIONS

This report is based on the agreed work scope and a review of available data from limited sampling. It is possible that this investigation may have failed to reveal the presence of contamination in the project area where such contamination may exist. Although CATLIN has used accepted methods appropriate for soil and groundwater sampling, CATLIN cannot guarantee that additional soil and/or groundwater contamination does not exist.

8.0 SIGNATURES

(Document Not Considered Final Unless All Signatures Are Completed)



Benjamin J. Ashba, P.G.
Project Manager



Corey D. Futral
Project Geologist

TABLES

TABLE 1
SUMMARY OF SOIL HEADSPACE SCREENING

Robert W. Sutton
1903-1905 N. Berkeley Blvd., Goldsboro, North Carolina

BORING I.D.	Sample Depth (ft.)	OVA READING (ppm)	Sample Selected for Laboratory Analysis
1903DPT-01	0 - 2	2.0	
1903DPT-01	2 - 4	2.9	
1903DPT-01	4 - 6	3.4	1903 DPT-01 (5')
1903DPT-01	6 - 8	2.0	
1903DPT-02	0 - 2	1.2	
1903DPT-02	2 - 4	1.5	
1903DPT-02	4 - 6	1.9	Soil 1903 DPT-02 (6')
1903DPT-02	6 - 8	1.4	
1903DPT-02	8 - 10	1.3	
1903DPT-02	10 - 12	0.6	Water 1903 DPT-02
1903DPT-03	0 - 2	1.0	
1903DPT-03	2 - 4	1.5	
1903DPT-03	4 - 6	1.7	1903 DPT-03 (5')
1903DPT-03	6 - 8	1.8	
1903DPT-04	0 - 2	0.3	
1903DPT-04	2 - 4	0.5	
1903DPT-04	4 - 6	0.8	1903 DPT-04 (5')
1903DPT-04	6 - 8	0.7	

TABLE 2
SUMMARY OF SOIL LABORATORY RESULTS
ULTRA VIOLET FLUORESCENCE BY REDLAB QED™ ANALYZER

Robert W. Sutton
1903-1905 N. Berkeley Blvd., Goldsboro, North Carolina

Sample ID	Northing	Easting	Contaminant of Concern →	TPH GRO	TPH DRO
			Date Collected		
1903DPT-01 (5')	598,371	2,322,015	12/10/2019	<0.53	<0.53
1903DPT-02 (6')	598,412	2,322,046	12/10/2019	<0.58	<0.58
1903DPT-03 (5')	598,428	2,322,103	12/10/2019	<0.52	<0.52
1903DPT-04 (5')	598,457	2,322,105	12/10/2019	<0.27	0.27
STATE ACTION LEVELS				50	100

Sample depth provided in parentheses as part of the Sample ID.

All results in milligrams per kilogram (mg/Kg).

< = Less than method detection limit

TABLE 3
SUMMARY OF GROUNDWATER LABORATORY RESULTS
EPA Method 625 and Standard Method 6200B

Robert W. Sutton
1903-1905 N. Berkeley Blvd., Goldsboro, North Carolina

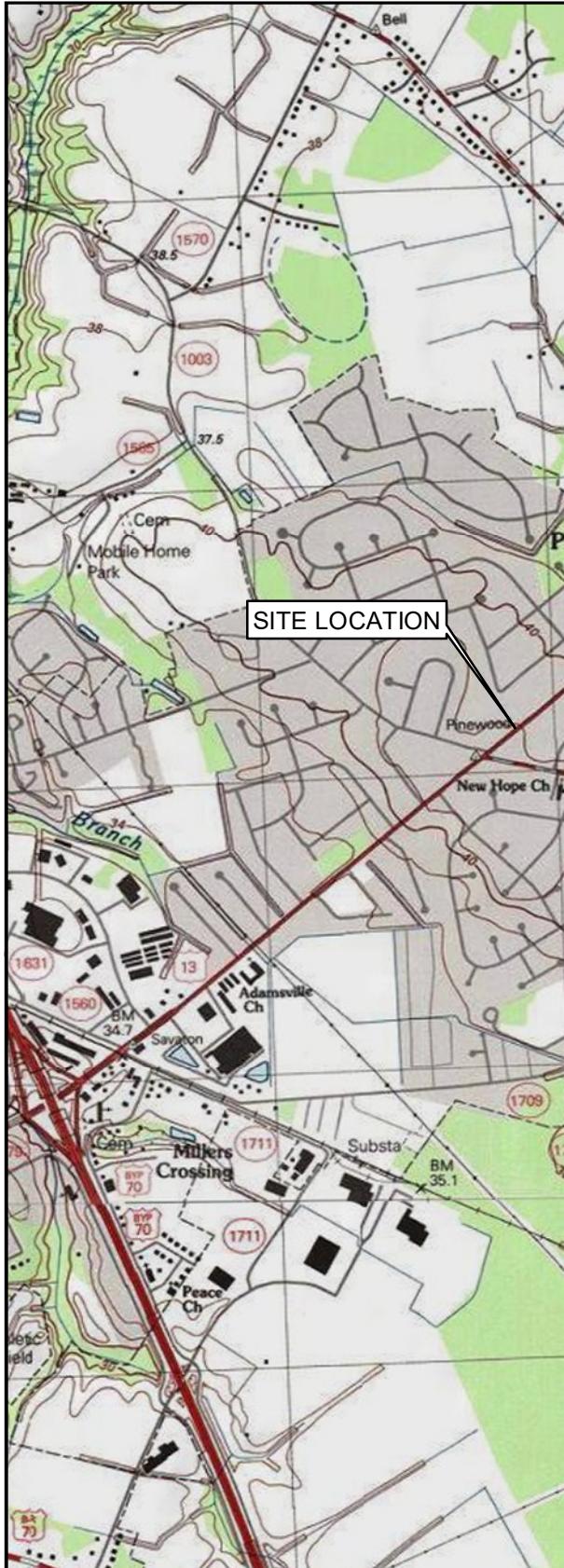
Method →		EPA Method 625	Standard Method 6200B
Contaminant of Concern →		All Parameters	All Parameters
Sample ID	Date Collected		
1903DPT-02	12/10/2019	BMDL	BMDL
	GCL (µg/L) 2L GWQS (µg/L)	Varies Varies	Varies Varies

BMDL = Below Method Detection Limit. Refer to analytical report for a complete list of parameters and reporting limits.

GCL = Gross Contaminant Level

2L GWQS = NCAC T15A:02L Groundwater Quality Standards

FIGURES



DESCRIPTION:
ROBERT SUTTON
1903-1905 N. BERKELEY
GOLDSBORO, NC

PREPARED BY:

CATLIN
Engineers and Scientists
219139

ENGLISH

WBS NUM.: 39026.1.2 FIGURE No.: 1
TIP NUM.: U-3609B TOTAL FIGURES: 4
FA No: N/A
COUNTY: WAYNE

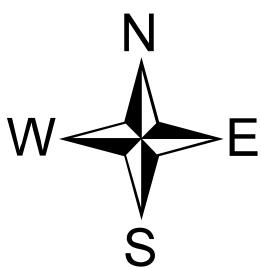
SCALE:

AS SHOWN

TITLE:
**USGS TOPOGRAPHIC
GENERAL LOCATION
MAP**

2,000 1,000 0 2,000 4,000
Feet

SCALE



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STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line
County Line
Township Line
City Line
Reservation Line
Property Line

Existing Iron Pin EP
Computed Property Corner

Property Monument ECM
Parcel/Sequence Number I23

Existing Fence Line x-x-x

Proposed Woven Wire Fence o

Proposed Chain Link Fence o

Proposed Barbed Wire Fence o

Existing Wetland Boundary NLB

Proposed Wetland Boundary NLB

Existing Endangered Animal Boundary EAB

Existing Endangered Plant Boundary EPB

Existing Historic Property Boundary HPB

Known Contamination Area: Soil s

Potential Contamination Area: Soil s

Known Contamination Area: Water w

Potential Contamination Area: Water w

Contaminated Site: Known or Potential skull

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap o

Sign s

Well w

Small Mine x

Foundation

Area Outline

Cemetery +

Building t

School t

Church t

Dam

HYDROLOGY:

Stream or Body of Water

Hydro, Pool or Reservoir -

Jurisdictional Stream JS

Buffer Zone 1 BZ 1

Buffer Zone 2 BZ 2

Flow Arrow -

Disappearing Stream x

Spring o

Wetland *

Proposed Lateral, Tail, Head Ditch x-x

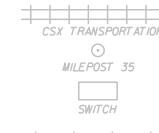
False Sump x

RAILROADS:

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

Standard Gauge
RR Signal Milepost
Switch
RR Abandoned
RR Dismantled

**RIGHT OF WAY & PROJECT CONTROL:**

Secondary Horiz and Vert Control Point ◆
Primary Horiz Control Point ◇
Primary Horiz and Vert Control Point ◆
Exist Permanent Easement Pin and Cap ◇
New Permanent Easement Pin and Cap ◆
Vertical Benchmark □
Existing Right of Way Marker △
Existing Right of Way Line
New Right of Way Line R/W
New Right of Way Line with Pin and Cap R/W
New Right of Way Line with Concrete or Granite RW Marker R/W
New Control of Access Line with Concrete CA Marker A/A
Existing Control of Access C/A
New Control of Access A
Existing Easement Line E
New Temporary Construction Easement E
New Temporary Drainage Easement TDE
New Permanent Drainage Easement PDE
New Permanent Utility Easement DUE
New Permanent Utility Easement PUE
New Temporary Utility Easement TUE
New Aerial Utility Easement AUE

ROADS AND RELATED FEATURES:

Existing Edge of Pavement
Existing Curb
Proposed Slope Stakes Cut C
Proposed Slope Stakes Fill F
Proposed Curb Ramp CR
Existing Metal Guardrail
Proposed Guardrail
Existing Cable Guiderail
Proposed Cable Guiderail
Equality Symbol
Pavement Removal

VEGETATION:

Single Tree *

Single Shrub *

Hedge
Woods Line
Orchard *

Vineyard Vineyard

EXISTING STRUCTURES:

MAJOR:
Bridge, Tunnel or Box Culvert CONC
Bridge Wing Wall, Head Wall and End Wall CONC WW
MINOR:
Head and End Wall CONC HW
Pipe Culvert
Footbridge
Drainage Box: Catch Basin, DI or JB CB
Paved Ditch Gutter
Storm Sewer Manhole S
Storm Sewer s

UTILITIES:

POWER:
Existing Power Pole ●
Proposed Power Pole ○
Existing Joint Use Pole ●
Proposed Joint Use Pole ○
Power Manhole P
Power Line Tower X
Power Transformer W
U/G Power Cable Hand Hole
H-Frame Pole ●-●
U/G Power Line LOS B (S.U.E.) -P-
U/G Power Line LOS C (S.U.E.) -P-
U/G Power Line LOS D (S.U.E.) -P-

TELEPHONE:

Existing Telephone Pole ●
Proposed Telephone Pole ○
Telephone Manhole T
Telephone Pedestal T
Telephone Cell Tower T
U/G Telephone Cable Hand Hole H
U/G Telephone Cable LOS B (S.U.E.) -T-
U/G Telephone Cable LOS C (S.U.E.) -T-
U/G Telephone Cable LOS D (S.U.E.) -T-
U/G Telephone Conduit LOS B (S.U.E.) -TC-
U/G Telephone Conduit LOS C (S.U.E.) -TC-
U/G Telephone Conduit LOS D (S.U.E.) -TC-
U/G Fiber Optics Cable LOS B (S.U.E.) -T FO-
U/G Fiber Optics Cable LOS C (S.U.E.) -T FO-
U/G Fiber Optics Cable LOS D (S.U.E.) -T FO-

WATER:

Water Manhole W
Water Meter O
Water Valve X
Water Hydrant D
U/G Water Line LOS B (S.U.E.) -W-
U/G Water Line LOS C (S.U.E.) -W-
U/G Water Line LOS D (S.U.E.) -W-
Above Ground Water Line A/G Water

TV:

TV Pedestal D
TV Tower X
U/G TV Cable Hand Hole H
U/G TV Cable LOS B (S.U.E.) -TV-
U/G TV Cable LOS C (S.U.E.) -TV-
U/G TV Cable LOS D (S.U.E.) -TV-
U/G Fiber Optic Cable LOS B (S.U.E.) -TV FO-
U/G Fiber Optic Cable LOS C (S.U.E.) -TV FO-
U/G Fiber Optic Cable LOS D (S.U.E.) -TV FO-

GAS:

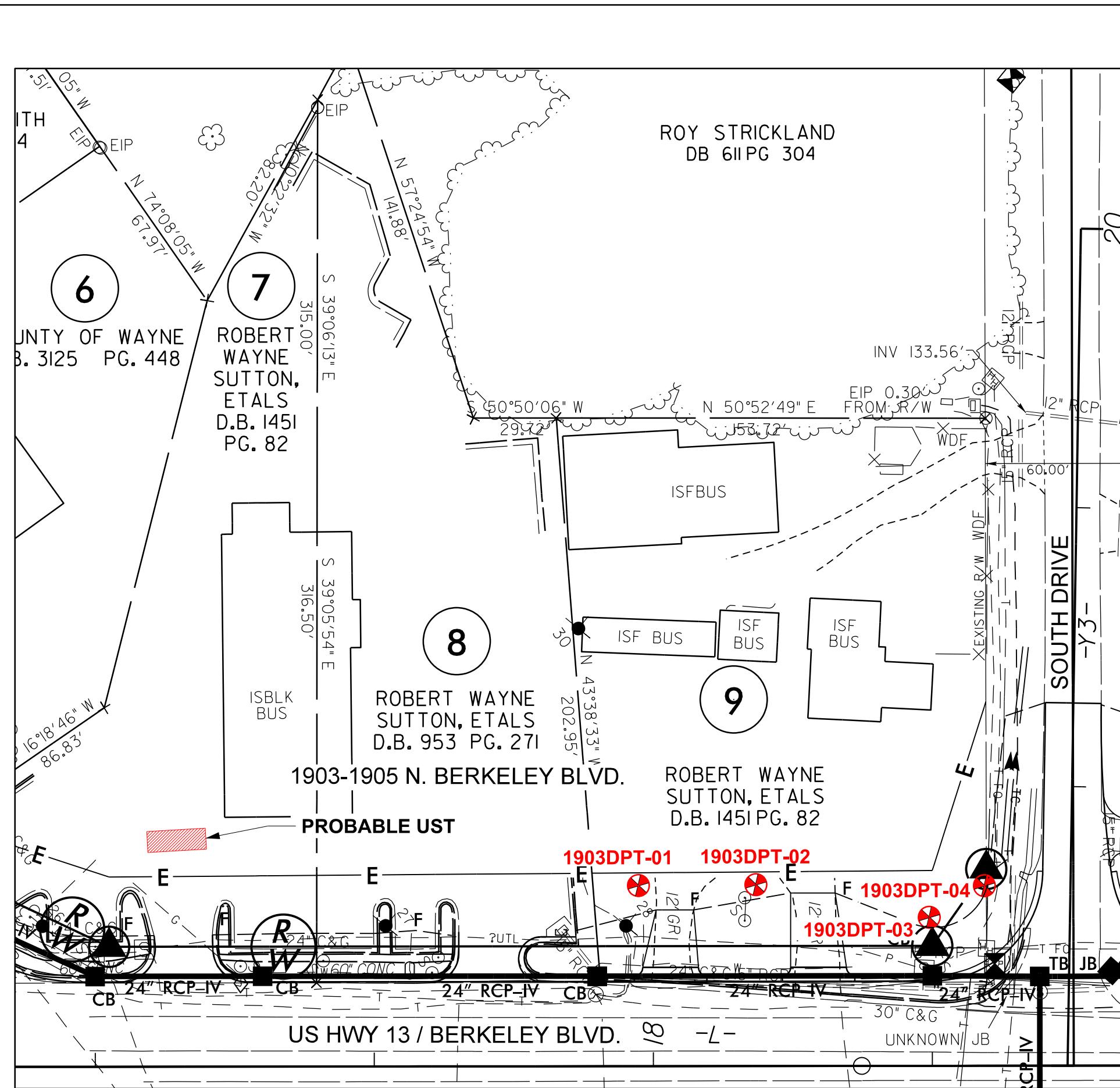
Gas Valve D
Gas Meter D
U/G Gas Line LOS B (S.U.E.) -G-
U/G Gas Line LOS C (S.U.E.) -G-
U/G Gas Line LOS D (S.U.E.) -G-
Above Ground Gas Line A/G Gas

SANITARY SEWER:

Sanitary Sewer Manhole G
Sanitary Sewer Cleanout H
U/G Sanitary Sewer Line SS
Above Ground Sanitary Sewer A/G Sanitary Sewer
SS Forced Main Line LOS B (S.U.E.) -FSS-
SS Forced Main Line LOS C (S.U.E.) -FSS-
SS Forced Main Line LOS D (S.U.E.) -FSS-

MISCELLANEOUS:

Utility Pole ●
Utility Pole with Base D
Utility Located Object O
Utility Traffic Signal Box S
Utility Unknown U/G Line LOS B (S.U.E.) -UTL-
U/G Tank; Water, Gas, Oil O
Underground Storage Tank, Approx. Loc. UST
A/G Tank; Water, Gas, Oil O
Geoenvironmental Boring X
U/G Test Hole LOS A (S.U.E.) O
Abandoned According to Utility Records AATUR
End of Information E.O.I.



DESCRIPTION: ROBERT SUTTON 1903-1905 N. BERKELEY BLVD. GOLDSBORO, NC	WBS NO.: 39026.1.2 FIGURE NO.: 3 TIP NO.: U-3609B TOTAL FIGURES: 4 F.A. NO.: N/A COUNTY: WAYNE
PREPARED BY:  CATLIN Engineers and Scientists Wilmington, North Carolina PROJ #: 219139	SCALE: 1" = 40' TITLE: BORING LOCATIONS AND SUMMARIZED SOIL SAMPLE RESULTS

NAD 83/NSRS 2007

40 20 0 40
SCALE IN FEET

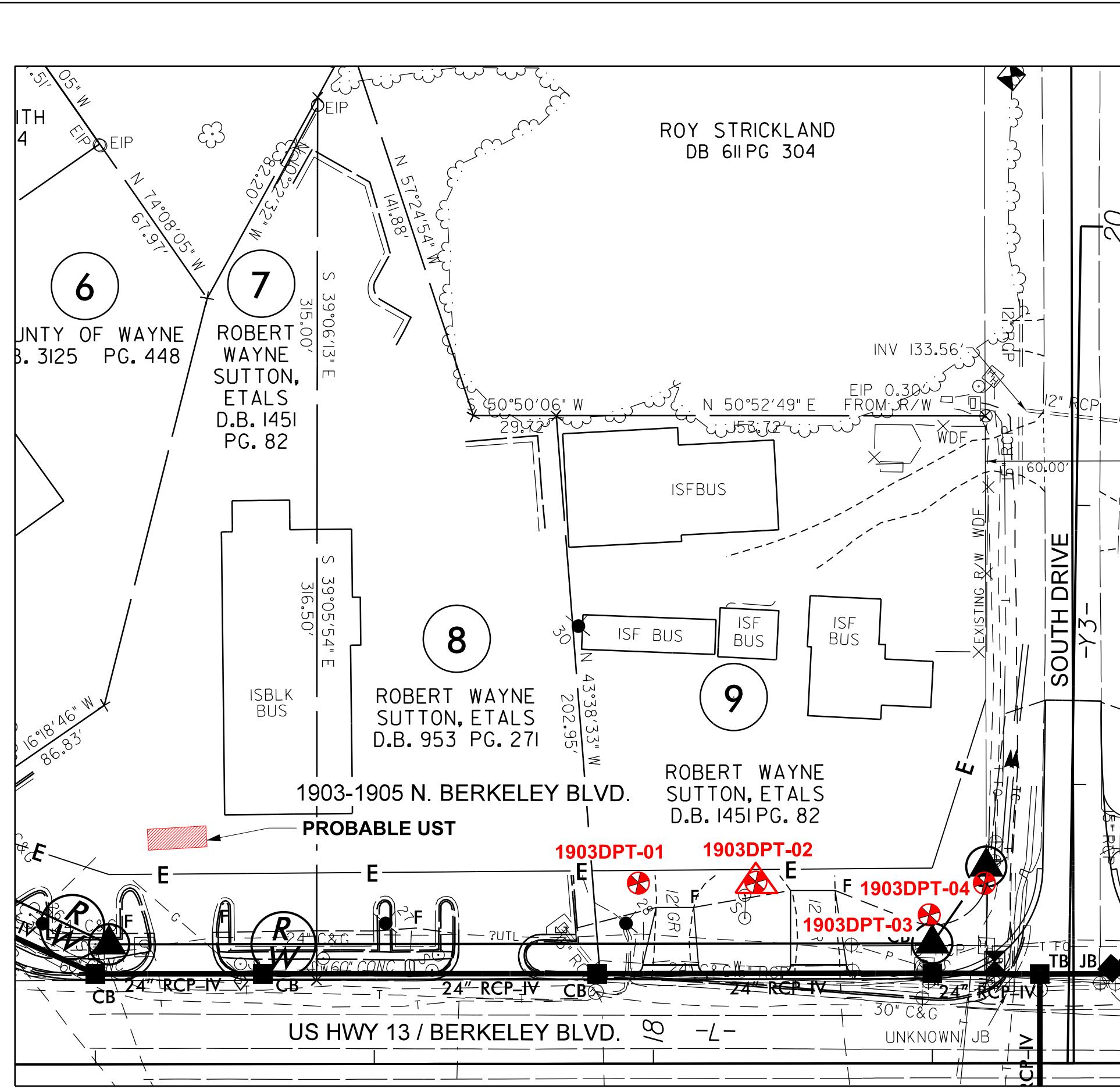
ULTRA VIOLET FLUORESCENCE BY REDLAB QED™ ANALYZER

Sample ID	Contaminant of Concern →	TPH GRO	TPH DRO
	Date Collected		
1903DPT-01 (5')	12/10/2019	<0.53	<0.53
1903DPT-02 (6')	12/10/2019	<0.58	<0.58
1903DPT-03 (5')	12/10/2019	<0.52	<0.52
1903DPT-04 (5')	12/10/2019	<0.27	0.27
STATE ACTION LEVELS		50	100

Sample depth provided in parentheses as part of the Sample ID.

All results in milligrams per kilogram (mg/Kg).

< = Less than method detection limit



APPENDICES

APPENDIX A
PYRAMID GEOPHYSICAL SURVEY



P Y R A M I D G E O P H Y S I C A L S E R V I C E S
(P R O J E C T 2 0 1 9 - 3 5 9)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION:
1903-1905 N. BERKELEY BLVD.
NCDOT PROJECT U-3609B (39026.1.2)

1903-1905 N. BERKELEY BLVD., GOLDSBORO, NC

December 20, 2019

Report prepared for: Benjamin Ashba, P.G.
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Reviewed by: 

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

5 0 3 I N D U S T R I A L A V E N U E , G R E E N S B O R O , N C 2 7 4 0 6

P : 3 3 6 . 3 3 5 . 3 1 7 4 F : 3 3 6 . 6 9 1 . 0 6 4 8

C 2 5 7 : G E O L O G Y C 1 2 5 1 : E N G I N E E R I N G

GEOPHYSICAL INVESTIGATION REPORT
1903-1905 N. Berkeley Blvd.
Goldsboro, Wayne County, North Carolina

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LIST OF ACRONYMS

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

EXECUTIVE SUMMARY

Project Description:

Pyramid Environmental conducted a geophysical investigation for Catlin Engineers & Scientists at 1903-1905 N. Berkeley Blvd. in Goldsboro, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project U-3609B). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from December 4-5, 2019, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results:

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of nine EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface and reinforced concrete. EM and GPR showed evidence of several buried utilities at the site.

EM and GPR also showed evidence of a probable UST located off the southern corner of the vacant building at the site. Probable UST #1 is approximately 21 feet long by 7.5 feet wide. Collectively, the geophysical data recorded evidence of one probable metallic UST at the parcel.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Catlin Engineers & Scientists at 1903-1905 N. Berkeley Blvd. in Goldsboro, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project U-3609B). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from December 4-5, 2019, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included a vacant building and a used car dealership surrounded by concrete, grass, gravel, and asphalt surfaces. An aerial photograph showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. Pyramid collected the EM data using a Geonics EM61-MK2 (EM61) metal detector integrated with a Geode External GPS/GLONASS receiver. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at approximately 0.8-foot intervals along north-south trending or east-west trending, generally parallel survey lines, spaced five feet apart. The data were downloaded to a

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

GPR data were acquired across select EM anomalies on December 5, 2019, using a Geophysical Survey Systems, Inc. (GSSI) SIR 4000 controller coupled to a 350 MHz HS antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 6 feet, based on dielectric constants calculated by the DF unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the DF unit for post-processing and figure generation.

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

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

DISCUSSION OF RESULTS

Discussion of EM Results

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

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Signs/Utilities	
2	One Probable UST	✓
3	Drop Inlets	
4	Vehicles	✓
5	Utilities	
6	Utilities	
7	Manhole	
8	Water Meter	
9	Utilities	

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface, including signs, utilities, vehicles, a manhole, and a water meter. EM Anomaly 2 is a large, high-amplitude anomaly and was further investigated with GPR. GPR was also performed around the vehicles at the site to investigate whether the metallic interference caused by the vehicles obscured any significant structures such as USTs.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects performed at the property as well as select transect images. All of the transect images are included in **Appendix A**. A total of fifteen formal GPR transects were performed at the site.

GPR Transects 1-2 were performed across EM Anomaly 2. These transects recorded large, high-amplitude lateral and hyperbolic reflectors typical of a probable UST. Probable UST #1 is located off the southern corner of the vacant building and is approximately 21 feet long by 7.5 feet wide. **Figure 4** presents the location and size of the probable UST as well as ground-level photographs.

GPR Transects 3-15 were performed around the vehicles at the car dealership (EM Anomaly 4). These transects showed small, discreet hyperbolic reflectors consistent with

a utility or buried debris. No evidence of more significant structures such as USTs was observed.

Collectively, the geophysical data recorded evidence of one probable metallic UST at the parcel. **Figure 5** provides an overlay of the metal detection results and the probable UST on the NCDOT engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at 1903-1905 N. Berkeley Blvd. in Goldsboro, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface and reinforced concrete.
- EM and GPR showed evidence of several buried utilities at the site.
- EM and GPR also showed evidence of a probable UST located off the southern corner of the vacant building at the site. Probable UST #1 is approximately 21 feet long by 7.5 feet wide.
- Collectively, the geophysical data recorded evidence of one probable metallic UST at the parcel.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Catlin Engineers & Scientists in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR surveys are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project have not conclusively determined the definitive presence or absence of metallic USTs, but the evidence collected is sufficient to result in the conclusions made in this report. Additionally, it should be understood that areas containing

extensive vegetation, reinforced concrete, or other restrictions to the accessibility of the geophysical instruments could not be fully investigated.

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



View of Survey Area
(Facing Approximately North)



View of Survey Area
(Facing Approximately South)

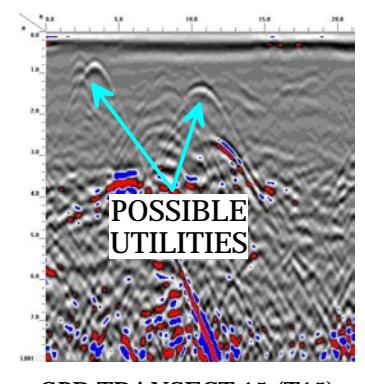
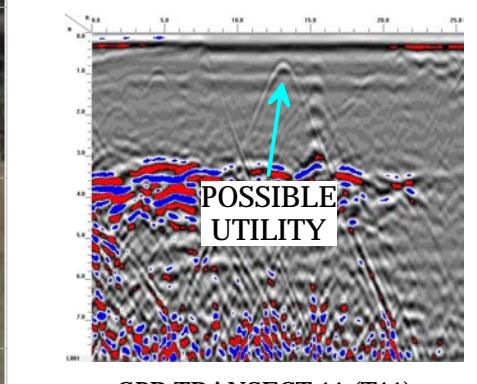
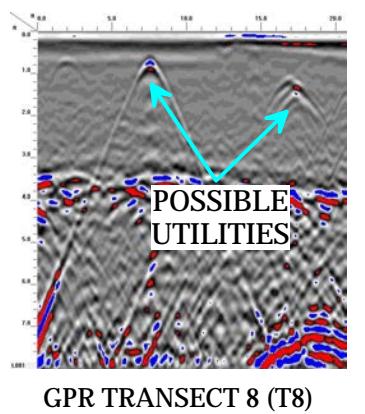
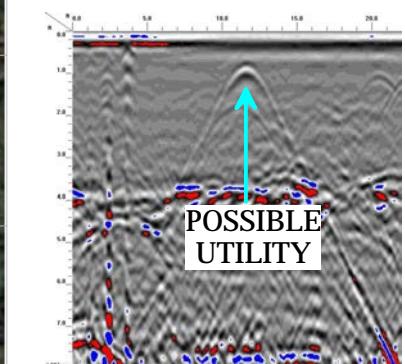
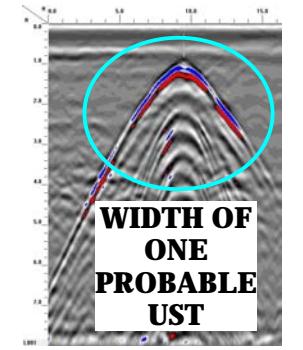
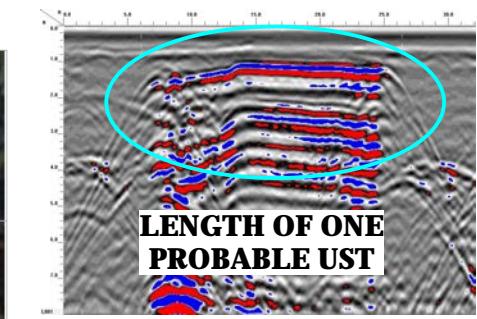
EM61 METAL DETECTION RESULTS



EVIDENCE OF ONE PROBABLE METALLIC UST WAS OBSERVED.

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM data were collected on December 4, 2019, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI SIR 4000 instrument with a 350 MHz HS antenna on December 5, 2019.

GPR TRANSECT LOCATIONS



LOCATIONS OF ONE PROBABLE UST

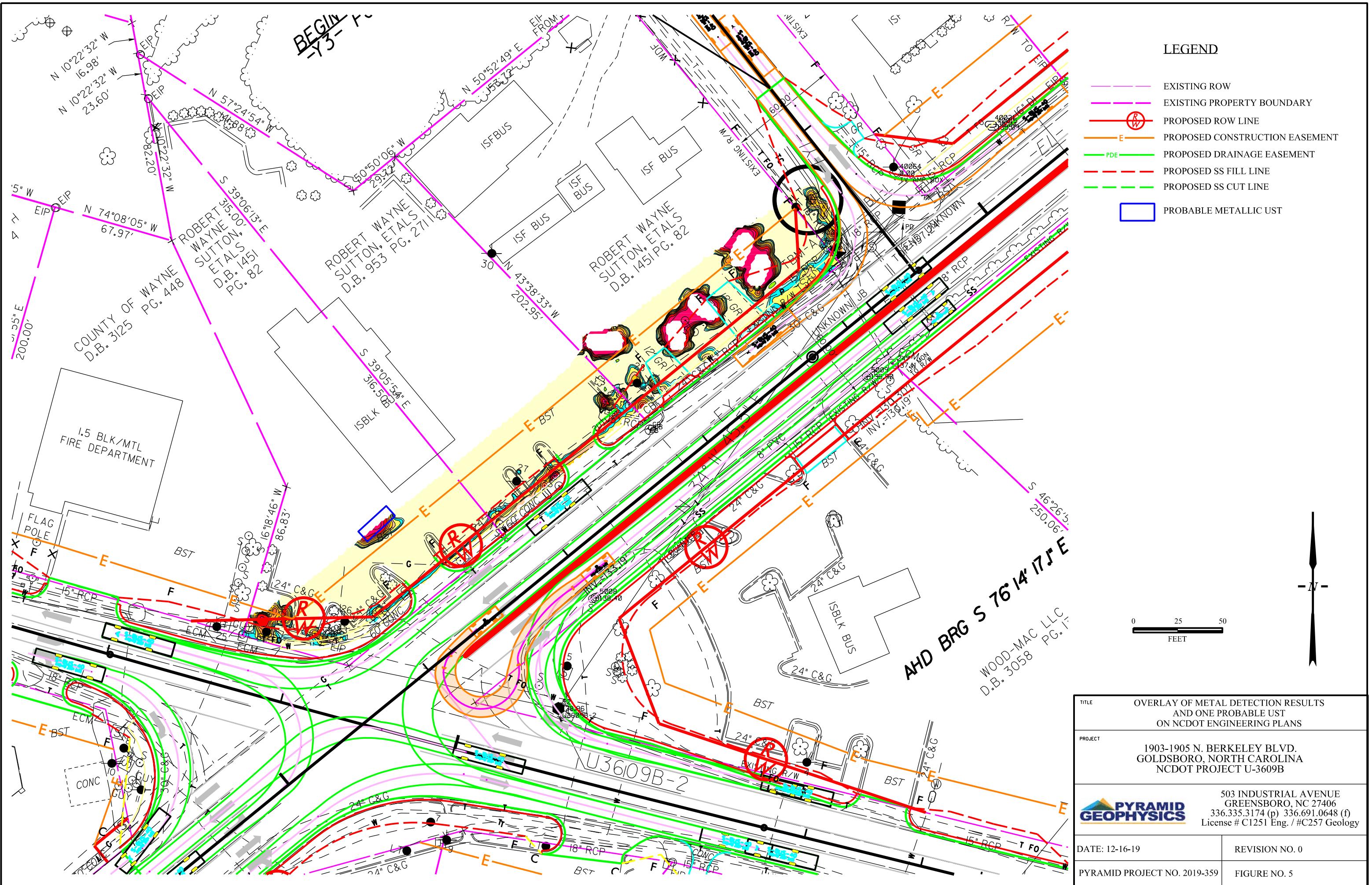


View of Probable UST #1
Facing Approximately North

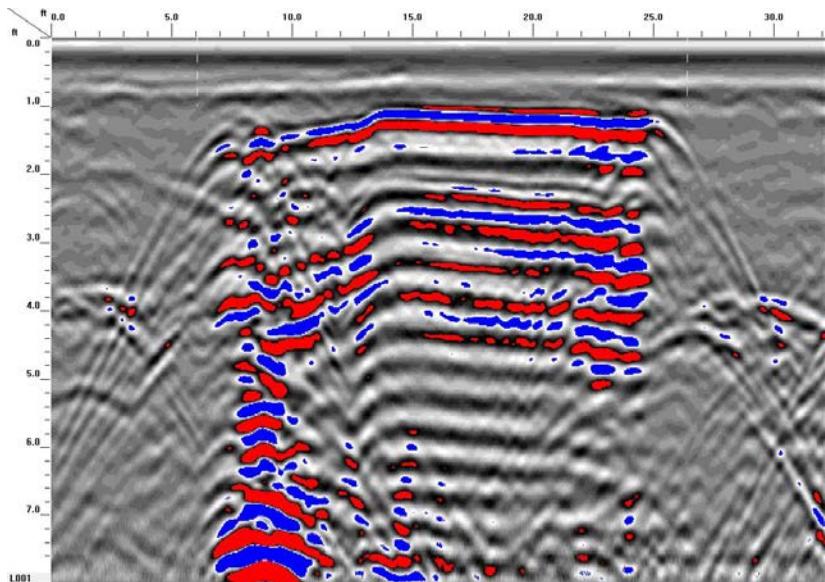


View of Probable UST #2
Facing Approximately West

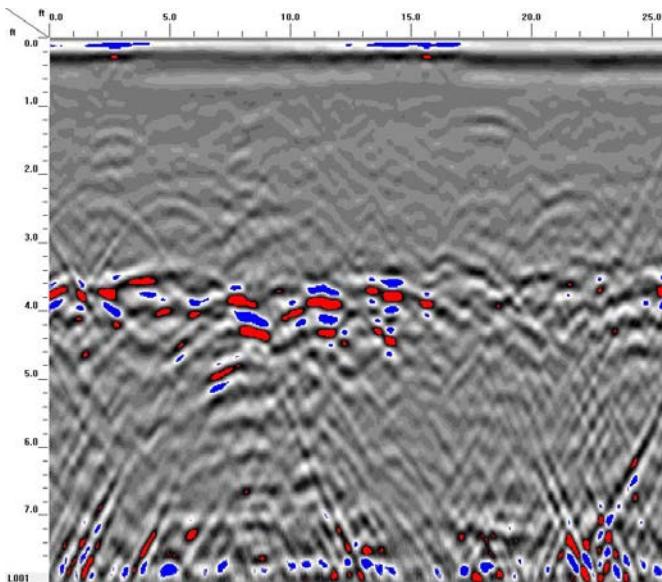




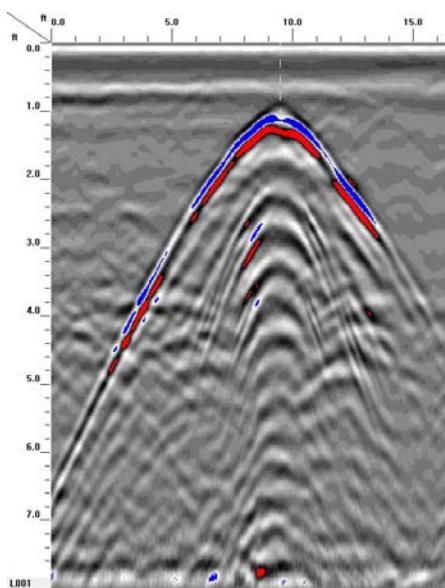
Appendix A – GPR Transect Images



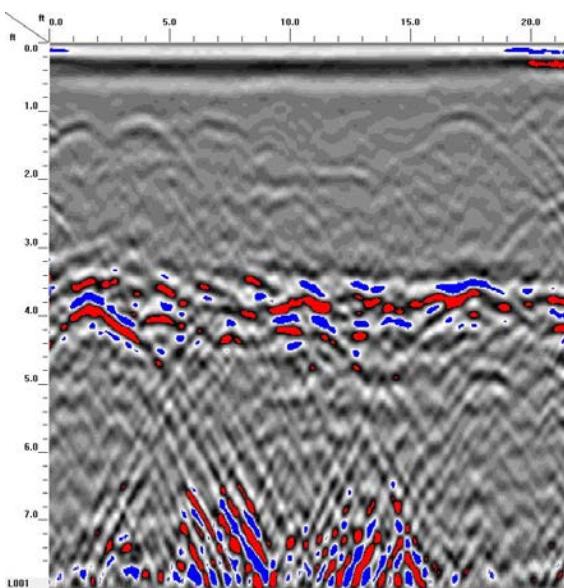
GPR TRANSECT 1



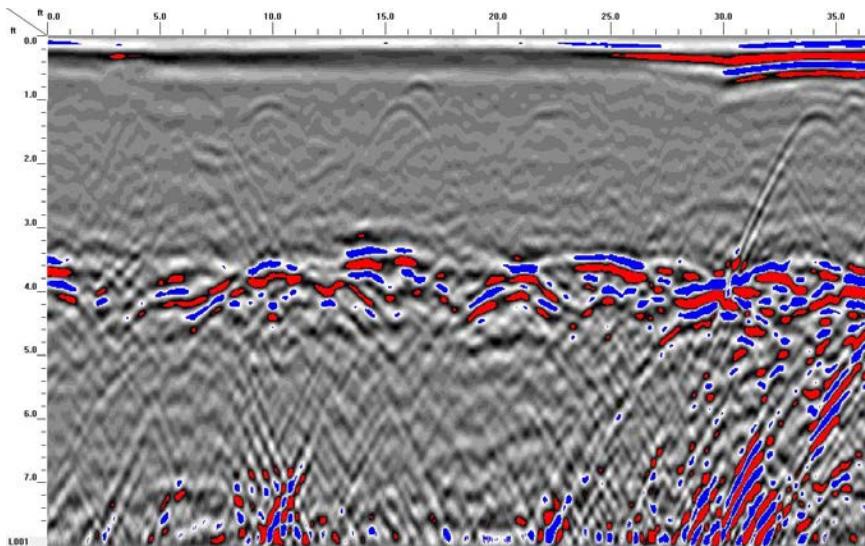
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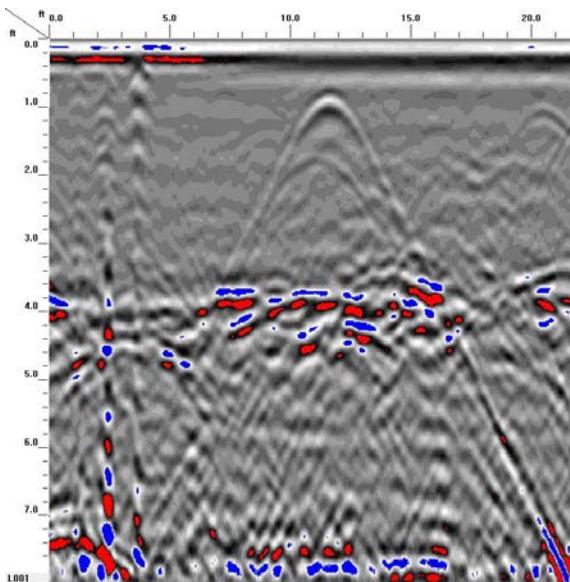
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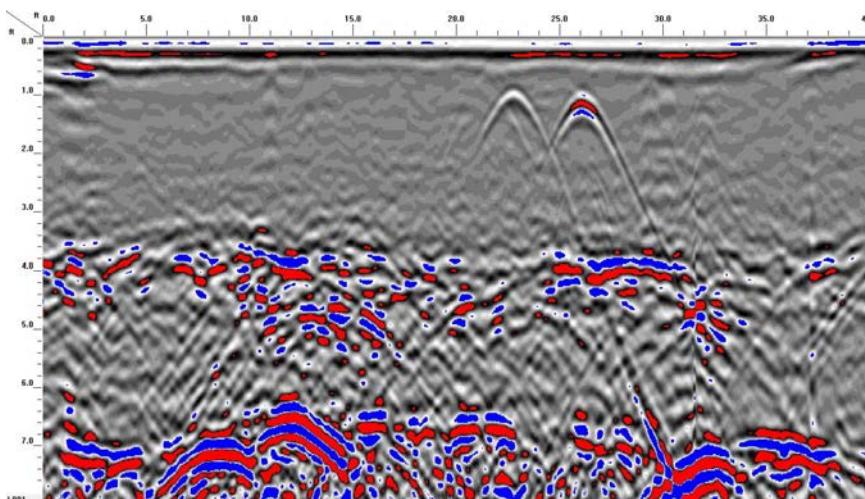
GPR TRANSECT 4



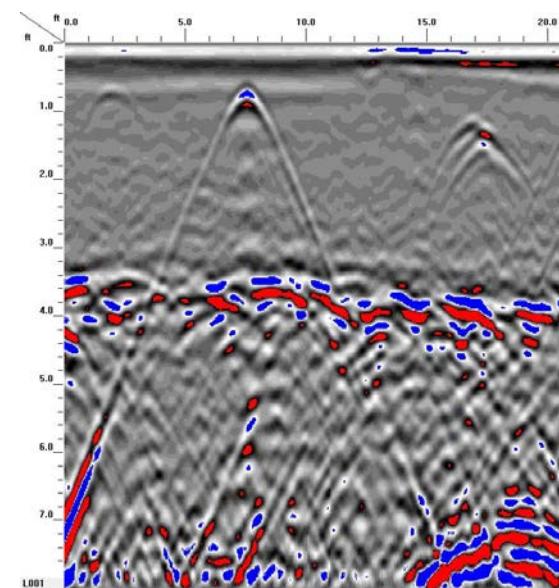
GPR TRANSECT 5



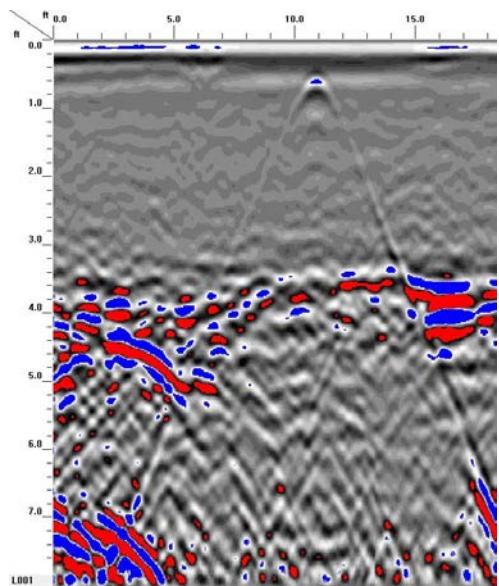
GPR TRANSECT 7



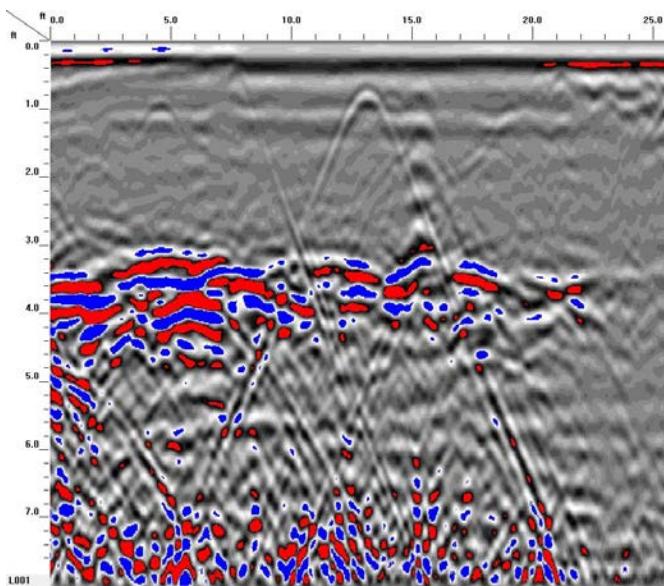
GPR TRANSECT 6



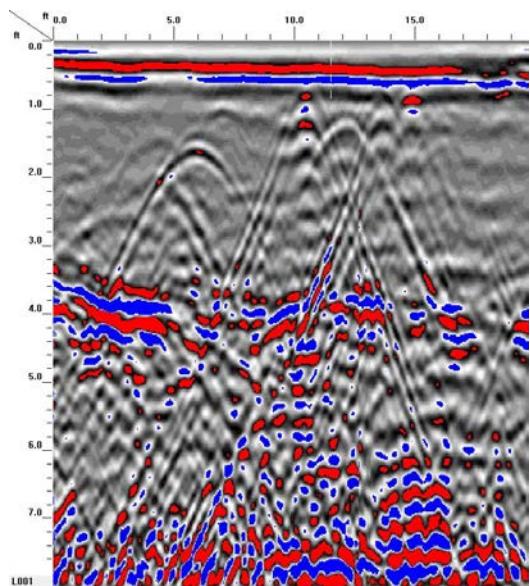
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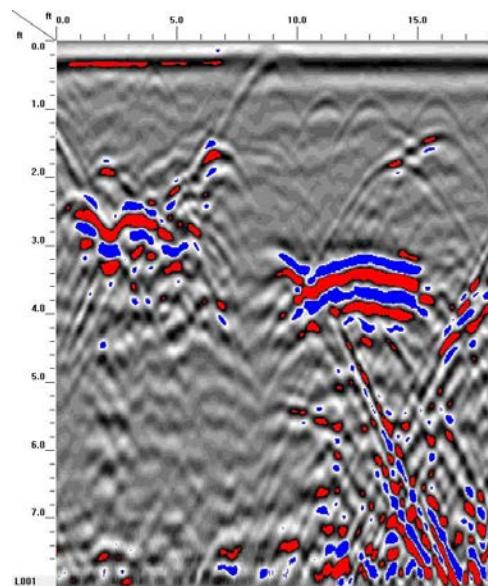
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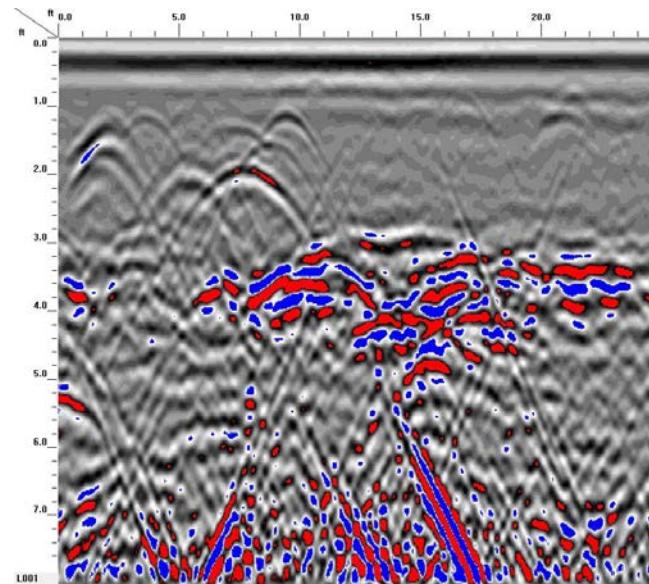
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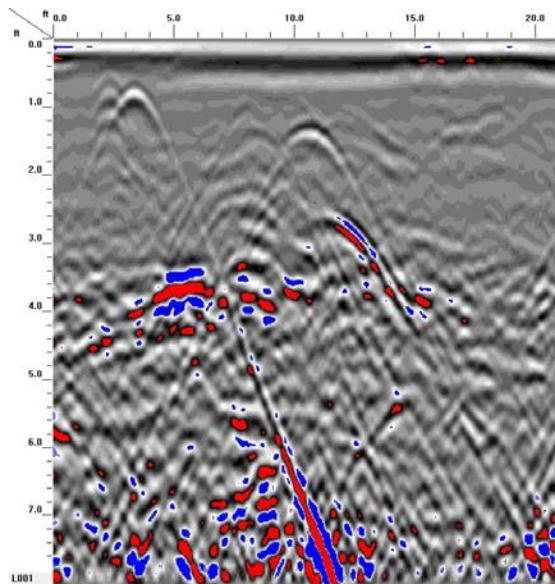
GPR TRANSECT 10



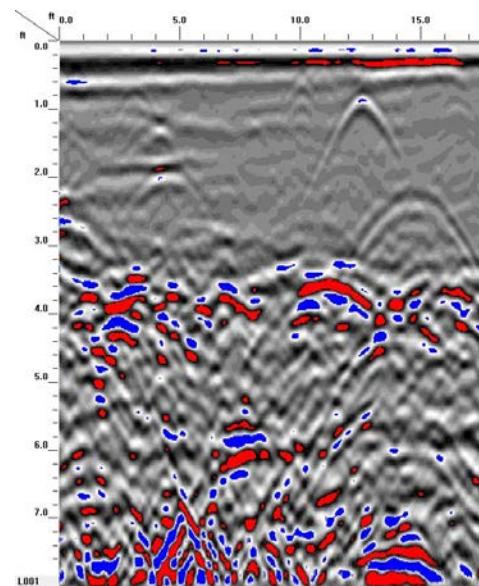
GPR TRANSECT 12



GPR TRANSECT 13



GPR TRANSECT 14



GPR TRANSECT 15

APPENDIX B

BORING LOGS, WELL CONSTRUCTION AND ABANDONMENT RECORDS

BORING LOG


 WBS #: 39026.1.2
 TIP #: U-3609B

219139

PROJECT NO.:	219139	STATE:	N.C.	COUNTY:	WAYNE	LOCATION:	GOLDSBORO
PROJECT NAME:	GOLDSBORO-US13 (BERKELEY BLVD) FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)			LOGGED BY:	Corey Futral	BORING ID:	
				DRILLER:	E. Swain		
NORTHING:	598,371	EASTING:	2,322,015	CREW:	CATLIN		
SYSTEM:	NCSP NAD 83 (ft)	BORING LOCATION:	1903 N. Berkeley Blvd.			LAND ELEV.:	NM
DRILL MACHINE:	GeoProbe	METHOD:	DPT		0 HOUR DTW:	N/A	BORING DEPTH: 8.0
START DATE:	12/10/19	FINISH DATE:	12/10/19		24 HOUR DTW:	N/A	WATER DEPTH: --
DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	SCREENING RESULTS (ppm)	LAB. ID.	U S C S	L O G	SOIL AND ROCK DESCRIPTION ELEVATION
0.0			0 250 500 750 1,000				0.0 LAND SURFACE
2.0	Direct Push	D	▲2.0		SM		Brown to tan, Silty F. SAND
4.0	Direct Push	D	▲2.9		SP	3.5	Tan with orange mottling, F. SAND
6.0	Direct Push	D	▲3.4	1903 DPT-01 (5')	CH	4.5	Tan with orange and red mottling, Sandy highly plastic CLAY
8.0	Direct Push	M	▲2.0			8.0	BORING TERMINATED AT DEPTH 8.0 ft in Sandy highly plastic CLAY

BORING LOG


 WBS #: 39026.1.2
 TIP #: U-3609B

219139

PROJECT NO.:	219139	STATE:	N.C.	COUNTY:	WAYNE	LOCATION:	GOLDSBORO
PROJECT NAME:	GOLDSBORO-US13 (BERKELEY BLVD) FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)			LOGGED BY:	Corey Futral	BORING ID:	
NORTHING:	598,412	EASTING:	2,322,046	DRILLER:	E. Swain		
SYSTEM:	NCSP NAD 83 (ft)	BORING LOCATION:	1903 N. Berkeley Blvd.			LAND ELEV.:	NM
DRILL MACHINE:	GeoProbe	METHOD:	DPT			0 HOUR DTW:	N/A
START DATE:	12/10/19	FINISH DATE:	12/10/19			24 HOUR DTW:	N/A
DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	SCREENING RESULTS (ppm)	LAB. ID.	U S C S L O G	DEPTH	SOIL AND ROCK DESCRIPTION ELEVATION
0.0			0 250 500 750 1,000			0.0	LAND SURFACE
2.0	Direct Push	D	▲1.2				
4.0	Direct Push	D	▲1.5				
6.0	Direct Push	M	▲1.9		Soil 1903 DPT-02 (6')		Brown to tan grading to tan with orange mottling from 2.0-5.0' BLS and gray from 5.0-12.0' BLS, F. SAND
8.0	Direct Push	W	▲1.4				
10.0	Direct Push	Sat.	▲1.3				
12.0	Direct Push	Sat.	▲0.6		Water 1903 DPT-02	12.0	BORING TERMINATED AT DEPTH 12.0 ft in F. SAND with silt throughout 1"PVC Well set to 12.0' BLS Sampled and Abandoned

BORING LOG


 WBS #: 39026.1.2
 TIP #: U-3609B

219139

PROJECT NO.:	219139	STATE:	N.C.	COUNTY:	WAYNE	LOCATION:	GOLDSBORO
PROJECT NAME:	GOLDSBORO-US13 (BERKELEY BLVD) FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)			LOGGED BY:	Corey Futral	BORING ID:	
				DRILLER:	E. Swain		
NORTHING:	598,428	EASTING:	2,322,103	CREW:	CATLIN		
SYSTEM:	NCSP NAD 83 (ft)	BORING LOCATION:	1903 N. Berkeley Blvd.			LAND ELEV.:	NM
DRILL MACHINE:	GeoProbe	METHOD:	DPT		0 HOUR DTW:	N/A	BORING DEPTH: 8.0
START DATE:	12/10/19	FINISH DATE:	12/10/19		24 HOUR DTW:	N/A	WATER DEPTH: --
DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	SCREENING RESULTS (ppm)	LAB. ID.	U S C S	L O G	SOIL AND ROCK DESCRIPTION ELEVATION
0.0			0 250 500 750 1,000				0.0 LAND SURFACE
2.0	Direct Push	D	▲1.0				
4.0	Direct Push	D	▲1.5		SP		Black grading to gray, F. SAND
6.0	Direct Push	D	▲1.7	1903 DPT-03 (5')			
8.0	Direct Push	W	▲1.8				8.0 BORING TERMINATED AT DEPTH 8.0 ft in F. SAND

BORING LOG


 WBS #: 39026.1.2
 TIP #: U-3609B

219139

PROJECT NO.:	219139	STATE:	N.C.	COUNTY:	WAYNE	LOCATION:	GOLDSBORO
PROJECT NAME:	GOLDSBORO-US13 (BERKELEY BLVD) FROM SR 1003 (NEW HOPE RD) TO SR 1572 (SAULSTON RD)			LOGGED BY:	Corey Futral	BORING ID:	
				DRILLER:	E. Swain		
NORTHING:	598,457	EASTING:	2,322,105	CREW:	CATLIN		
SYSTEM:	NCSP NAD 83 (ft)	BORING LOCATION:	1903 N. Berkeley Blvd.			LAND ELEV.:	NM
DRILL MACHINE:	GeoProbe	METHOD:	DPT		0 HOUR DTW:	N/A	BORING DEPTH: 8.0
START DATE:	12/10/19	FINISH DATE:	12/10/19		24 HOUR DTW:	N/A	WATER DEPTH: --
DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	SCREENING RESULTS (ppm)	LAB. ID.	U S C S	L O G	SOIL AND ROCK DESCRIPTION ELEVATION
0.0			0 250 500 750 1,000				0.0 LAND SURFACE
2.0	Direct Push	D	▲0.3				Black grading to gray at 2.0' BLS, F. SAND
4.0	Direct Push	M	▲0.5		SP		4.0
6.0	Direct Push	W	▲0.8	1903 DPT-04 (5')	SM		Lt. gray, Silty F. SAND
8.0	Direct Push	W	▲0.7		SP		Lt. gray, F. SAND
					CH		Lt. gray, Sandy highly plastic CLAY
							BORING TERMINATED AT DEPTH 8.0 ft in Sandy highly plastic CLAY

WELL CONSTRUCTION RECORD (GW-1)

1. Well Contractor Information:

Corey Futral

Well Contractor Name

4330-B

NC Well Contractor Certification Number

CATLIN Engineers and Scientists

Company Name

2. Well Construction Permit #:

List all applicable well construction permits (i.e. UIC, County, State, Variance, etc.)

3. Well Use (check well use):

Water Supply Well:

<input type="checkbox"/> Agricultural	<input type="checkbox"/> Municipal/Public
<input type="checkbox"/> Geothermal (Heating/Cooling Supply)	<input type="checkbox"/> Residential Water Supply (single)
<input type="checkbox"/> Industrial/Commercial	<input type="checkbox"/> Residential Water Supply (shared)
<input type="checkbox"/> Irrigation	

Non-Water Supply Well:

<input checked="" type="checkbox"/> Monitoring	<input type="checkbox"/> Recovery
--	-----------------------------------

Injection Well:

<input type="checkbox"/> Aquifer Recharge	<input type="checkbox"/> Groundwater Remediation
<input type="checkbox"/> Aquifer Storage and Recovery	<input type="checkbox"/> Salinity Barrier
<input type="checkbox"/> Aquifer Test	<input type="checkbox"/> Stormwater Drainage
<input type="checkbox"/> Experimental Technology	<input type="checkbox"/> Subsidence Control
<input type="checkbox"/> Geothermal (Closed Loop)	<input type="checkbox"/> Tracer
<input type="checkbox"/> Geothermal (Heating/Cooling Return)	<input type="checkbox"/> Other (explain under #21 Remarks)

4. Date Well(s) Completed: 12/10/19 Well ID# 1903DPT-02

5a. Well Location:

NCDOT

Facility/Owner Name

Facility ID# (if applicable)

1903 N. Berkeley Blvd., Goldsboro. NC 27534

Physical Address, City, and Zip

Wayne

County

Parcel Identification No. (PIN)

5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees:

(if well field, one lat/long is sufficient)

35.389542 N -77.919673 W6. Is(are) the well(s): Permanent or Temporary7. Is this a repair to an existing well: Yes or No

If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. For Geoprobe/DPT or Closed-Loop Geothermal Wells having the same construction, only 1 GW-1 is needed. Indicate TOTAL NUMBER of wells drilled: 19. Total well depth below land surface: 12.0 (ft.)
For multiple wells list all depths if different (example- 3@200' and 2@100')10. Static water level below top of casing: ~8.0 (ft.)
If water level is above casing, use "+"11. Borehole diameter: 2 (in.)12. Well construction method: Direct Push
(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ Method of test: _____

13b. Disinfection type: _____ Amount: _____

For Internal Use Only:

14. WATER ZONES					
FROM	TO	DESCRIPTION			
ft.	ft.				
ft.	ft.				

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)				
FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		

16. INNER CASING OR TUBING (geothermal closed-loop)				
FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		
ft.	ft.	in.		

17. SCREEN					
FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
0 ft.	12 ft.	1 in.	0.010	Sch 40	PVC
ft.	ft.	in.			

18. GROUT				EMPLACEMENT METHOD & AMOUNT	
FROM	TO	MATERIAL			
ft.	ft.				
ft.	ft.				
ft.	ft.				

19. SAND/GRAVEL PACK (if applicable)			
FROM	TO	MATERIAL	EMPLACEMENT METHOD
ft.	ft.		
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)					
FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)			
ft.	ft.				
ft.	ft.				
ft.	ft.				
ft.	ft.				
ft.	ft.				
ft.	ft.				

21. REMARKS					

22. Certification:

1/24/20

Signature of Certified Well Contractor

Date

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTRUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells: In addition to sending the form to the address in 24a above, also submit one copy of this form within 30 days of completion of well construction to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells: In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

WELL ABANDONMENT RECORD

1. Well Contractor Information:

Corey Futral

Well Contractor Name (or well owner personally abandoning well on his/her property)

4330-B

NC Well Contractor Certification Number

CATLIN Engineers and Scientists

Company Name

2. Well Construction Permit #:

List all applicable well construction permits (i.e. UIC, County, State, Variance, etc.) if known

3. Well use (check well use):

Water Supply Well:

<input type="checkbox"/> Agricultural	<input type="checkbox"/> Municipal/Public
<input type="checkbox"/> Geothermal (Heating/Cooling Supply)	<input type="checkbox"/> Residential Water Supply (single)
<input type="checkbox"/> Industrial/Commercial	<input type="checkbox"/> Residential Water Supply (shared)
<input type="checkbox"/> Irrigation	

Non-Water Supply Well:

<input checked="" type="checkbox"/> Monitoring	<input type="checkbox"/> Recovery
--	-----------------------------------

Injection Well:

<input type="checkbox"/> Aquifer Recharge	<input type="checkbox"/> Groundwater Remediation
<input type="checkbox"/> Aquifer Storage and Recovery	<input type="checkbox"/> Salinity Barrier
<input type="checkbox"/> Aquifer Test	<input type="checkbox"/> Stormwater Drainage
<input type="checkbox"/> Experimental Technology	<input type="checkbox"/> Subsidence Control
<input type="checkbox"/> Geothermal (Closed Loop)	<input type="checkbox"/> Tracer
<input type="checkbox"/> Geothermal (Heating/Cooling Return)	<input type="checkbox"/> Other (explain under 7g)

4. Date well(s) abandoned: 12/10/19

5a. Well location:

NCDOT

Facility/Owner Name 1903 N. Berkeley Blvd., Goldsboro, NC 27534 Facility ID# (if applicable)

Physical Address, City, and Zip

Wayne

County Wayne Parcel Identification No. (PIN)

5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

35.389542 N -77.919673 W

CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED

Attach well construction record(s) if available. For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

6a. Well ID#: 1903DPT-02

6b. Total well depth: 12.0 (ft.)

6c. Borehole diameter: 2 (in.)

6d. Water level below ground surface: -8.0 (ft.)

6e. Outer casing length (if known): _____ (ft.)

6f. Inner casing/tubing length (if known): _____ (ft.)

6g. Screen length (if known): 12.0 (ft.)

For Internal Use ONLY:

WELL ABANDONMENT DETAILS

7a. For Geoprobe/DPT or Closed-Loop Geothermal Wells having the same well construction/depth, only 1 GW-30 is needed. Indicate TOTAL NUMBER of wells abandoned: 1

7b. Approximate volume of water remaining in well(s): _____ (gal.)

FOR WATER SUPPLY WELLS ONLY:

7c. Type of disinfectant used: _____

7d. Amount of disinfectant used: _____

7e. Sealing materials used (check all that apply):

<input type="checkbox"/> Neat Cement Grout	<input checked="" type="checkbox"/> Bentonite Chips or Pellets
<input type="checkbox"/> Sand Cement Grout	<input type="checkbox"/> Dry Clay
<input type="checkbox"/> Concrete Grout	<input type="checkbox"/> Drill Cuttings
<input type="checkbox"/> Specialty Grout	<input type="checkbox"/> Gravel
<input type="checkbox"/> Bentonite Slurry	<input type="checkbox"/> Other (explain under 7g)

7f. For each material selected above, provide amount of materials used:

Bentonite Pellets -19 lbs.

7g. Provide a brief description of the abandonment procedure:

All well material pulled, surface poured bentonite pellets and hydrated.

8. Certification:

1/24/20

Signature of Certified Well Contractor or Well Owner

Date

By signing this form, I hereby certify that the well(s) was (were) abandoned in accordance with 15A NCAC 02C .0100 or 2C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

9. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well abandonment details. You may also attach additional pages if necessary.

SUBMITTAL INSTRUCTIONS

10a. **For All Wells:** Submit this form within 30 days of completion of well abandonment to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

10b. **For Injection Wells:** In addition to sending the form to the address in 10a above, also submit one copy of this form within 30 days of completion of well abandonment to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

10c. **For Water Supply & Injection Wells:** In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well abandonment to the county health department of the county where abandoned.

APPENDIX C

LABORATORY REPORTS AND CHAIN OF CUSTODY RECORDS



Hydrocarbon Analysis Results

Client: CATLIN
Address: WILMINGTON NC

Samples taken Tuesday, December 10, 2019
Samples extracted Tuesday, December 10, 2019
Samples analysed Tuesday, December 17, 2019

Contact: BEN ASHBA

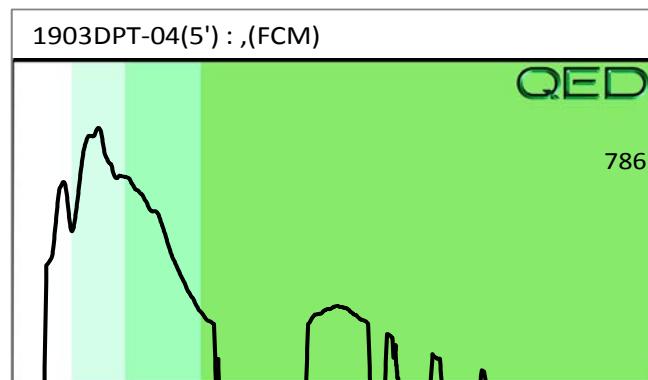
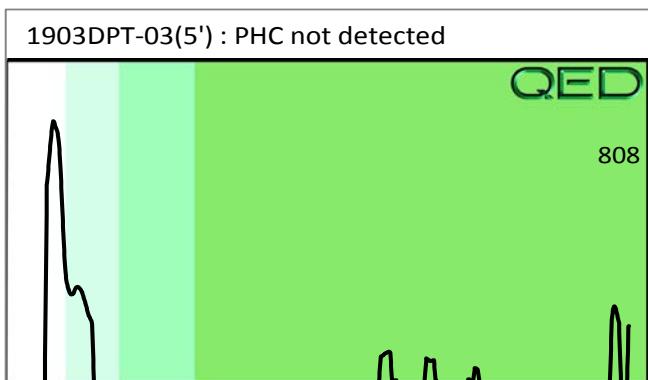
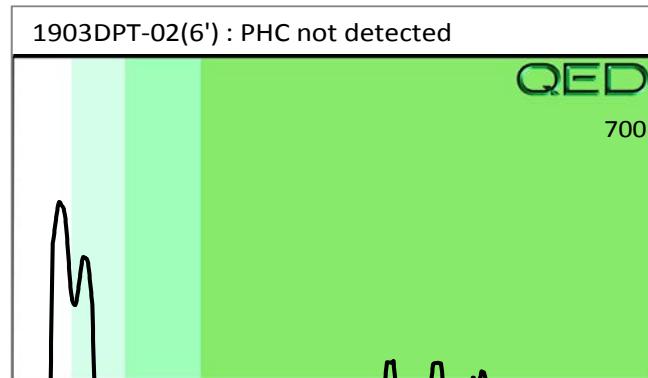
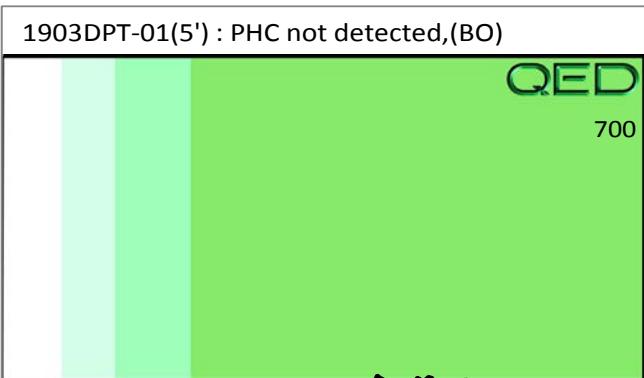
Operator CAROLINE STEVENS

Project: 219139 (1903)

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

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

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



Client Name:	C'ARIN P.O. # 191216-03								
Address:	220 OLD DAWNA RD WILMINGTON, NC 28405								
Contact:	BEN ASHTON 2191394 (1903)								
Project Ref.:									
Email:	ben.ashton@california.com								
Phone #:	(404) 452-5961								
Collected by:	Corey Furtal								
CHAIN OF CUSTODY AND ANALYTICAL REQUEST FORM									
Sample Collection	TAT Requested	Analysis Type	Sample ID		Total Wt.	Tare Wt.	Sample Wt.		
Date/Time	24 Hour	48 Hour	UVF	GC	Initials				
12/10/19 2:15PM			✓	✓	CSF	1903 DPT-01 (5')	56.5	44.2	12.3
12/10/19 2:15PM			✓	✓	CDF	1903 DPT-02 (6')	55.5	44.3	11.2
12/10/19 2:15PM			✓	✓	CDF	1903 DPT-03 (5')	56.7	44.3	12.4
12/10/19 2:16PM			✓	✓	CDF	1903 DPT-04 (5')	59.9	45.0	12.9
TARGET GC/UVF ANALYTES:							RED Lab USE ONLY		
Relinquished by	Accepted by		Date/Time		Ref. No B148				
	ces		12/16/19 16:30						
Relinquished by	Accepted by		Date/Time						

RED LAB
RAPID ENVIRONMENTAL DIAGNOSTICS

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

Each UVF sample will be analyzed for total BTEX, GRO, DRO, TPH, PAH total aromatics and Bar. Standard GC Analyses are for BTEX and Chlorinated Solvents: VC, 1,1 DCE, 1,2 cis DCE, 1,2 trans DCE, TCE, and PCE. Specify target analytes in the space provided below.



ENCO Laboratories

Accurate. Timely. Responsive. Innovative.

102-A Woodwinds Industrial Court

Cary NC, 27511

Phone: 919.467.3090 FAX: 919.467.3515

Monday, January 6, 2020

Catlin Engineers & Scientists (CA038)

Attn: Ben Ashba

220 Old Dairy Road

Wilmington, NC 28405

RE: Laboratory Results for

Project Number: [none], Project Name/Desc: NCDOT Goldsboro

ENCO Workorder(s): CC20427

Dear Ben Ashba,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Tuesday, December 17, 2019.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative if applicable. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Cary. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "Chuck Smith".

Chuck Smith

Project Manager

Enclosure(s)

PROJECT NARRATIVE

Client: Catlin Engineers & Scientists (CA038)
Project: NCDOT Goldsboro
Lab ID: CC20427

Overview

Environmental Conservation Laboratories, Inc. (ENCO) analyzed all submitted samples in accordance with the methods referenced in the laboratory report. Any particular difficulties encountered during sample handling by ENCO are discussed in the QC Remarks section below.

Quality Control Samples

No Comments

Quality Control Remarks

Due to failing QC, the original inhold extraction of method 625.1 was re-extracted outside of the hold time. Both sets of data have been reported.

Other Comments

The analytical data presented in this report are consistent with the methods as referenced in the analytical report. Any exceptions or deviations are noted in the QC remarks section of this narrative or in the Flags/Notes and Definitions section of the report.

Released By:
Environmental Conservation Laboratories, Inc.

Chuck Smith
Project Manager

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: 1903DPT-02		Lab ID: CC20427-04	Sampled: 12/10/19 15:30	Received: 12/17/19 11:00
Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 625.1	EPA 3510C_MS	12/17/19	01/26/20	12/17/19 07:53
SM 6200B-2011	Same	12/24/19		12/18/19 10:21
Client ID: 1903DPT-02		Lab ID: CC20427-04RE1	Sampled: 12/10/19 15:30	Received: 12/17/19 11:00
Parameter	Preparation	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 625.1	EPA 3510C_MS	12/17/19	02/05/20	12/27/19 08:32

SAMPLE DETECTION SUMMARY

No positive results detected.

ANALYTICAL RESULTS

Description: 1903DPT-02

Lab Sample ID: CC20427-04

Received: 12/17/19 11:00

Matrix: Ground Water

Sampled: 12/10/19 15:30

Work Order: CC20427

Project: NCDOT Goldsboro

Sampled By: Corey Futral

Volatile Organic Compounds by GCMS

^ - ENCLABS Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	POL	Batch	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6]^	0.091	U	ug/L	1	0.091	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,1,1-Trichloroethane [71-55-6]^	0.15	U	ug/L	1	0.15	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,1,2,2-Tetrachloroethane [79-34-5]^	0.085	U	ug/L	1	0.085	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,1,2-Trichloroethane [79-00-5]^	0.068	U	ug/L	1	0.068	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,1-Dichloroethane [75-34-3]^	0.050	U	ug/L	1	0.050	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,1-Dichloroethene [75-35-4]^	0.15	U	ug/L	1	0.15	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,1-Dichloropropene [563-58-6]^	0.063	U	ug/L	1	0.063	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,2,3-Trichlorobenzene [87-61-6]^	0.25	U	ug/L	1	0.25	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,2,3-Trichloropropane [96-18-4]^	0.15	U	ug/L	1	0.15	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,2,4-Trichlorobenzene [120-82-1]^	0.097	U	ug/L	1	0.097	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,2,4-Trimethylbenzene [95-63-6]^	0.067	U	ug/L	1	0.067	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,2-Dibromo-3-chloropropane [96-12-8]^	0.48	U	ug/L	1	0.48	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,2-Dibromoethane [106-93-4]^	0.42	U	ug/L	1	0.42	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,2-Dichlorobenzene [95-50-1]^	0.052	U	ug/L	1	0.052	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,2-Dichloroethane [107-06-2]^	0.082	U	ug/L	1	0.082	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,2-Dichloropropane [78-87-5]^	0.098	U	ug/L	1	0.098	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,3,5-Trimethylbenzene [108-67-8]^	0.10	U	ug/L	1	0.10	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,3-Dichlorobenzene [541-73-1]^	0.092	U	ug/L	1	0.092	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,3-Dichloropropane [142-28-9]^	0.15	U	ug/L	1	0.15	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
1,4-Dichlorobenzene [106-46-7]^	0.10	U	ug/L	1	0.10	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
2,2-Dichloropropane [594-20-7]^	0.12	U	ug/L	1	0.12	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
2-Chlorotoluene [95-49-8]^	0.10	U	ug/L	1	0.10	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
4-Chlorotoluene [106-43-4]^	0.10	U	ug/L	1	0.10	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
4-Isopropyltoluene [99-87-6]^	0.066	U	ug/L	1	0.066	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Benzene [71-43-2]^	0.050	U	ug/L	1	0.050	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Bromobenzene [108-86-1]^	0.13	U	ug/L	1	0.13	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Bromochloromethane [74-97-5]^	0.11	U	ug/L	1	0.11	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Bromodichloromethane [75-27-4]^	0.10	U	ug/L	1	0.10	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Bromoform [75-25-2]^	0.20	U	ug/L	1	0.20	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Bromomethane [74-83-9]^	0.28	U	ug/L	1	0.28	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Carbon Tetrachloride [56-23-5]^	0.082	U	ug/L	1	0.082	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Chlorobenzene [108-90-7]^	0.069	U	ug/L	1	0.069	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Chloroethane [75-00-3]^	0.18	U	ug/L	1	0.18	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Chloroform [67-66-3]^	0.083	U	ug/L	1	0.083	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Chloromethane [74-87-3]^	0.050	U	ug/L	1	0.050	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
cis-1,2-Dichloroethene [156-59-2]^	0.075	U	ug/L	1	0.075	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
cis-1,3-Dichloropropene [10061-01-5]^	0.073	U	ug/L	1	0.073	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Dibromochloromethane [124-48-1]^	0.067	U	ug/L	1	0.067	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Dibromomethane [74-95-3]^	0.13	U	ug/L	1	0.13	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Dichlorodifluoromethane [75-71-8]^	0.091	U	ug/L	1	0.091	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Ethylbenzene [100-41-4]^	0.10	U	ug/L	1	0.10	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Freon 113 [76-13-1]^	0.35	U	ug/L	1	0.35	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Hexachlorobutadiene [87-68-3]^	0.15	U	ug/L	1	0.15	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Isopropyl Ether [108-20-3]^	0.21	U	ug/L	1	0.21	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Isopropylbenzene [98-82-8]^	0.13	U	ug/L	1	0.13	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
m,p-Xylenes [108-38-3/106-42-3]^	0.18	U	ug/L	1	0.18	2.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Methylene Chloride [75-09-2]^	0.070	U	ug/L	1	0.070	2.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	

ANALYTICAL RESULTS

Description: 1903DPT-02

Lab Sample ID: CC20427-04

Received: 12/17/19 11:00

Matrix: Ground Water

Sampled: 12/10/19 15:30

Work Order: CC20427

Project: NCDOT Goldsboro

Sampled By: Corey Futral

Volatile Organic Compounds by GCMS

^ - ENCLABS Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Methyl-tert-Butyl Ether [1634-04-4]^	0.12	U	ug/L	1	0.12	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Naphthalene [91-20-3]^	0.086	U	ug/L	1	0.086	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
n-Butyl Benzene [104-51-8]^	0.074	U	ug/L	1	0.074	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
n-Propyl Benzene [103-65-1]^	0.073	U	ug/L	1	0.073	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
o-Xylene [95-47-6]^	0.088	U	ug/L	1	0.088	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
sec-Butylbenzene [135-98-8]^	0.053	U	ug/L	1	0.053	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Styrene [100-42-5]^	0.082	U	ug/L	1	0.082	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
tert-Butylbenzene [98-06-6]^	0.094	U	ug/L	1	0.094	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Tetrachloroethene [127-18-4]^	0.099	U	ug/L	1	0.099	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Toluene [108-88-3]^	0.053	U	ug/L	1	0.053	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
trans-1,2-Dichloroethene [156-60-5]^	0.11	U	ug/L	1	0.11	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
trans-1,3-Dichloropropene [10061-02-6]^	0.080	U	ug/L	1	0.080	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Trichloroethene [79-01-6]^	0.13	U	ug/L	1	0.13	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Trichlorofluoromethane [75-69-4]^	0.15	U	ug/L	1	0.15	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Vinyl chloride [75-01-4]^	0.083	U	ug/L	1	0.083	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Xylenes (Total) [1330-20-7]^	0.22	U	ug/L	1	0.22	1.0	9L18018	SM 6200B-2011	12/18/19 19:36	REF	
Surrogates	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes	
4-Bromofluorobenzene	45	1	50.0	89 %	70-130	9L18018	SM 6200B-2011	12/18/19 19:36	REF		
Dibromofluoromethane	38	1	50.0	77 %	70-130	9L18018	SM 6200B-2011	12/18/19 19:36	REF		
Toluene-d8	41	1	50.0	83 %	70-130	9L18018	SM 6200B-2011	12/18/19 19:36	REF		

Semivolatile Organic Compounds by GCMS

^ - ENCLABS Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
1,2,4-Trichlorobenzene [120-82-1]^	3.3	U	ug/L	1	3.3	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
1,2,4-Trichlorobenzene [120-82-1]^	3.3	U	ug/L	1	3.3	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
1,2-Dichlorobenzene [95-50-1]	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
1,2-Dichlorobenzene [95-50-1]	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
1,3-Dichlorobenzene [541-73-1]	3.4	U	ug/L	1	3.4	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
1,3-Dichlorobenzene [541-73-1]	3.4	U	ug/L	1	3.4	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
1,4-Dichlorobenzene [106-46-7]	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
1,4-Dichlorobenzene [106-46-7]	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
2,4,6-Trichlorophenol [88-06-2]^	6.4	U	ug/L	1	6.4	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
2,4,6-Trichlorophenol [88-06-2]^	6.4	U	ug/L	1	6.4	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
2,4-Dichlorophenol [120-83-2]^	6.5	U	ug/L	1	6.5	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
2,4-Dichlorophenol [120-83-2]^	6.5	U	ug/L	1	6.5	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
2,4-Dimethylphenol [105-67-9]^	6.4	U	ug/L	1	6.4	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
2,4-Dimethylphenol [105-67-9]^	6.4	U	ug/L	1	6.4	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
2,4-Dinitrophenol [51-28-5]^	7.7	U	ug/L	1	7.7	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
2,4-Dinitrophenol [51-28-5]^	7.7	U	ug/L	1	7.7	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
2,4-Dinitrotoluene [121-14-2]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
2,4-Dinitrotoluene [121-14-2]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
2,6-Dinitrotoluene [606-20-2]^	2.9	U	ug/L	1	2.9	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
2,6-Dinitrotoluene [606-20-2]^	2.9	U	ug/L	1	2.9	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
2-Chloronaphthalene [91-58-7]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
2-Chloronaphthalene [91-58-7]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
2-Chlorophenol [95-57-8]^	7.4	U	ug/L	1	7.4	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	

ANALYTICAL RESULTS

Description: 1903DPT-02

Lab Sample ID: CC20427-04

Received: 12/17/19 11:00

Matrix: Ground Water

Sampled: 12/10/19 15:30

Work Order: CC20427

Project: NCDOT Goldsboro

Sampled By: Corey Futral

Semivolatile Organic Compounds by GCMS

^ - ENCLABS certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	POL	Batch	Method	Analyzed	By	Notes
2-Chlorophenol [95-57-8]^	7.4	U	ug/L	1	7.4	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
2-Methyl-4,6-dinitrophenol [534-52-1]^	6.0	U	ug/L	1	6.0	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
2-Methyl-4,6-dinitrophenol [534-52-1]^	6.0	U	ug/L	1	6.0	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
2-Nitrophenol [88-75-5]^	5.2	U	ug/L	1	5.2	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
2-Nitrophenol [88-75-5]^	5.2	U	ug/L	1	5.2	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
3,3'-Dichlorobenzidine [91-94-1]^	3.3	U	ug/L	1	3.3	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
3,3'-Dichlorobenzidine [91-94-1]^	3.3	U	ug/L	1	3.3	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
4-Bromophenyl-phenylether [101-55-3]^	3.3	U	ug/L	1	3.3	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
4-Bromophenyl-phenylether [101-55-3]^	3.3	U	ug/L	1	3.3	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
4-Chloro-3-methylphenol [59-50-7]^	7.3	U	ug/L	1	7.3	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
4-Chloro-3-methylphenol [59-50-7]^	7.3	U	ug/L	1	7.3	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
4-Chlorophenyl-phenylether [7005-72-3]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
4-Chlorophenyl-phenylether [7005-72-3]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
4-Nitrophenol [100-02-7]^	7.9	U	ug/L	1	7.9	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
4-Nitrophenol [100-02-7]^	7.9	U	ug/L	1	7.9	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Acenaphthene [83-32-9]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Acenaphthene [83-32-9]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Acenaphthylene [208-96-8]^	9.6	U	ug/L	1	9.6	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Acenaphthylene [208-96-8]^	9.6	U	ug/L	1	9.6	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Anthracene [120-12-7]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Anthracene [120-12-7]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Benzidine [92-87-5]^	7.1	U	ug/L	1	7.1	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Benzidine [92-87-5]^	7.1	U	ug/L	1	7.1	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Benzo(a)anthracene [56-55-3]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Benzo(a)anthracene [56-55-3]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Benzo(a)pyrene [50-32-8]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Benzo(a)pyrene [50-32-8]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Benzo(b)fluoranthene [205-99-2]^	3.4	U	ug/L	1	3.4	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Benzo(b)fluoranthene [205-99-2]^	3.4	U	ug/L	1	3.4	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Benzo(g,h,i)perylene [191-24-2]^	3.7	U	ug/L	1	3.7	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Benzo(g,h,i)perylene [191-24-2]^	3.7	U	ug/L	1	3.7	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Benzo(k)fluoranthene [207-08-9]^	3.8	U	ug/L	1	3.8	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Benzo(k)fluoranthene [207-08-9]^	3.8	U	ug/L	1	3.8	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Bis(2-chloroethoxy)methane [111-91-1]^	3.3	U	ug/L	1	3.3	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Bis(2-chloroethoxy)methane [111-91-1]^	3.3	U	ug/L	1	3.3	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Bis(2-chloroethyl)ether [111-44-4]^	3.8	U	ug/L	1	3.8	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Bis(2-chloroethyl)ether [111-44-4]^	3.8	U	ug/L	1	3.8	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Bis(2-chloroisopropyl)ether [108-60-1]^	3.5	U	ug/L	1	3.5	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Bis(2-chloroisopropyl)ether [108-60-1]^	3.5	U	ug/L	1	3.5	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Bis(2-ethylhexyl)phthalate [117-81-7]^	3.5	U	ug/L	1	3.5	5.0	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Bis(2-ethylhexyl)phthalate [117-81-7]^	3.5	U	ug/L	1	3.5	5.0	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Butylbenzylphthalate [85-68-7]^	5.1	U	ug/L	1	5.1	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Butylbenzylphthalate [85-68-7]^	5.1	U	ug/L	1	5.1	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Chrysene [218-01-9]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Chrysene [218-01-9]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Dibenzo(a,h)anthracene [53-70-3]^	3.8	U	ug/L	1	3.8	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Dibenzo(a,h)anthracene [53-70-3]^	3.8	U	ug/L	1	3.8	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05

ANALYTICAL RESULTS

Description: 1903DPT-02

Lab Sample ID: CC20427-04

Received: 12/17/19 11:00

Matrix: Ground Water

Sampled: 12/10/19 15:30

Work Order: CC20427

Project: NCDOT Goldsboro

Sampled By: Corey Futral

Semivolatile Organic Compounds by GCMS

^ - ENCLABS Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	POL	Batch	Method	Analyzed	By	Notes
Diethylphthalate [84-66-2]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Diethylphthalate [84-66-2]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Dimethylphthalate [131-11-3]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Dimethylphthalate [131-11-3]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Di-n-butylphthalate [84-74-2]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Di-n-butylphthalate [84-74-2]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Di-n-octylphthalate [117-84-0]^	4.7	U	ug/L	1	4.7	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Di-n-octylphthalate [117-84-0]^	4.7	U	ug/L	1	4.7	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Fluoranthene [206-44-0]^	4.0	U	ug/L	1	4.0	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Fluoranthene [206-44-0]^	4.0	U	ug/L	1	4.0	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Fluorene [86-73-7]^	2.9	U	ug/L	1	2.9	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Fluorene [86-73-7]^	2.9	U	ug/L	1	2.9	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Hexachlorobenzene [118-74-1]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Hexachlorobenzene [118-74-1]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Hexachlorobutadiene [87-68-3]^	4.1	U	ug/L	1	4.1	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Hexachlorobutadiene [87-68-3]^	4.1	U	ug/L	1	4.1	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Hexachlorocyclopentadiene [77-47-4]^	3.8	U	ug/L	1	3.8	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Hexachlorocyclopentadiene [77-47-4]^	3.8	U	ug/L	1	3.8	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Hexachloroethane [67-72-1]^	3.0	U	ug/L	1	3.0	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Hexachloroethane [67-72-1]^	3.0	U	ug/L	1	3.0	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Indeno(1,2,3-cd)pyrene [193-39-5]^	4.1	U	ug/L	1	4.1	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Indeno(1,2,3-cd)pyrene [193-39-5]^	4.1	U	ug/L	1	4.1	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Isophorone [78-59-1]^	4.5	U	ug/L	1	4.5	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Isophorone [78-59-1]^	4.5	U	ug/L	1	4.5	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Naphthalene [91-20-3]^	3.6	U	ug/L	1	3.6	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Naphthalene [91-20-3]^	3.6	U	ug/L	1	3.6	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Nitrobenzene [98-95-3]^	3.2	U	ug/L	1	3.2	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Nitrobenzene [98-95-3]^	3.2	U	ug/L	1	3.2	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
N-Nitrosodimethylamine [62-75-9]^	3.8	U	ug/L	1	3.8	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
N-Nitrosodimethylamine [62-75-9]^	3.8	U	ug/L	1	3.8	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
N-Nitroso-di-n-propylamine [621-64-7]^	4.5	U	ug/L	1	4.5	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
N-Nitroso-di-n-propylamine [621-64-7]^	4.5	U	ug/L	1	4.5	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
N-nitrosodiphenylamine/Diphenylamine [86-30-6/122-39-4]^	5.4	U	ug/L	1	5.4	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
N-nitrosodiphenylamine/Diphenylamine [86-30-6/122-39-4]^	5.4	U	ug/L	1	5.4	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Pentachlorophenol [87-86-5]^	8.2	U	ug/L	1	8.2	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Pentachlorophenol [87-86-5]^	8.2	U	ug/L	1	8.2	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Phenanthrene [85-01-8]^	2.8	U	ug/L	1	2.8	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Phenanthrene [85-01-8]^	2.8	U	ug/L	1	2.8	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Phenol [108-95-2]^	5.6	U	ug/L	1	5.6	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Phenol [108-95-2]^	5.6	U	ug/L	1	5.6	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Pyrene [129-00-0]^	4.1	U	ug/L	1	4.1	10	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Pyrene [129-00-0]^	4.1	U	ug/L	1	4.1	10	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05

Surrogates

	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes
2,4,6-Tribromophenol	35	1	100	35 %	47-128	9L17003	EPA 625.1	12/20/19 01:56	DFM	Q5-03
2,4,6-Tribromophenol	64	1	100	64 %	47-128	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05

ANALYTICAL RESULTS

Description: 1903DPT-02

Lab Sample ID: CC20427-04

Received: 12/17/19 11:00

Matrix: Ground Water

Sampled: 12/10/19 15:30

Work Order: CC20427

Project: NCDOT Goldsboro

Sampled By: Corey Futral

Semivolatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

<u>Surrogates</u>	<u>Results</u>	<u>DF</u>	<u>Spike Lvl</u>	<u>% Rec</u>	<u>% Rec Limits</u>	<u>Batch</u>	<u>Method</u>	<u>Analyzed</u>	<u>By</u>	<u>Notes</u>
2-Fluorobiphenyl	23	1	50.0	45 %	44-102	9L17003	EPA 625.1	12/20/19 01:56	DFM	
2-Fluorobiphenyl	44	1	50.0	88 %	44-102	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
2-Fluorophenol	32	1	100	32 %	25-79	9L17003	EPA 625.1	12/20/19 01:56	DFM	
2-Fluorophenol	51	1	100	51 %	25-79	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Nitrobenzene-d5	20	1	50.0	40 %	43-112	9L17003	EPA 625.1	12/20/19 01:56	DFM	QS-03
Nitrobenzene-d5	33	1	50.0	67 %	43-112	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Phenol-d5	25	1	100	25 %	14-54	9L17003	EPA 625.1	12/20/19 01:56	DFM	
Phenol-d5	41	1	100	41 %	14-54	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05
Terphenyl-d14	27	1	50.0	54 %	65-122	9L17003	EPA 625.1	12/20/19 01:56	DFM	QS-03
Terphenyl-d14	42	1	50.0	84 %	65-122	9L27002	EPA 625.1	12/31/19 01:18	DFM	O-05

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 9L18018 - EPA 5030B_MS

Blank (9L18018-BLK1)

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 13:40

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
1,1,1,2-Tetrachloroethane	0.091	U	1.0	ug/L							
1,1,1-Trichloroethane	0.15	U	1.0	ug/L							
1,1,2,2-Tetrachloroethane	0.085	U	1.0	ug/L							
1,1,2-Trichloroethane	0.068	U	1.0	ug/L							
1,1-Dichloroethane	0.050	U	1.0	ug/L							
1,1-Dichloroethene	0.15	U	1.0	ug/L							
1,1-Dichloropropene	0.063	U	1.0	ug/L							
1,2,3-Trichlorobenzene	0.25	U	1.0	ug/L							
1,2,3-Trichloropropane	0.15	U	1.0	ug/L							
1,2,4-Trichlorobenzene	0.097	U	1.0	ug/L							
1,2,4-Trimethylbenzene	0.067	U	1.0	ug/L							
1,2-Dibromo-3-chloropropane	0.48	U	1.0	ug/L							
1,2-Dibromoethane	0.42	U	1.0	ug/L							
1,2-Dichlorobenzene	0.052	U	1.0	ug/L							
1,2-Dichloroethane	0.082	U	1.0	ug/L							
1,2-Dichloropropane	0.098	U	1.0	ug/L							
1,3,5-Trimethylbenzene	0.10	U	1.0	ug/L							
1,3-Dichlorobenzene	0.092	U	1.0	ug/L							
1,3-Dichloropropane	0.15	U	1.0	ug/L							
1,4-Dichlorobenzene	0.10	U	1.0	ug/L							
2,2-Dichloropropane	0.12	U	1.0	ug/L							
2-Chlorotoluene	0.10	U	1.0	ug/L							
4-Chlorotoluene	0.10	U	1.0	ug/L							
4-Isopropyltoluene	0.066	U	1.0	ug/L							
Benzene	0.050	U	1.0	ug/L							
Bromobenzene	0.13	U	1.0	ug/L							
Bromochloromethane	0.11	U	1.0	ug/L							
Bromodichloromethane	0.10	U	1.0	ug/L							
Bromoform	0.20	U	1.0	ug/L							
Bromomethane	0.28	U	1.0	ug/L							
Carbon Tetrachloride	0.082	U	1.0	ug/L							
Chlorobenzene	0.069	U	1.0	ug/L							
Chloroethane	0.18	U	1.0	ug/L							
Chloroform	0.083	U	1.0	ug/L							
Chloromethane	0.050	U	1.0	ug/L							
cis-1,2-Dichloroethene	0.075	U	1.0	ug/L							
cis-1,3-Dichloropropene	0.073	U	1.0	ug/L							
Dibromochloromethane	0.067	U	1.0	ug/L							
Dibromomethane	0.13	U	1.0	ug/L							
Dichlorodifluoromethane	0.091	U	1.0	ug/L							
Ethylbenzene	0.10	U	1.0	ug/L							
Freon 113	0.35	U	1.0	ug/L							
Hexachlorobutadiene	0.15	U	1.0	ug/L							
Isopropyl Ether	0.21	U	1.0	ug/L							
Isopropylbenzene	0.13	U	1.0	ug/L							
m,p-Xylenes	0.18	U	2.0	ug/L							
Methylene Chloride	0.070	U	2.0	ug/L							
Methyl-tert-Butyl Ether	0.12	U	1.0	ug/L							
Naphthalene	0.086	U	1.0	ug/L							

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 9L18018 - EPA 5030B_MS - Continued

Blank (9L18018-BLK1) Continued

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 13:40

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
n-Butyl Benzene	0.074	U	1.0	ug/L							
n-Propyl Benzene	0.073	U	1.0	ug/L							
o-Xylene	0.088	U	1.0	ug/L							
sec-Butylbenzene	0.053	U	1.0	ug/L							
Styrene	0.082	U	1.0	ug/L							
tert-Butylbenzene	0.094	U	1.0	ug/L							
Tetrachloroethene	0.099	U	1.0	ug/L							
Toluene	0.053	U	1.0	ug/L							
trans-1,2-Dichloroethene	0.11	U	1.0	ug/L							
trans-1,3-Dichloropropene	0.080	U	1.0	ug/L							
Trichloroethene	0.13	U	1.0	ug/L							
Trichlorofluoromethane	0.15	U	1.0	ug/L							
Vinyl chloride	0.083	U	1.0	ug/L							
Xylenes (Total)	0.22	U	1.0	ug/L							
<i>4-Bromofluorobenzene</i>	<i>46</i>			<i>ug/L</i>	<i>50.0</i>		<i>92</i>	<i>70-130</i>			
<i>Dibromofluoromethane</i>	<i>38</i>			<i>ug/L</i>	<i>50.0</i>		<i>76</i>	<i>70-130</i>			
<i>Toluene-d8</i>	<i>42</i>			<i>ug/L</i>	<i>50.0</i>		<i>84</i>	<i>70-130</i>			

LCS (9L18018-BS1)

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 11:23

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
1,1,1,2-Tetrachloroethane	17		1.0	ug/L	20.0		87	70-130			
1,1,1-Trichloroethane	18		1.0	ug/L	20.0		92	70-130			
1,1,2,2-Tetrachloroethane	17		1.0	ug/L	20.0		87	70-130			
1,1,2-Trichloroethane	18		1.0	ug/L	20.0		88	70-130			
1,1-Dichloroethane	17		1.0	ug/L	20.0		86	70-130			
1,1-Dichloroethene	17		1.0	ug/L	20.0		87	70-130			
1,1-Dichloropropene	18		1.0	ug/L	20.0		88	70-130			
1,2,3-Trichlorobenzene	19		1.0	ug/L	20.0		94	70-130			
1,2,3-Trichloropropane	15		1.0	ug/L	20.0		75	70-130			
1,2,4-Trichlorobenzene	18		1.0	ug/L	20.0		92	70-130			
1,2,4-Trimethylbenzene	16		1.0	ug/L	20.0		78	70-130			
1,2-Dibromo-3-chloropropane	14		1.0	ug/L	20.0		68	70-130			
1,2-Dibromoethane	16		1.0	ug/L	20.0		82	70-130			
1,2-Dichlorobenzene	17		1.0	ug/L	20.0		85	70-130			
1,2-Dichloroethane	18		1.0	ug/L	20.0		92	70-130			
1,2-Dichloropropane	18		1.0	ug/L	20.0		91	70-130			
1,3,5-Trimethylbenzene	15		1.0	ug/L	20.0		76	70-130			
1,3-Dichlorobenzene	17		1.0	ug/L	20.0		83	70-130			
1,3-Dichloropropane	16		1.0	ug/L	20.0		81	70-130			
1,4-Dichlorobenzene	16		1.0	ug/L	20.0		81	70-130			
2,2-Dichloropropane	22		1.0	ug/L	20.0		109	70-130			
2-Chlorotoluene	15		1.0	ug/L	20.0		76	70-130			
4-Chlorotoluene	15		1.0	ug/L	20.0		77	70-130			
4-Isopropyltoluene	16		1.0	ug/L	20.0		80	70-130			
Benzene	19		1.0	ug/L	20.0		96	70-130			
Bromobenzene	19		1.0	ug/L	20.0		95	70-130			
Bromochloromethane	19		1.0	ug/L	20.0		97	70-130			
Bromodichloromethane	17		1.0	ug/L	20.0		84	70-130			

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 9L18018 - EPA 5030B_MS - Continued

LCS (9L18018-BS1) Continued

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 11:23

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bromoform	16		1.0	ug/L	20.0		78	70-130			
Bromomethane	21		1.0	ug/L	20.0		105	60-140			
Carbon Tetrachloride	17		1.0	ug/L	20.0		86	70-130			
Chlorobenzene	17		1.0	ug/L	20.0		85	70-130			
Chloroethane	20		1.0	ug/L	20.0		101	60-140			
Chloroform	17		1.0	ug/L	20.0		86	70-130			
Chloromethane	18		1.0	ug/L	20.0		89	60-140			
cis-1,2-Dichloroethene	18		1.0	ug/L	20.0		91	70-130			
cis-1,3-Dichloropropene	18		1.0	ug/L	20.0		92	70-130			
Dibromochloromethane	16		1.0	ug/L	20.0		82	70-130			
Dibromomethane	17		1.0	ug/L	20.0		86	70-130			
Dichlorodifluoromethane	18		1.0	ug/L	20.0		88	60-140			
Ethylbenzene	17		1.0	ug/L	20.0		84	70-130			
Freon 113	44		1.0	ug/L	40.0		110	70-130			
Hexachlorobutadiene	20		1.0	ug/L	20.0		99	70-130			
Isopropyl Ether	16		1.0	ug/L	20.0		80	70-130			
Isopropylbenzene	17		1.0	ug/L	20.0		87	70-130			
m,p-Xylenes	31		2.0	ug/L	40.0		77	70-130			
Methylene Chloride	17		2.0	ug/L	20.0		87	70-130			
Methyl-tert-Butyl Ether	16		1.0	ug/L	20.0		82	70-130			
Naphthalene	17		1.0	ug/L	20.0		84	70-130			
n-Butyl Benzene	16		1.0	ug/L	20.0		80	70-130			
n-Propyl Benzene	17		1.0	ug/L	20.0		86	70-130			
o-Xylene	16		1.0	ug/L	20.0		82	70-130			
sec-Butylbenzene	16		1.0	ug/L	20.0		79	70-130			
Styrene	17		1.0	ug/L	20.0		84	70-130			
tert-Butylbenzene	16		1.0	ug/L	20.0		79	70-130			
Tetrachloroethene	19		1.0	ug/L	20.0		94	70-130			
Toluene	19		1.0	ug/L	20.0		93	70-130			
trans-1,2-Dichloroethene	17		1.0	ug/L	20.0		85	70-130			
trans-1,3-Dichloropropene	17		1.0	ug/L	20.0		85	70-130			
Trichloroethene	20		1.0	ug/L	20.0		100	70-130			
Trichlorofluoromethane	18		1.0	ug/L	20.0		92	60-140			
Vinyl chloride	19		1.0	ug/L	20.0		93	60-140			
Xylenes (Total)	47		1.0	ug/L	60.0		79	70-130			
4-Bromofluorobenzene	47			ug/L	50.0		93	70-130			
Dibromofluoromethane	39			ug/L	50.0		77	70-130			
Toluene-d8	41			ug/L	50.0		83	70-130			

Matrix Spike (9L18018-MS1)

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 12:02

Source: CC21287-05

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	16		1.0	ug/L	20.0	0.091 U	81	71-117			
1,1,1-Trichloroethane	18		1.0	ug/L	20.0	0.15 U	89	72-143			
1,1,2,2-Tetrachloroethane	17		1.0	ug/L	20.0	0.085 U	84	59-133			
1,1,2-Trichloroethane	17		1.0	ug/L	20.0	0.068 U	85	67-118			
1,1-Dichloroethane	17		1.0	ug/L	20.0	0.050 U	85	79-141			
1,1-Dichloroethene	17		1.0	ug/L	20.0	0.15 U	85	75-133			
1,1-Dichloropropene	17		1.0	ug/L	20.0	0.063 U	85	70-129			

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 9L18018 - EPA 5030B_MS - Continued

Matrix Spike (9L18018-MS1) Continued

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 12:02

Source: CC21287-05

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,3-Trichlorobenzene	18		1.0	ug/L	20.0	0.45	85	62-117			
1,2,3-Trichloropropane	13		1.0	ug/L	20.0	0.15 U	67	58-140			
1,2,4-Trichlorobenzene	17		1.0	ug/L	20.0	0.097 U	85	59-122			
1,2,4-Trimethylbenzene	15		1.0	ug/L	20.0	0.067 U	75	74-123			
1,2-Dibromo-3-chloropropane	11		1.0	ug/L	20.0	0.48 U	53	37-157			
1,2-Dibromoethane	17		1.0	ug/L	20.0	0.42 U	85	66-123			
1,2-Dichlorobenzene	17		1.0	ug/L	20.0	0.052 U	84	76-116			
1,2-Dichloroethane	16		1.0	ug/L	20.0	0.082 U	82	72-151			
1,2-Dichloropropane	17		1.0	ug/L	20.0	0.098 U	86	78-125			
1,3,5-Trimethylbenzene	15		1.0	ug/L	20.0	0.10 U	75	77-129			QM-07
1,3-Dichlorobenzene	16		1.0	ug/L	20.0	0.092 U	78	76-119			
1,3-Dichloropropane	16		1.0	ug/L	20.0	0.15 U	82	60-129			
1,4-Dichlorobenzene	16		1.0	ug/L	20.0	0.10 U	81	76-122			
2,2-Dichloropropane	20		1.0	ug/L	20.0	0.12 U	101	21-167			
2-Chlorotoluene	14		1.0	ug/L	20.0	0.10 U	71	73-135			QM-07
4-Chlorotoluene	15		1.0	ug/L	20.0	0.10 U	73	76-134			QM-07
4-Isopropyltoluene	16		1.0	ug/L	20.0	0.066 U	80	75-127			
Benzene	19		1.0	ug/L	20.0	0.050 U	95	81-134			
Bromobenzene	18		1.0	ug/L	20.0	0.13 U	88	72-115			
Bromochloromethane	19		1.0	ug/L	20.0	0.11 U	95	74-128			
Bromodichloromethane	16		1.0	ug/L	20.0	0.10 U	81	72-129			
Bromoform	17		1.0	ug/L	20.0	0.20 U	83	73-119			
Bromomethane	21		1.0	ug/L	20.0	0.28 U	107	38-189			
Carbon Tetrachloride	15		1.0	ug/L	20.0	0.082 U	77	68-142			
Chlorobenzene	17		1.0	ug/L	20.0	0.069 U	83	83-117			
Chloroethane	21		1.0	ug/L	20.0	0.18 U	104	45-213			
Chloroform	17		1.0	ug/L	20.0	0.083 U	84	78-138			
Chloromethane	18		1.0	ug/L	20.0	0.050 U	88	56-171			
cis-1,2-Dichloroethene	18		1.0	ug/L	20.0	0.075 U	92	69-120			
cis-1,3-Dichloropropene	18		1.0	ug/L	20.0	0.073 U	92	63-125			
Dibromochloromethane	16		1.0	ug/L	20.0	0.067 U	80	73-117			
Dibromomethane	16		1.0	ug/L	20.0	0.13 U	81	76-124			
Dichlorodifluoromethane	17		1.0	ug/L	20.0	0.091 U	86	25-161			
Ethylbenzene	16		1.0	ug/L	20.0	0.10 U	80	68-124			
Freon 113	44		1.0	ug/L	40.0	0.35 U	109	0-200			
Hexachlorobutadiene	17		1.0	ug/L	20.0	0.15 U	87	63-114			
Isopropyl Ether	16		1.0	ug/L	20.0	0.21 U	78	70-130			
Isopropylbenzene	17		1.0	ug/L	20.0	0.13 U	85	81-136			
m,p-Xylenes	31		2.0	ug/L	40.0	0.18 U	78	79-121			QM-07
Methylene Chloride	18		2.0	ug/L	20.0	0.070 U	89	68-128			
Methyl-tert-Butyl Ether	17		1.0	ug/L	20.0	0.12 U	84	10-127			
Naphthalene	16		1.0	ug/L	20.0	0.086 U	78	50-127			
n-Butyl Benzene	15		1.0	ug/L	20.0	0.074 U	77	68-126			
n-Propyl Benzene	17		1.0	ug/L	20.0	0.073 U	84	76-125			
o-Xylene	16		1.0	ug/L	20.0	0.088 U	81	71-125			
sec-Butylbenzene	15		1.0	ug/L	20.0	0.053 U	76	75-122			
Styrene	17		1.0	ug/L	20.0	0.082 U	84	73-120			
tert-Butylbenzene	15		1.0	ug/L	20.0	0.094 U	73	70-137			
Tetrachloroethene	18		1.0	ug/L	20.0	0.099 U	91	40-181			

QUALITY CONTROL DATA
Volatile Organic Compounds by GCMS - Quality Control
Batch 9L18018 - EPA 5030B_MS - Continued
Matrix Spike (9L18018-MS1) Continued

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 12:02

Source: CC21287-05

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Toluene	18		1.0	ug/L	20.0	0.053 U	89	71-118			
trans-1,2-Dichloroethene	17		1.0	ug/L	20.0	0.11 U	86	75-139			
trans-1,3-Dichloropropene	17		1.0	ug/L	20.0	0.080 U	83	62-152			
Trichloroethene	18		1.0	ug/L	20.0	0.13 U	90	75-115			
Trichlorofluoromethane	17		1.0	ug/L	20.0	0.15 U	85	68-183			
Vinyl chloride	17		1.0	ug/L	20.0	0.083 U	83	49-150			
Xylenes (Total)	47		1.0	ug/L	60.0	0.22 U	79	77-121			
<i>4-Bromofluorobenzene</i>	<i>47</i>			<i>ug/L</i>	<i>50.0</i>		<i>95</i>	<i>70-130</i>			
<i>Dibromofluoromethane</i>	<i>38</i>			<i>ug/L</i>	<i>50.0</i>		<i>77</i>	<i>70-130</i>			
<i>Toluene-d8</i>	<i>41</i>			<i>ug/L</i>	<i>50.0</i>		<i>82</i>	<i>70-130</i>			

Matrix Spike Dup (9L18018-MSD1)

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 12:35

Source: CC21287-05

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
1,1,1,2-Tetrachloroethane	15		1.0	ug/L	20.0	0.091 U	77	71-117	5	16	
1,1,1-Trichloroethane	16		1.0	ug/L	20.0	0.15 U	78	72-143	13	18	
1,1,2,2-Tetrachloroethane	17		1.0	ug/L	20.0	0.085 U	83	59-133	2	16	
1,1,2-Trichloroethane	18		1.0	ug/L	20.0	0.068 U	89	67-118	4	18	
1,1-Dichloroethane	16		1.0	ug/L	20.0	0.050 U	78	79-141	9	19	QM-07
1,1-Dichloroethene	15		1.0	ug/L	20.0	0.15 U	76	75-133	11	20	
1,1-Dichloropropene	15		1.0	ug/L	20.0	0.063 U	76	70-129	12	17	
1,2,3-Trichlorobenzene	17		1.0	ug/L	20.0	0.45	80	62-117	6	17	
1,2,3-Trichloropropane	15		1.0	ug/L	20.0	0.15 U	74	58-140	10	17	
1,2,4-Trichlorobenzene	17		1.0	ug/L	20.0	0.097 U	84	59-122	1	17	
1,2,4-Trimethylbenzene	14		1.0	ug/L	20.0	0.067 U	69	74-123	9	18	QM-07
1,2-Dibromo-3-chloropropane	14		1.0	ug/L	20.0	0.48 U	68	37-157	26	18	QM-11
1,2-Dibromoethane	16		1.0	ug/L	20.0	0.42 U	80	66-123	6	15	
1,2-Dichlorobenzene	16		1.0	ug/L	20.0	0.052 U	78	76-116	8	16	
1,2-Dichloroethane	16		1.0	ug/L	20.0	0.082 U	81	72-151	2	16	
1,2-Dichloropropane	18		1.0	ug/L	20.0	0.098 U	88	78-125	2	19	
1,3,5-Trimethylbenzene	14		1.0	ug/L	20.0	0.10 U	70	77-129	7	16	QM-07
1,3-Dichlorobenzene	15		1.0	ug/L	20.0	0.092 U	76	76-119	3	17	
1,3-Dichloropropane	16		1.0	ug/L	20.0	0.15 U	79	60-129	3	16	
1,4-Dichlorobenzene	14		1.0	ug/L	20.0	0.10 U	72	76-122	12	16	QM-07
2,2-Dichloropropane	19		1.0	ug/L	20.0	0.12 U	93	21-167	8	20	
2-Chlorotoluene	14		1.0	ug/L	20.0	0.10 U	70	73-135	2	16	QM-07
4-Chlorotoluene	14		1.0	ug/L	20.0	0.10 U	68	76-134	7	16	QM-07
4-Isopropyltoluene	14		1.0	ug/L	20.0	0.066 U	71	75-127	12	17	QM-07
Benzene	18		1.0	ug/L	20.0	0.050 U	89	81-134	6	17	
Bromobenzene	17		1.0	ug/L	20.0	0.13 U	85	72-115	4	17	
Bromochloromethane	17		1.0	ug/L	20.0	0.11 U	86	74-128	10	18	
Bromodichloromethane	17		1.0	ug/L	20.0	0.10 U	83	72-129	2	16	
Bromoform	16		1.0	ug/L	20.0	0.20 U	82	73-119	2	44	
Bromomethane	18		1.0	ug/L	20.0	0.28 U	91	38-189	16	27	
Carbon Tetrachloride	14		1.0	ug/L	20.0	0.082 U	70	68-142	10	17	
Chlorobenzene	16		1.0	ug/L	20.0	0.069 U	79	83-117	5	16	QM-07
Chloroethane	19		1.0	ug/L	20.0	0.18 U	93	45-213	11	26	
Chloroform	15		1.0	ug/L	20.0	0.083 U	76	78-138	9	17	QM-07
Chloromethane	15		1.0	ug/L	20.0	0.050 U	77	56-171	13	28	

QUALITY CONTROL DATA

Volatile Organic Compounds by GCMS - Quality Control

Batch 9L18018 - EPA 5030B_MS - Continued

Matrix Spike Dup (9L18018-MSD1) Continued

Prepared: 12/18/2019 10:24 Analyzed: 12/18/2019 12:35

Source: CC21287-05

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
cis-1,2-Dichloroethene	17		1.0	ug/L	20.0	0.075 U	84	69-120	10	18	
cis-1,3-Dichloropropene	17		1.0	ug/L	20.0	0.073 U	86	63-125	6	17	
Dibromochloromethane	15		1.0	ug/L	20.0	0.067 U	73	73-117	9	16	
Dibromomethane	17		1.0	ug/L	20.0	0.13 U	83	76-124	3	15	
Dichlorodifluoromethane	14		1.0	ug/L	20.0	0.091 U	71	25-161	19	48	
Ethylbenzene	15		1.0	ug/L	20.0	0.10 U	75	68-124	7	16	
Freon 113	37		1.0	ug/L	40.0	0.35 U	94	0-200	15	25	
Hexachlorobutadiene	14		1.0	ug/L	20.0	0.15 U	72	63-114	19	19	
Isopropyl Ether	14		1.0	ug/L	20.0	0.21 U	71	70-130	9	30	
Isopropylbenzene	16		1.0	ug/L	20.0	0.13 U	78	81-136	8	16	QM-07
m,p-Xylenes	28		2.0	ug/L	40.0	0.18 U	71	79-121	9	16	QM-07
Methylene Chloride	16		2.0	ug/L	20.0	0.070 U	80	68-128	11	17	
Methyl-tert-Butyl Ether	16		1.0	ug/L	20.0	0.12 U	79	10-127	6	21	
Naphthalene	15		1.0	ug/L	20.0	0.086 U	76	50-127	2	19	
n-Butyl Benzene	14		1.0	ug/L	20.0	0.074 U	70	68-126	9	15	
n-Propyl Benzene	16		1.0	ug/L	20.0	0.073 U	78	76-125	7	16	
o-Xylene	15		1.0	ug/L	20.0	0.088 U	75	71-125	8	15	
sec-Butylbenzene	14		1.0	ug/L	20.0	0.053 U	70	75-122	8	17	QM-07
Styrene	16		1.0	ug/L	20.0	0.082 U	82	73-120	3	23	
tert-Butylbenzene	13		1.0	ug/L	20.0	0.094 U	67	70-137	9	22	QM-07
Tetrachloroethene	16		1.0	ug/L	20.0	0.099 U	81	40-181	11	26	
Toluene	17		1.0	ug/L	20.0	0.053 U	83	71-118	7	17	
trans-1,2-Dichloroethene	16		1.0	ug/L	20.0	0.11 U	79	75-139	8	19	
trans-1,3-Dichloropropene	16		1.0	ug/L	20.0	0.080 U	82	62-152	0.4	16	
Trichloroethene	17		1.0	ug/L	20.0	0.13 U	86	75-115	5	18	
Trichlorofluoromethane	15		1.0	ug/L	20.0	0.15 U	74	68-183	14	22	
Vinyl chloride	15		1.0	ug/L	20.0	0.083 U	76	49-150	9	27	
Xylenes (Total)	43		1.0	ug/L	60.0	0.22 U	72	77-121	8	16	QM-07
4-Bromofluorobenzene	47			ug/L	50.0		94	70-130			
Dibromofluoromethane	37			ug/L	50.0		74	70-130			
Toluene-d8	42			ug/L	50.0		84	70-130			

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS

Blank (9L17003-BLK1)

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 15:49

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	3.3	U	10	ug/L							
1,2-Dichlorobenzene	3.2	U	10	ug/L							
1,3-Dichlorobenzene	3.4	U	10	ug/L							
1,4-Dichlorobenzene	3.2	U	10	ug/L							
2,4,6-Trichlorophenol	6.4	U	10	ug/L							
2,4-Dichlorophenol	6.5	U	10	ug/L							
2,4-Dimethylphenol	6.4	U	10	ug/L							
2,4-Dinitrophenol	7.7	U	10	ug/L							
2,4-Dinitrotoluene	3.2	U	10	ug/L							
2,6-Dinitrotoluene	2.9	U	10	ug/L							

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS - Continued

Blank (9L17003-BLK1) Continued

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 15:49

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
2-Chloronaphthalene	3.2	U	10	ug/L							
2-Chlorophenol	7.4	U	10	ug/L							
2-Methyl-4,6-dinitrophenol	6.0	U	10	ug/L							
2-Nitrophenol	5.2	U	10	ug/L							
3,3'-Dichlorobenzidine	3.3	U	10	ug/L							
4-Bromophenyl-phenylether	3.3	U	10	ug/L							
4-Chloro-3-methylphenol	7.3	U	10	ug/L							
4-Chlorophenyl-phenylether	3.2	U	10	ug/L							
4-Nitrophenol	7.9	U	10	ug/L							
Acenaphthene	3.0	U	10	ug/L							
Acenaphthylene	9.6	U	10	ug/L							
Anthracene	3.0	U	10	ug/L							
Benzidine	7.1	U	10	ug/L							
Benzo(a)anthracene	3.2	U	10	ug/L							
Benzo(a)pyrene	3.2	U	10	ug/L							
Benzo(b)fluoranthene	3.4	U	10	ug/L							
Benzo(g,h,i)perylene	3.7	U	10	ug/L							
Benzo(k)fluoranthene	3.8	U	10	ug/L							
Bis(2-chloroethoxy)methane	3.3	U	10	ug/L							
Bis(2-chloroethyl)ether	3.8	U	10	ug/L							
Bis(2-chloroisopropyl)ether	3.5	U	10	ug/L							
Bis(2-ethylhexyl)phthalate	3.5	U	5.0	ug/L							
Butylbenzylphthalate	5.1	U	10	ug/L							
Chrysene	3.0	U	10	ug/L							
Dibeno(a,h)anthracene	3.8	U	10	ug/L							
Diethylphthalate	3.0	U	10	ug/L							
Dimethylphthalate	3.0	U	10	ug/L							
Di-n-butylphthalate	3.2	U	10	ug/L							
Di-n-octylphthalate	4.7	U	10	ug/L							
Fluoranthene	4.0	U	10	ug/L							
Fluorene	2.9	U	10	ug/L							
Hexachlorobenzene	3.0	U	10	ug/L							
Hexachlorobutadiene	4.1	U	10	ug/L							
Hexachlorocyclopentadiene	3.8	U	10	ug/L							
Hexachloroethane	3.0	U	10	ug/L							
Indeno(1,2,3-cd)pyrene	4.1	U	10	ug/L							
Isophorone	4.5	U	10	ug/L							
Naphthalene	3.6	U	10	ug/L							
Nitrobenzene	3.2	U	10	ug/L							
N-Nitrosodimethylamine	3.8	U	10	ug/L							
N-Nitroso-di-n-propylamine	4.5	U	10	ug/L							
N-nitrosodiphenylamine/Diphenylamine	5.4	U	10	ug/L							
Pentachlorophenol	8.2	U	10	ug/L							
Phenanthrene	2.8	U	10	ug/L							
Phenol	5.6	U	10	ug/L							
Pyrene	4.1	U	10	ug/L							
2,4,6-Tribromophenol	35			ug/L	100		35	47-128			QS-03
2-Fluorobiphenyl	15			ug/L	50.0		29	44-102			QS-03
2-Fluorophenol	21			ug/L	100		21	25-79			QS-03

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS - Continued

Blank (9L17003-BLK1) Continued

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 15:49

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrobenzene-d5	13			ug/L	50.0		26	43-112			QS-03
Phenol-d5	16			ug/L	100		16	14-54			
Terphenyl-d14	27			ug/L	50.0		54	65-122			QS-03

LCS (9L17003-BS1)

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 16:18

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	20		10	ug/L	50.0		40	57-130			J-06
1,2-Dichlorobenzene	20		10	ug/L	50.0		41	32-129			
1,3-Dichlorobenzene	20		10	ug/L	50.0		40	10-172			
1,4-Dichlorobenzene	20		10	ug/L	50.0		41	20-124			
2,4,6-Trichlorophenol	21		10	ug/L	50.0		43	52-129			J-06
2,4-Dichlorophenol	21		10	ug/L	50.0		43	53-122			J-06
2,4-Dimethylphenol	21		10	ug/L	50.0		42	42-120			
2,4-Dinitrophenol	29		10	ug/L	50.0		58	5-173			
2,4-Dinitrotoluene	25		10	ug/L	50.0		49	48-127			
2,6-Dinitrotoluene	23		10	ug/L	50.0		46	68-137			J-06
2-Chloronaphthalene	21		10	ug/L	50.0		42	65-120			J-06
2-Chlorophenol	21		10	ug/L	50.0		43	36-120			
2-Methyl-4,6-dinitrophenol	27		10	ug/L	50.0		55	53-130			
2-Nitrophenol	20		10	ug/L	50.0		40	45-167			J-06
3,3'-Dichlorobenzidine	25		10	ug/L	50.0		49	8-213			
4-Bromophenyl-phenylether	21		10	ug/L	50.0		42	65-120			J-06
4-Chlorophenyl-phenylether	22		10	ug/L	50.0		44	41-128			
4-Nitrophenol	17		10	ug/L	50.0		34	13-129			
Acenaphthene	23		10	ug/L	50.0		45	60-132			J-06
Acenaphthylene	22		10	ug/L	50.0		45	54-126			J-06
Anthracene	26		10	ug/L	50.0		52	43-120			
Benzidine	7.1	U	10	ug/L	50.0			10-136			J-06
Benzo(a)anthracene	23		10	ug/L	50.0		47	42-133			
Benzo(a)pyrene	25		10	ug/L	50.0		50	32-148			
Benzo(b)fluoranthene	24		10	ug/L	50.0		49	42-140			
Benzo(g,h,i)perylene	24		10	ug/L	50.0		48	5-195			
Benzo(k)fluoranthene	28		10	ug/L	50.0		56	25-146			
Bis(2-chloroethoxy)methane	21		10	ug/L	50.0		42	49-165			J-06
Bis(2-chloroethyl)ether	24		10	ug/L	50.0		48	43-126			
Bis(2-chloroisopropyl)ether	20		10	ug/L	50.0		39	63-139			J-06
Bis(2-ethylhexyl)phthalate	25		5.0	ug/L	50.0		50	29-137			
Butylbenzylphthalate	29		10	ug/L	50.0		58	5-140			
Chrysene	23		10	ug/L	50.0		47	44-140			
Dibenzo(a,h)anthracene	23		10	ug/L	50.0		47	5-200			
Diethylphthalate	25		10	ug/L	50.0		51	5-120			
Dimethylphthalate	23		10	ug/L	50.0		47	10-120			
Di-n-butylphthalate	29		10	ug/L	50.0		59	8-120			
Di-n-octylphthalate	25		10	ug/L	50.0		49	19-132			
Fluoranthene	28		10	ug/L	50.0		56	43-121			
Fluorene	23		10	ug/L	50.0		45	70-120			J-06
Hexachlorobenzene	22		10	ug/L	50.0		45	8-142			

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS - Continued

LCS (9L17003-BS1) Continued

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 16:18

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Hexachlorobutadiene	19		10	ug/L	50.0		38	24-120			
Hexachlorocyclopentadiene	22		10	ug/L	50.0		43	38-120			
Hexachloroethane	19		10	ug/L	50.0		39	55-120			J-06
Indeno(1,2,3-cd)pyrene	24		10	ug/L	50.0		47	5-151			
Isophorone	21		10	ug/L	50.0		41	47-180			J-06
Naphthalene	21		10	ug/L	50.0		43	36-120			
Nitrobenzene	21		10	ug/L	50.0		43	54-158			J-06
N-Nitrosodimethylamine	19		10	ug/L	50.0		38	24-94			
N-Nitroso-di-n-propylamine	20		10	ug/L	50.0		41	14-198			
Pentachlorophenol	25		10	ug/L	50.0		51	38-152			
Phenanthrene	25		10	ug/L	50.0		51	65-120			J-06
Phenol	13		10	ug/L	50.0		26	17-120			
Pyrene	28		10	ug/L	50.0		56	70-120			J-06
<i>2,4,6-Tribromophenol</i>	40			ug/L	100		40	47-128			QS-03
<i>2-Fluorobiphenyl</i>	17			ug/L	50.0		35	44-102			QS-03
<i>2-Fluorophenol</i>	29			ug/L	100		29	25-79			
<i>Nitrobenzene-d5</i>	19			ug/L	50.0		38	43-112			QS-03
<i>Phenol-d5</i>	22			ug/L	100		22	14-54			
<i>Terphenyl-d14</i>	26			ug/L	50.0		53	65-122			QS-03

Matrix Spike (9L17003-MS1)

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 16:47

Source: CC21388-01

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	13		10	ug/L	50.0	3.3 U	26	44-142			
1,2-Dichlorobenzene	14		10	ug/L	50.0	3.2 U	28	32-129			
1,3-Dichlorobenzene	14		10	ug/L	50.0	3.4 U	28	10-172			
1,4-Dichlorobenzene	14		10	ug/L	50.0	3.2 U	28	20-124			
2,4,6-Trichlorophenol	16		10	ug/L	50.0	6.4 U	32	37-144			
2,4-Dichlorophenol	15		10	ug/L	50.0	6.5 U	29	39-135			
2,4-Dimethylphenol	8.4	J	10	ug/L	50.0	6.4 U	17	32-120			
2,4-Dinitrophenol	16		10	ug/L	50.0	7.7 U	32	5-191			
2,4-Dinitrotoluene	17		10	ug/L	50.0	3.2 U	34	53-130			
2,6-Dinitrotoluene	18		10	ug/L	50.0	2.9 U	35	50-158			
2-Chloronaphthalene	17		10	ug/L	50.0	3.2 U	33	60-120			
2-Chlorophenol	14		10	ug/L	50.0	7.4 U	28	23-134			
2-Methyl-4,6-dinitrophenol	16		10	ug/L	50.0	6.0 U	32	5-181			
2-Nitrophenol	15		10	ug/L	50.0	5.2 U	30	29-182			
3,3'-Dichlorobenzidine	8.9	J	10	ug/L	50.0	3.3 U	18	5-262			
4-Bromophenyl-phenylether	17		10	ug/L	50.0	3.3 U	33	53-127			
4-Chloro-3-methylphenol	14		10	ug/L	50.0	7.3 U	28	22-147			
4-Chlorophenyl-phenylether	18		10	ug/L	50.0	3.2 U	35	25-158			
4-Nitrophenol	7.9	U	10	ug/L	50.0	7.9 U		5-132			
Acenaphthene	15		10	ug/L	50.0	3.0 U	31	47-145			
Acenaphthylene	9.6	U	10	ug/L	50.0	9.6 U		33-145			
Anthracene	17		10	ug/L	50.0	3.0 U	34	27-133			
Benzidine	7.1	U	10	ug/L	50.0	7.1 U		10-136			
Benzo(a)anthracene	18		10	ug/L	50.0	3.2 U	36	33-143			
Benzo(a)pyrene	17		10	ug/L	50.0	3.2 U	35	17-163			
Benzo(b)fluoranthene	18		10	ug/L	50.0	3.4 U	36	24-159			

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS - Continued

Matrix Spike (9L17003-MS1) Continued

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 16:47

Source: CC21388-01

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzo(g,h,i)perylene	19		10	ug/L	50.0	3.7 U	38	5-219			
Benzo(k)fluoranthene	19		10	ug/L	50.0	3.8 U	38	11-162			
Bis(2-chloroethoxy)methane	16		10	ug/L	50.0	3.3 U	32	33-184			
Bis(2-chloroethyl)ether	18		10	ug/L	50.0	3.8 U	36	12-158			
Bis(2-chloroisopropyl)ether	15		10	ug/L	50.0	3.5 U	29	36-166			
Bis(2-ethylhexyl)phthalate	19		5.0	ug/L	50.0	3.5 U	37	8-158			
Butylbenzylphthalate	22		10	ug/L	50.0	5.1 U	43	5-152			
Chrysene	18		10	ug/L	50.0	3.0 U	36	17-168			
Dibenzo(a,h)anthracene	18		10	ug/L	50.0	3.8 U	36	5-227			
Diethylphthalate	19		10	ug/L	50.0	3.0 U	39	5-120			
Dimethylphthalate	19		10	ug/L	50.0	3.0 U	38	5-120			
Di-n-butylphthalate	23		10	ug/L	50.0	3.2 U	45	1-120			
Di-n-octylphthalate	20		10	ug/L	50.0	4.7 U	39	4-146			
Fluoranthene	20		10	ug/L	50.0	4.0 U	40	26-137			
Fluorene	17		10	ug/L	50.0	2.9 U	34	59-121			
Hexachlorobenzene	18		10	ug/L	50.0	3.0 U	36	5-152			
Hexachlorobutadiene	13		10	ug/L	50.0	4.1 U	26	24-120			
Hexachlorocyclopentadiene	15		10	ug/L	50.0	3.8 U	31	10-99			
Hexachloroethane	13		10	ug/L	50.0	3.0 U	26	40-120			
Indeno(1,2,3-cd)pyrene	19		10	ug/L	50.0	4.1 U	37	5-171			
Isophorone	16		10	ug/L	50.0	4.5 U	32	21-196			
Naphthalene	15		10	ug/L	50.0	3.6 U	31	21-133			
Nitrobenzene	16		10	ug/L	50.0	3.2 U	33	35-180			
N-Nitrosodimethylamine	13		10	ug/L	50.0	3.8 U	27	24-94			
N-Nitroso-di-n-propylamine	15		10	ug/L	50.0	4.5 U	30	5-230			
Pentachlorophenol	16		10	ug/L	50.0	8.2 U	33	14-176			
Phenanthrene	20		10	ug/L	50.0	2.8 U	40	54-120			
Phenol	6.8	J	10	ug/L	50.0	5.6 U	14	5-120			
Pyrene	20		10	ug/L	50.0	4.1 U	39	52-120			
2,4,6-Tribromophenol	29			ug/L	100		29	47-128			QS-03
2-Fluorobiphenyl	16			ug/L	50.0		33	44-102			QS-03
2-Fluorophenol	18			ug/L	100		18	25-79			QS-03
Nitrobenzene-d5	15			ug/L	50.0		30	43-112			QS-03
Phenol-d5	12			ug/L	100		12	14-54			QS-03
Terphenyl-d14	19			ug/L	50.0		38	65-122			QS-03

Matrix Spike Dup (9L17003-MSD1)

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 17:15

Source: CC21388-01

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	17		10	ug/L	50.0	3.3 U	33	44-142	24	50	
1,2-Dichlorobenzene	17		10	ug/L	50.0	3.2 U	33	32-129	17	25	
1,3-Dichlorobenzene	16		10	ug/L	50.0	3.4 U	32	10-172	16	25	
1,4-Dichlorobenzene	16		10	ug/L	50.0	3.2 U	33	20-124	16	25	
2,4,6-Trichlorophenol	22		10	ug/L	50.0	6.4 U	44	37-144	31	58	
2,4-Dichlorophenol	20		10	ug/L	50.0	6.5 U	40	39-135	32	50	
2,4-Dimethylphenol	19		10	ug/L	50.0	6.4 U	37	32-120	76	58	
2,4-Dinitrophenol	24		10	ug/L	50.0	7.7 U	49	5-191	41	132	
2,4-Dinitrotoluene	24		10	ug/L	50.0	3.2 U	47	53-130	33	42	
2,6-Dinitrotoluene	23		10	ug/L	50.0	2.9 U	47	50-158	28	48	

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS - Continued

Matrix Spike Dup (9L17003-MSD1) Continued

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 17:15

Source: CC21388-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
2-Chloronaphthalene	21		10	ug/L	50.0	3.2 U	42	60-120	24	24	
2-Chlorophenol	19		10	ug/L	50.0	7.4 U	37	23-134	29	61	
2-Methyl-4,6-dinitrophenol	24		10	ug/L	50.0	6.0 U	48	5-181	38	203	
2-Nitrophenol	19		10	ug/L	50.0	5.2 U	38	29-182	23	55	
3,3'-Dichlorobenzidine	15		10	ug/L	50.0	3.3 U	30	5-262	50	108	
4-Bromophenyl-phenylether	21		10	ug/L	50.0	3.3 U	43	53-127	25	43	
4-Chloro-3-methylphenol	22		10	ug/L	50.0	7.3 U	43	22-147	42	73	
4-Chlorophenyl-phenylether	23		10	ug/L	50.0	3.2 U	46	25-158	27	61	
4-Nitrophenol	15		10	ug/L	50.0	7.9 U	29	5-132		131	
Acenaphthene	22		10	ug/L	50.0	3.0 U	45	47-145	37	48	
Acenaphthylene	19		10	ug/L	50.0	9.6 U	38	33-145		74	
Anthracene	25		10	ug/L	50.0	3.0 U	50	27-133	38	66	
Benzidine	7.1	U	10	ug/L	50.0	7.1 U		10-136		25	
Benzo(a)anthracene	23		10	ug/L	50.0	3.2 U	46	33-143	25	53	
Benzo(a)pyrene	25		10	ug/L	50.0	3.2 U	49	17-163	35	72	
Benzo(b)fluoranthene	24		10	ug/L	50.0	3.4 U	47	24-159	27	71	
Benzo(g,h,i)perylene	24		10	ug/L	50.0	3.7 U	47	5-219	21	97	
Benzo(k)fluoranthene	27		10	ug/L	50.0	3.8 U	54	11-162	34	63	
Bis(2-chloroethoxy)methane	20		10	ug/L	50.0	3.3 U	40	33-184	23	54	
Bis(2-chloroethyl)ether	21		10	ug/L	50.0	3.8 U	42	12-158	16	108	
Bis(2-chloroisopropyl)ether	17		10	ug/L	50.0	3.5 U	34	36-166	14	76	
Bis(2-ethylhexyl)phthalate	24		5.0	ug/L	50.0	3.5 U	48	8-158	25	82	
Butylbenzylphthalate	29		10	ug/L	50.0	5.1 U	58	5-152	29	60	
Chrysene	23		10	ug/L	50.0	3.0 U	47	17-168	27	87	
Dibenzo(a,h)anthracene	23		10	ug/L	50.0	3.8 U	47	5-227	25	126	
Diethylphthalate	25		10	ug/L	50.0	3.0 U	51	5-120	27	100	
Dimethylphthalate	24		10	ug/L	50.0	3.0 U	49	5-120	26	183	
Di-n-butylphthalate	29		10	ug/L	50.0	3.2 U	58	1-120	25	47	
Di-n-octylphthalate	26		10	ug/L	50.0	4.7 U	51	4-146	26	69	
Fluoranthene	27		10	ug/L	50.0	4.0 U	53	26-137	28	66	
Fluorene	22		10	ug/L	50.0	2.9 U	45	59-121	28	38	
Hexachlorobenzene	22		10	ug/L	50.0	3.0 U	45	5-152	23	55	
Hexachlorobutadiene	16		10	ug/L	50.0	4.1 U	33	24-120	25	62	
Hexachlorocyclopentadiene	19		10	ug/L	50.0	3.8 U	37	10-99	19	25	
Hexachloroethane	15		10	ug/L	50.0	3.0 U	31	40-120	18	52	
Indeno(1,2,3-cd)pyrene	24		10	ug/L	50.0	4.1 U	48	5-171	25	99	
Isophorone	20		10	ug/L	50.0	4.5 U	40	21-196	22	93	
Naphthalene	18		10	ug/L	50.0	3.6 U	37	21-133	18	65	
Nitrobenzene	19		10	ug/L	50.0	3.2 U	39	35-180	17	62	
N-Nitrosodimethylamine	16		10	ug/L	50.0	3.8 U	32	24-94	18	25	
N-Nitroso-di-n-propylamine	19		10	ug/L	50.0	4.5 U	37	5-230	21	87	
Pentachlorophenol	23		10	ug/L	50.0	8.2 U	47	14-176	35	86	
Phenanthrene	25		10	ug/L	50.0	2.8 U	51	54-120	24	39	
Phenol	16		10	ug/L	50.0	5.6 U	32	5-120	79	64	
Pyrene	27		10	ug/L	50.0	4.1 U	53	52-120	31	49	
<i>2,4,6-Tribromophenol</i>	44			ug/L	100		44	47-128			QS-03
<i>2-Fluorobiphenyl</i>	24			ug/L	50.0		47	44-102			
<i>2-Fluorophenol</i>	31			ug/L	100		31	25-79			
<i>Nitrobenzene-d5</i>	19			ug/L	50.0		38	43-112			QS-03

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L17003 - EPA 3510C_MS - Continued

Matrix Spike Dup (9L17003-MSD1) Continued

Prepared: 12/17/2019 07:53 Analyzed: 12/19/2019 17:15

Source: CC21388-01

Analyst	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Phenol-d5	30			ug/L	100		30	14-54			
Terphenyl-d14	33			ug/L	50.0		65	65-122			

Batch 9L27002 - EPA 3510C_MS

Blank (9L27002-BLK1)

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 12:51

Analyst	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	3.3	U	10	ug/L							
1,2-Dichlorobenzene	3.2	U	10	ug/L							
1,3-Dichlorobenzene	3.4	U	10	ug/L							
1,4-Dichlorobenzene	3.2	U	10	ug/L							
2,4,6-Trichlorophenol	6.4	U	10	ug/L							
2,4-Dichlorophenol	6.5	U	10	ug/L							
2,4-Dimethylphenol	6.4	U	10	ug/L							
2,4-Dinitrophenol	7.7	U	10	ug/L							
2,4-Dinitrotoluene	3.2	U	10	ug/L							
2,6-Dinitrotoluene	2.9	U	10	ug/L							
2-Chloronaphthalene	3.2	U	10	ug/L							
2-Chlorophenol	7.4	U	10	ug/L							
2-Methyl-4,6-dinitrophenol	6.0	U	10	ug/L							
2-Nitrophenol	5.2	U	10	ug/L							
3,3'-Dichlorobenzidine	3.3	U	10	ug/L							
4-Bromophenyl-phenylether	3.3	U	10	ug/L							
4-Chloro-3-methylphenol	7.3	U	10	ug/L							
4-Chlorophenyl-phenylether	3.2	U	10	ug/L							
4-Nitrophenol	7.9	U	10	ug/L							
Acenaphthene	3.0	U	10	ug/L							
Acenaphthylene	9.6	U	10	ug/L							
Anthracene	3.0	U	10	ug/L							
Benzidine	7.1	U	10	ug/L							
Benzo(a)anthracene	3.2	U	10	ug/L							
Benzo(a)pyrene	3.2	U	10	ug/L							
Benzo(b)fluoranthene	3.4	U	10	ug/L							
Benzo(g,h,i)perylene	3.7	U	10	ug/L							
Benzo(k)fluoranthene	3.8	U	10	ug/L							
Bis(2-chloroethoxy)methane	3.3	U	10	ug/L							
Bis(2-chloroethyl)ether	3.8	U	10	ug/L							
Bis(2-chloroisopropyl)ether	3.5	U	10	ug/L							
Bis(2-ethylhexyl)phthalate	3.5	U	5.0	ug/L							
Butylbenzylphthalate	5.1	U	10	ug/L							
Chrysene	3.0	U	10	ug/L							
Dibenz(a,h)anthracene	3.8	U	10	ug/L							
Diethylphthalate	3.0	U	10	ug/L							
Dimethylphthalate	3.0	U	10	ug/L							
Di-n-butylphthalate	3.2	U	10	ug/L							
Di-n-octylphthalate	4.7	U	10	ug/L							
Fluoranthene	4.0	U	10	ug/L							
Fluorene	2.9	U	10	ug/L							

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L27002 - EPA 3510C_MS - Continued

Blank (9L27002-BLK1) Continued

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 12:51

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Hexachlorobenzene	3.0	U	10	ug/L							
Hexachlorobutadiene	4.1	U	10	ug/L							
Hexachlorocyclopentadiene	3.8	U	10	ug/L							
Hexachloroethane	3.0	U	10	ug/L							
Indeno(1,2,3-cd)pyrene	4.1	U	10	ug/L							
Isophorone	4.5	U	10	ug/L							
Naphthalene	3.6	U	10	ug/L							
Nitrobenzene	3.2	U	10	ug/L							
N-Nitrosodimethylamine	3.8	U	10	ug/L							
N-Nitroso-di-n-propylamine	4.5	U	10	ug/L							
N-nitrosodiphenylamine/Diphenylamine	5.4	U	10	ug/L							
Pentachlorophenol	8.2	U	10	ug/L							
Phenanthrene	2.8	U	10	ug/L							
Phenol	5.6	U	10	ug/L							
Pyrene	4.1	U	10	ug/L							
<i>2,4,6-Tribromophenol</i>	<i>76</i>			<i>ug/L</i>	<i>100</i>		<i>76</i>	<i>47-128</i>			
<i>2-Fluorobiphenyl</i>	<i>45</i>			<i>ug/L</i>	<i>50.0</i>		<i>90</i>	<i>44-102</i>			
<i>2-Fluorophenol</i>	<i>58</i>			<i>ug/L</i>	<i>100</i>		<i>58</i>	<i>25-79</i>			
<i>Nitrobenzene-d5</i>	<i>38</i>			<i>ug/L</i>	<i>50.0</i>		<i>75</i>	<i>43-112</i>			
<i>Phenol-d5</i>	<i>47</i>			<i>ug/L</i>	<i>100</i>		<i>47</i>	<i>14-54</i>			
<i>Terphenyl-d14</i>	<i>49</i>			<i>ug/L</i>	<i>50.0</i>		<i>99</i>	<i>65-122</i>			

LCS (9L27002-BS1)

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 13:23

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	43		10	ug/L	50.0		87	57-130			
1,2-Dichlorobenzene	41		10	ug/L	50.0		83	32-129			
1,3-Dichlorobenzene	39		10	ug/L	50.0		79	10-172			
1,4-Dichlorobenzene	41		10	ug/L	50.0		82	20-124			
2,4,6-Trichlorophenol	52		10	ug/L	50.0		104	52-129			
2,4-Dichlorophenol	49		10	ug/L	50.0		97	53-122			
2,4-Dimethylphenol	47		10	ug/L	50.0		95	42-120			
2,4-Dinitrophenol	51		10	ug/L	50.0		102	5-173			
2,4-Dinitrotoluene	50		10	ug/L	50.0		100	48-127			
2,6-Dinitrotoluene	51		10	ug/L	50.0		103	68-137			
2-Chloronaphthalene	48		10	ug/L	50.0		96	65-120			
2-Chlorophenol	45		10	ug/L	50.0		90	36-120			
2-Methyl-4,6-dinitrophenol	52		10	ug/L	50.0		103	53-130			
2-Nitrophenol	49		10	ug/L	50.0		98	45-167			
3,3'-Dichlorobenzidine	49		10	ug/L	50.0		98	8-213			
4-Bromophenyl-phenylether	51		10	ug/L	50.0		102	65-120			
4-Chlorophenyl-phenylether	48		10	ug/L	50.0		96	41-128			
4-Chlorophenyl-phenylether	50		10	ug/L	50.0		101	38-145			
4-Nitrophenol	34		10	ug/L	50.0		69	13-129			
Acenaphthene	50		10	ug/L	50.0		100	60-132			
Acenaphthylene	50		10	ug/L	50.0		100	54-126			
Anthracene	51		10	ug/L	50.0		102	43-120			
Benzidine	17		10	ug/L	50.0		34	10-136			
Benzo(a)anthracene	50		10	ug/L	50.0		101	42-133			

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L27002 - EPA 3510C_MS - Continued

LCS (9L27002-BS1) Continued

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 13:23

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzo(a)pyrene	52		10	ug/L	50.0		104	32-148			
Benzo(b)fluoranthene	49		10	ug/L	50.0		98	42-140			
Benzo(g,h,i)perylene	60		10	ug/L	50.0		119	5-195			
Benzo(k)fluoranthene	52		10	ug/L	50.0		103	25-146			
Bis(2-chloroethoxy)methane	46		10	ug/L	50.0		92	49-165			
Bis(2-chloroethyl)ether	50		10	ug/L	50.0		101	43-126			
Bis(2-chloroisopropyl)ether	46		10	ug/L	50.0		92	63-139			
Bis(2-ethylhexyl)phthalate	49		5.0	ug/L	50.0		99	29-137			
Butylbenzylphthalate	41		10	ug/L	50.0		83	5-140			
Chrysene	52		10	ug/L	50.0		103	44-140			
Dibenzo(a,h)anthracene	59		10	ug/L	50.0		118	5-200			
Diethylphthalate	51		10	ug/L	50.0		102	5-120			
Dimethylphthalate	51		10	ug/L	50.0		102	10-120			
Di-n-butylphthalate	48		10	ug/L	50.0		96	8-120			
Di-n-octylphthalate	46		10	ug/L	50.0		92	19-132			
Fluoranthene	47		10	ug/L	50.0		95	43-121			
Fluorene	49		10	ug/L	50.0		99	70-120			
Hexachlorobenzene	50		10	ug/L	50.0		100	8-142			
Hexachlorobutadiene	45		10	ug/L	50.0		89	24-120			
Hexachlorocyclopentadiene	42		10	ug/L	50.0		85	38-120			
Hexachloroethane	39		10	ug/L	50.0		78	55-120			
Indeno(1,2,3-cd)pyrene	59		10	ug/L	50.0		117	5-151			
Isophorone	46		10	ug/L	50.0		92	47-180			
Naphthalene	45		10	ug/L	50.0		90	36-120			
Nitrobenzene	46		10	ug/L	50.0		91	54-158			
N-Nitrosodimethylamine	36		10	ug/L	50.0		73	24-94			
N-Nitroso-di-n-propylamine	44		10	ug/L	50.0		87	14-198			
Pentachlorophenol	54		10	ug/L	50.0		107	38-152			
Phenanthrene	51		10	ug/L	50.0		102	65-120			
Phenol	30		10	ug/L	50.0		61	17-120			
Pyrene	47		10	ug/L	50.0		93	70-120			
2,4,6-Tribromophenol	91			ug/L	100		91	47-128			
2-Fluorobiphenyl	49			ug/L	50.0		98	44-102			
2-Fluorophenol	67			ug/L	100		67	25-79			
Nitrobenzene-d5	45			ug/L	50.0		90	43-112			
Phenol-d5	56			ug/L	100		56	14-54			QS-03
Terphenyl-d14	47			ug/L	50.0		95	65-122			

Matrix Spike (9L27002-MS1)

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 13:54

Source: CC21739-04

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	39		10	ug/L	50.0	3.3 U	79	44-142			
1,2-Dichlorobenzene	38		10	ug/L	50.0	3.2 U	75	32-129			
1,3-Dichlorobenzene	36		10	ug/L	50.0	3.4 U	73	10-172			
1,4-Dichlorobenzene	38		10	ug/L	50.0	3.2 U	76	20-124			
2,4,6-Trichlorophenol	48		10	ug/L	50.0	6.4 U	97	37-144			
2,4-Dichlorophenol	44		10	ug/L	50.0	6.5 U	88	39-135			
2,4-Dimethylphenol	16		10	ug/L	50.0	6.4 U	31	32-120			QM-07
2,4-Dinitrophenol	52		10	ug/L	50.0	7.7 U	103	5-191			

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L27002 - EPA 3510C_MS - Continued

Matrix Spike (9L27002-MS1) Continued

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 13:54

Source: CC21739-04

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
2,4-Dinitrotoluene	47		10	ug/L	50.0	3.2 U	94	53-130			
2,6-Dinitrotoluene	47		10	ug/L	50.0	2.9 U	93	50-158			
2-Chloronaphthalene	42		10	ug/L	50.0	3.2 U	85	60-120			
2-Chlorophenol	40		10	ug/L	50.0	7.4 U	80	23-134			
2-Methyl-4,6-dinitrophenol	52		10	ug/L	50.0	6.0 U	105	5-181			
2-Nitrophenol	46		10	ug/L	50.0	5.2 U	91	29-182			
3,3'-Dichlorobenzidine	32		10	ug/L	50.0	3.3 U	64	5-262			
4-Bromophenyl-phenylether	47		10	ug/L	50.0	3.3 U	95	53-127			
4-Chloro-3-methylphenol	44		10	ug/L	50.0	7.3 U	88	22-147			
4-Chlorophenyl-phenylether	47		10	ug/L	50.0	3.2 U	93	25-158			
4-Nitrophenol	32		10	ug/L	50.0	7.9 U	65	5-132			
Acenaphthene	44		10	ug/L	50.0	3.0 U	89	47-145			
Acenaphthylene	36		10	ug/L	50.0	9.6 U	73	33-145			
Anthracene	45		10	ug/L	50.0	3.0 U	90	27-133			
Benzidine	7.1	U	10	ug/L	50.0	7.1 U		10-136			QM-07
Benzo(a)anthracene	47		10	ug/L	50.0	3.2 U	94	33-143			
Benzo(a)pyrene	46		10	ug/L	50.0	3.2 U	92	17-163			
Benzo(b)fluoranthene	50		10	ug/L	50.0	3.4 U	100	24-159			
Benzo(g,h,i)perylene	49		10	ug/L	50.0	3.7 U	99	5-219			
Benzo(k)fluoranthene	49		10	ug/L	50.0	3.8 U	99	11-162			
Bis(2-chloroethoxy)methane	42		10	ug/L	50.0	3.3 U	84	33-184			
Bis(2-chloroethyl)ether	49		10	ug/L	50.0	3.8 U	97	12-158			
Bis(2-chloroisopropyl)ether	42		10	ug/L	50.0	3.5 U	84	36-166			
Bis(2-ethylhexyl)phthalate	47		5.0	ug/L	50.0	3.5 U	94	8-158			
Butylbenzylphthalate	47		10	ug/L	50.0	5.1 U	93	5-152			
Chrysene	49		10	ug/L	50.0	3.0 U	97	17-168			
Dibenzo(a,h)anthracene	50		10	ug/L	50.0	3.8 U	101	5-227			
Diethylphthalate	47		10	ug/L	50.0	3.0 U	95	5-120			
Dimethylphthalate	47		10	ug/L	50.0	3.0 U	94	5-120			
Di-n-butylphthalate	47		10	ug/L	50.0	3.2 U	94	1-120			
Di-n-octylphthalate	48		10	ug/L	50.0	4.7 U	95	4-146			
Fluoranthene	47		10	ug/L	50.0	4.0 U	93	26-137			
Fluorene	45		10	ug/L	50.0	2.9 U	90	59-121			
Hexachlorobenzene	46		10	ug/L	50.0	3.0 U	92	5-152			
Hexachlorobutadiene	40		10	ug/L	50.0	4.1 U	80	24-120			
Hexachlorocyclopentadiene	43		10	ug/L	50.0	3.8 U	87	10-99			
Hexachloroethane	36		10	ug/L	50.0	3.0 U	72	40-120			
Indeno(1,2,3-cd)pyrene	50		10	ug/L	50.0	4.1 U	100	5-171			
Isophorone	42		10	ug/L	50.0	4.5 U	83	21-196			
Naphthalene	41		10	ug/L	50.0	3.6 U	82	21-133			
Nitrobenzene	42		10	ug/L	50.0	3.2 U	83	35-180			
N-Nitrosodimethylamine	31		10	ug/L	50.0	3.8 U	61	24-94			
N-Nitroso-di-n-propylamine	40		10	ug/L	50.0	4.5 U	80	5-230			
Pentachlorophenol	53		10	ug/L	50.0	8.2 U	107	14-176			
Phenanthrene	47		10	ug/L	50.0	2.8 U	95	54-120			
Phenol	26		10	ug/L	50.0	5.6 U	53	5-120			
Pyrene	47		10	ug/L	50.0	4.1 U	93	52-120			
2,4,6-Tribromophenol	84			ug/L	100		84	47-128			
2-Fluorobiphenyl	43			ug/L	50.0		86	44-102			

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L27002 - EPA 3510C_MS - Continued

Matrix Spike (9L27002-MS1) Continued

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 13:54

Source: CC21739-04

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
2-Fluorophenol	58			ug/L	100		58	25-79			
Nitrobenzene-d5	40			ug/L	50.0		81	43-112			
Phenol-d5	47			ug/L	100		47	14-54			
Terphenyl-d14	49			ug/L	50.0		98	65-122			

Matrix Spike Dup (9L27002-MSD1)

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 14:26

Source: CC21739-04

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	39		10	ug/L	50.0	3.3 U	77	44-142	2	50	
1,2-Dichlorobenzene	36		10	ug/L	50.0	3.2 U	73	32-129	3	25	
1,3-Dichlorobenzene	35		10	ug/L	50.0	3.4 U	71	10-172	2	25	
1,4-Dichlorobenzene	37		10	ug/L	50.0	3.2 U	74	20-124	2	25	
2,4,6-Trichlorophenol	48		10	ug/L	50.0	6.4 U	95	37-144	2	58	
2,4-Dichlorophenol	43		10	ug/L	50.0	6.5 U	85	39-135	3	50	
2,4-Dimethylphenol	9.7	J	10	ug/L	50.0	6.4 U	19	32-120	46	58	QM-07
2,4-Dinitrophenol	48		10	ug/L	50.0	7.7 U	97	5-191	7	132	
2,4-Dinitrotoluene	44		10	ug/L	50.0	3.2 U	88	53-130	6	42	
2,6-Dinitrotoluene	45		10	ug/L	50.0	2.9 U	90	50-158	4	48	
2-Chloronaphthalene	42		10	ug/L	50.0	3.2 U	85	60-120	0.4	24	
2-Chlorophenol	39		10	ug/L	50.0	7.4 U	78	23-134	3	61	
2-Methyl-4,6-dinitrophenol	48		10	ug/L	50.0	6.0 U	97	5-181	8	203	
2-Nitrophenol	45		10	ug/L	50.0	5.2 U	90	29-182	2	55	
3,3'-Dichlorobenzidine	26		10	ug/L	50.0	3.3 U	52	5-262	22	108	
4-Bromophenyl-phenylether	47		10	ug/L	50.0	3.3 U	93	53-127	2	43	
4-Chloro-3-methylphenol	41		10	ug/L	50.0	7.3 U	82	22-147	7	73	
4-Chlorophenyl-phenylether	45		10	ug/L	50.0	3.2 U	90	25-158	3	61	
4-Nitrophenol	30		10	ug/L	50.0	7.9 U	59	5-132	8	131	
Acenaphthene	44		10	ug/L	50.0	3.0 U	88	47-145	0.6	48	
Acenaphthylene	36		10	ug/L	50.0	9.6 U	71	33-145	2	74	
Anthracene	43		10	ug/L	50.0	3.0 U	86	27-133	4	66	
Benzidine	7.1	U	10	ug/L	50.0	7.1 U		10-136		25	QM-07
Benzo(a)anthracene	47		10	ug/L	50.0	3.2 U	94	33-143	0.5	53	
Benzo(a)pyrene	43		10	ug/L	50.0	3.2 U	85	17-163	8	72	
Benzo(b)fluoranthene	46		10	ug/L	50.0	3.4 U	92	24-159	9	71	
Benzo(g,h,i)perylene	54		10	ug/L	50.0	3.7 U	107	5-219	8	97	
Benzo(k)fluoranthene	47		10	ug/L	50.0	3.8 U	94	11-162	5	63	
Bis(2-chloroethoxy)methane	41		10	ug/L	50.0	3.3 U	82	33-184	2	54	
Bis(2-chloroethyl)ether	46		10	ug/L	50.0	3.8 U	92	12-158	5	108	
Bis(2-chloroisopropyl)ether	41		10	ug/L	50.0	3.5 U	82	36-166	2	76	
Bis(2-ethylhexyl)phthalate	45		5.0	ug/L	50.0	3.5 U	91	8-158	3	82	
Butylbenzylphthalate	41		10	ug/L	50.0	5.1 U	83	5-152	11	60	
Chrysene	47		10	ug/L	50.0	3.0 U	94	17-168	3	87	
Dibenzo(a,h)anthracene	55		10	ug/L	50.0	3.8 U	110	5-227	9	126	
Diethylphthalate	45		10	ug/L	50.0	3.0 U	90	5-120	5	100	
Dimethylphthalate	45		10	ug/L	50.0	3.0 U	90	5-120	4	183	
Di-n-butylphthalate	45		10	ug/L	50.0	3.2 U	89	1-120	5	47	
Di-n-octylphthalate	46		10	ug/L	50.0	4.7 U	92	4-146	4	69	
Fluoranthene	45		10	ug/L	50.0	4.0 U	89	26-137	4	66	
Fluorene	44		10	ug/L	50.0	2.9 U	89	59-121	1	38	

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 9L27002 - EPA 3510C_MS - Continued

Matrix Spike Dup (9L27002-MSD1) Continued

Prepared: 12/27/2019 08:32 Analyzed: 12/30/2019 14:26

Source: CC21739-04

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Hexachlorobenzene	46		10	ug/L	50.0	3.0 U	91	5-152	1	55	
Hexachlorobutadiene	40		10	ug/L	50.0	4.1 U	79	24-120	0.8	62	
Hexachlorocyclopentadiene	42		10	ug/L	50.0	3.8 U	84	10-99	3	25	
Hexachloroethane	35		10	ug/L	50.0	3.0 U	70	40-120	3	52	
Indeno(1,2,3-cd)pyrene	55		10	ug/L	50.0	4.1 U	109	5-171	9	99	
Isophorone	40		10	ug/L	50.0	4.5 U	80	21-196	4	93	
Naphthalene	40		10	ug/L	50.0	3.6 U	81	21-133	0.9	65	
Nitrobenzene	41		10	ug/L	50.0	3.2 U	82	35-180	1	62	
N-Nitrosodimethylamine	30		10	ug/L	50.0	3.8 U	61	24-94	0.3	25	
N-Nitroso-di-n-propylamine	38		10	ug/L	50.0	4.5 U	77	5-230	4	87	
Pentachlorophenol	50		10	ug/L	50.0	8.2 U	99	14-176	7	86	
Phenanthrene	47		10	ug/L	50.0	2.8 U	94	54-120	0.9	39	
Phenol	26		10	ug/L	50.0	5.6 U	52	5-120	1	64	
Pyrene	44		10	ug/L	50.0	4.1 U	88	52-120	5	49	
<i>2,4,6-Tribromophenol</i>	82			ug/L	100		82	47-128			
<i>2-Fluorobiphenyl</i>	44			ug/L	50.0		88	44-102			
<i>2-Fluorophenol</i>	59			ug/L	100		59	25-79			
<i>Nitrobenzene-d5</i>	41			ug/L	50.0		82	43-112			
<i>Phenol-d5</i>	48			ug/L	100		48	14-54			
<i>Terphenyl-d14</i>	47			ug/L	50.0		93	65-122			

FLAGS/NOTES AND DEFINITIONS

- B** The analyte was detected in the associated method blank.
- D** The sample was analyzed at dilution.
- J** The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content, where applicable.
- U** The analyte was analyzed for but not detected to the level shown, adjusted for actual sample preparation data and moisture content, where applicable.
- E** The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
- MRL** Method Reporting Limit. The MRL is roughly equivalent to the practical quantitation limit (PQL) and is based on the low point of the calibration curve, when applicable, sample preparation factor, dilution factor, and, in the case of soil samples, moisture content.
- PQL** PQL: Practical Quantitation Limit. The PQL presented is the laboratory MRL.
- N** The analysis indicates the presence of an analyte for which there is presumptive evidence (85% or greater confidence) to make a "tentative identification".
- P** Greater than 25% concentration difference was observed between the primary and secondary GC column. The lower concentration is reported.
- [CALC]** Calculated analyte - MDL/MRL reported to the highest reporting limit of the component analyses.
- J-06** The associated laboratory control sample exhibited low bias; the reported result should be considered to be a minimum estimate.
- O-05** This sample was extracted outside of the EPA recommended holding time.
- QM-07** The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- QM-11** Precision between duplicate matrix spikes of the same sample was outside acceptance limits.
- QS-03** Surrogate recovery outside acceptance limits
- QV-01** The associated continuing calibration verification standard exhibited high bias; since the result is ND, there is no impact.
- QV-02** The associated continuing calibration verification standard exhibited low bias; the reported result should be considered to be a minimum estimate.

