



May 31, 2018

Kleinfelder File No. 20183507.001A

Mr. Gordon Box, LG
North Carolina Department of Transportation
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

**Subject: Preliminary Site Assessment Report
Parcel 117, Wilbur F. Thomas Property
WBS Element No. 38887.1.1, TIP No. R-3830
NC 42 from US 421 to SR 1579 (Main Street) in Sanford and
along SR 1579 from NC 42 to SR 1538 (Buckhorn Avenue) in Broadway
Lee County, North Carolina**

Dear Mr. Box:

Kleinfelder is pleased to provide its report detailing the activities conducted as part of the preliminary site assessment for the subject project.

Kleinfelder appreciates the opportunity to be of service to you. Should you have questions or require additional information, please do not hesitate to contact the undersigned.

Sincerely,
KLEINFELDER, INC.

Joseph C. Hollinger
Staff Professional II

Michael J. Burns, LG
Program Manager

JCH/MJB:cas



**PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 117 WILBUR F. THOMAS PROPERTY
PIN 9672-22-2978
1902 BROADWAY ROAD
SANFORD, LEE COUNTY, NORTH CAROLINA**

**NCDOT WBS ELEMENT 38887.1.1
STATE PROJECT R-3830
NC42 FROM US 421 TO SR 1579 (MAIN STREET) IN
SANFORD AND ALONG SR 1579 FROM NC 42 TO SR 1538
(BUCKHORN AVENUE) IN BROADWAY**

KLEINFELDER PROJECT NO. 20183507.001A

MAY 31, 2018

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A Report Prepared for:

Gordon Box, LG
North Carolina Department of Transportation
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

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NC 42 FROM US 421 TO SR 1579 (MAIN STREET) IN SANFORD AND ALONG
SR 1579 FROM NC 42 TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY**

Prepared by:



Joseph C. Hollinger
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Reviewed by:



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Environmental Program Manager

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May 31, 2018

Kleinfelder Project No. 20183507.001A

PRELIMINARY SITE ASSESSMENT

Site Name and Location: Parcel 117
1902 Broadway Road
Sanford, Lee County, North Carolina

Latitude and Longitude: 35.463497°N, -79.095826°W

County PIN 9672-22-2978

Facility ID Number: NA

State Project No.: R-3830

NCDOT Project No.: NCDOT WBS Element 38887.1.1

Description: NC 42 from US 421 to SR 1579 (Main Street) in Sanford and along SR 1579 from NC 42 to SR 1538 (Buckhorn Avenue) in Broadway

Date of Report: May 31, 2018

Consultant: Kleinfelder, Inc.
3200 Gateway Center Boulevard | Suite 100
Morrisville, North Carolina 27560
Corporate Geology License No. C-521
Corporate Licensure for Engineering F-1312

SEAL AND SIGNATURE OF CERTIFYING LICENSED GEOLOGIST

I, Michael J Burns, a Licensed Geologist for Kleinfelder, Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.

Michael J Burns, LG
NC License No. 1645

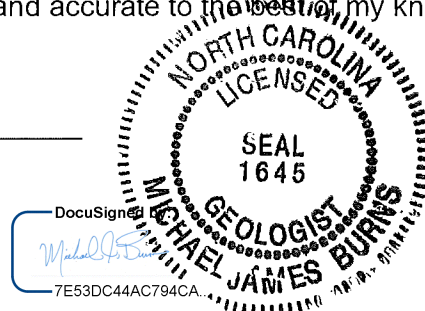


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**PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 117, WILBUR F. THOMAS PROPERTY
PIN 9672-22-2978
1902 BROADWAY ROAD
SANFORD, LEE COUNTY, NORTH CAROLINA**

**NCDOT WBS ELEMENT 38887.1.1
STATE PROJECT R-3830
NC 42 FROM US 421 TO SR 1579 (MAIN STREET) IN SANFORD AND ALONG SR 1579
FROM NC 42 TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY**

1 INTRODUCTION

Kleinfelder, Inc. (Kleinfelder) has prepared this Preliminary Site Assessment (PSA) report to document assessment activities performed within the proposed/existing right of way (ROW) and/or temporary construction easement on Parcel 117 (the assessment area is hereafter referred to as the “Project Study Area”). Parcel 117 is currently occupied by The Tune Up Shop, an auto repair facility located approximately 150 feet southeast of the intersection of Broadway Road and Avents Ferry Road, in Sanford, Lee County, North Carolina (Figure 1).

Based on information provided in Kleinfelder’s September 2014 Hazardous Material Investigation Report and information provided by the North Carolina Department of Transportation (NCDOT), no evidence of USTs or UST removal were observed at the Site. As such, the purpose of the PSA was to evaluate the current state of the Site and whether contaminated soil/groundwater are present in the Project Study Area that may result in increased project costs and future liability if acquired by the NCDOT.

1.1 SITE DESCRIPTION

Parcel 117 is owned by Wilbur F. Thomas and has a street address of 1902 Broadway Road. Parcel 117 is bounded by a residential property beyond Broadway Road to the north, a field and then residential properties to the east, and wooded property to the west and south. The parcel is currently the location of The Tune Up Shop automotive repair. Photographs of the Project Study Area are provided in Appendix A.

1.2 SCOPE OF WORK

Kleinfelder conducted this PSA in accordance with the NCDOT's January 12, 2018, Request for Technical and Cost Proposal (RFP) and Kleinfelder's January 24, 2018, Technical and Cost Proposal. The NCDOT granted Notice to Proceed for the project on February 1, 2018.

2 HISTORY

2.1 PARCEL USAGE

The September 2014 Hazardous Materials Report included information about environmental databases searched and historical review information for Parcel 117. The parcel was indicated to be an automotive repair facility with no observed evidence of USTs or UST removal. There were no environmental database listings identified for Parcel 117 that would suggest the presence of contaminated soil or groundwater.

Kleinfelder conducted historical research to determine whether additional environmental listings were identified since 2014 for Parcel 117. The following are the results of the additional research:

- Kleinfelder searched the registered UST, maintained by the North Carolina Department of Environmental Quality (NCDEQ). The Site does not appear to be associated with any listings.
- Kleinfelder searched the leaking UST (LUST) and Inactive Hazardous Sites Branch (IHSB) databases, to verify that no listings have been added since the Hazardous Materials Assessment was completed in 2014. No additional listings were identified.
- Based on a review of aerial photographs and site observations, there does not appear to have been a significant change in the use of the parcel since the hazardous materials assessment conducted in 2014.

2.2 FACILITY ID NUMBERS

Kleinfelder reviewed the NCDEQ UST database for Parcel 117. The parcel was not identified.

2.3 GROUNDWATER INCIDENT NUMBERS

Kleinfelder reviewed the LUST and IHSB databases, both maintained by the NCDEQ, to ensure that there are no listings for the Site. There were no database listings identified for Parcel 117 that indicated known soil or groundwater incidents.

3 OBSERVATIONS

3.1 GROUNDWATER MONITORING WELLS

No groundwater monitoring wells were observed within the Project Study Area during the multiple site visits conducted as part of the PSA.

3.2 ACTIVE USTS

No evidence of an active UST was observed within the Project Study Area during the multiple site visits conducted as part of the PSA.

3.3 OTHER FEATURES APPARENT BEYOND PROJECT STUDY AREA

A metal drum was observed with visible staining on top of the drum and on the ground surface in the immediate vicinity within the project study area. Two empty drums were noted adjacent to this area. A pile of tires was noted to the present south of the project study area. No additional features were apparent beyond the Project Study Area.

4 METHODS

4.1 PROPERTY OWNER CONTACTS

As part of Kleinfelder's scope of work, the listed property owner was contacted about the work schedule for the field work and the type of work being performed. The owner did not express any concern or special conditions associated with the work being performed.

4.2 HEALTH AND SAFETY

Prior to commencing the field work, Kleinfelder personnel developed a Site-Specific Health and Safety Plan (HASP) covering activities to be performed. The site specific HASP was discussed with all Kleinfelder personnel involved with the project and at a daily onsite "tail gate" safety meetings with subcontractors and sub consultants. In addition to the HASP, Kleinfelder utilized its comprehensive Corporate Health and Safety Program, targeted to address those specific and critical tasks that involve Kleinfelder personnel and subcontractors. The Loss Prevention System (LPS™), a behavior-based program, is Kleinfelder's company-wide safety system implemented and embraced by all levels of the company.

4.3 GEOPHYSICAL INVESTIGATION

Pyramid Environmental & Engineering, P.C (Pyramid) conducted a geophysical investigation in the Project Study Area between February 16 through 22, 2018. Pyramid utilized electromagnetic (EM) induction technology and ground penetrating radar (GPR) to locate potential geophysical anomalies and potential USTs within the Project Study Area.

A copy of the Pyramid Geophysical Investigation Report, detailing the field methodology, is included in Appendix B. The EM and GPR surveys did not detect any evidence of metallic USTs. The survey did not detect any geophysical anomalies within the Project Study Area that could not be attributed to visible cultural features, vehicles, or a trailer parked on the Site.

4.4 SOIL ASSESSMENT

The scope of work for the soil assessment was to evaluate the presence of soil contamination within the Project Study Area. The soil borings were planned to be advanced to maximum depths of 10 feet below the ground surface unless groundwater was encountered. Field screening using a Flame ionization detector (FID) was to be conducted at 1 foot intervals beginning at 0 foot to 1

foot. The soil sample with the highest FID reading above background or the sample from the deepest proposed cut would be selected for on-site laboratory analyses.

Prior to the drilling activities, public utilities were marked by NC One Call and private utilities were marked by Pyramid.

Kleinfelder subcontracted Quantex, Inc. (Quantex) to perform the drilling onsite on March 6, 2018. Prior to the initial boring and after each subsequent boring, the sampling equipment was decontaminated. Quantex advanced 5 soil borings (SS1 to SS5) by hand auger to 3 feet below the ground surface (bgs) and by direct-push technology from 3 feet to boring termination (10 feet bgs) at locations specified by Kleinfelder. The soil boring locations were identified in the field using a GPS. The soil boring locations are shown on Figure 2. The borings were located within the right of way and temporary construction easement along Broadway Road. Soil borings were located in the vicinity of proposed drainage features and within the proposed right of way expansion. Soil borings SS4 was located in an area where automobile repair work appeared to be conducted. Soil samples were collected by hand auger and driving Macro Core™ samplers in 5 foot intervals.

Also on March 6, 2018, Quantex advanced soil borings SS6 and SS7 in the vicinity of the observed drums in the woods. Soil boring SS6 was advanced within the stained area. These borings were advanced by hand auger to 3 feet bgs. Each soil core was cut open and the soil samples were classified and the soil divided into 1-foot sections. Each 1-foot section was screened in the field using a FID. The FID readings are summarized in Table 1. Copies of the boring logs are included in Appendix D.

Soils were determined to be primarily silty sand and sand in the top 10 feet. Groundwater was not encountered in any of the borings at the termination depth of 10 feet bgs.

4.5 SOIL ANALYSIS

The FID readings from soil borings SS1, SS2, SS3, SS4, SS5, and SS7 were noted to be low. No obvious visual or olfactory evidence of soil impact was observed in any of the soil samples collected from these borings. Based on the FID data and a review of the inverts, the sample from each boring at the depth of maximum cut and/or the highest FID reading were selected for onsite laboratory analysis.

The FID readings from soil boring SS6 were noted to be elevated at 1 foot, and low at 2 and 3 feet. Obvious petroleum staining and a strong odor was noted at 1 foot. Based on FID data and observations samples from 1 and 2 feet were collected for laboratory analysis.

The samples were analyzed by Kleinfelder utilizing ultraviolet fluorescence (UVF) methodology to provide real-time analytical results of Total Petroleum Hydrocarbons (TPH), Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). The UVF method was selected because of the possible use of petroleum products on Parcel 117 in the past. The UVF analysis also provided data regarding Environmental Protection Agency 16 total Polycyclic Aromatic Hydrocarbons (PAHs), and Benzo(a)pyrene (BaP).

The sample was also provided to RedLab to analyze using an onsite Gas Chromatograph (GC) for chlorinated solvents. This method was selected due to the possible past and present use of solvents in the automobile repair facility. To evaluate the accuracy of the field GC analysis, Kleinfelder split the sample provided to Redlab and placed it into laboratory prepared containers and shipped under proper chain of custody procedures to Pace Analytical Services in Huntersville, North Carolina for analysis for volatile organic compounds (VOCs) per EPA Method 8260.

Kleinfelder returned to the parcel on April 20, and advanced 2 additional soil borings, SS8 and SS9 to the east and south of SS6, respectfully. The borings were advanced to 3 feet. No obvious evidence of contamination was noted. The sample from 1 foot in each boring was submitted to Pace Analytical Services in Huntersville, North Carolina for analysis for TPH DRO and GRO.

5 RESULTS

5.1 GEOPHYSICAL INVESTIGATION

Pyramid concluded that the EM and GPR investigation did not identify any evidence of unknown metallic UST(s). The survey did not detect any geophysical anomalies within the Project Study Area that could not be attributed to visible cultural features, vehicles, or a trailer parked on the Site.

5.2 SOIL SAMPLING DATA

UVF and TPH DRO analysis of soil samples indicated levels of TPH DRO in soil samples below the state action limit of 100 mg/kg in soil samples SS6-2 [4.9 milligrams per kilogram (mg/kg)], and SS7-1 (0.32 mg/kg). UVF analysis indicated levels of TPH DRO in soil samples in excess of the NCDEQ action limit of 100 mg/kg in SS6-1 (216.4 mg/kg).

UVF and TPH GRO analysis of soil samples indicated levels of TPH GRO in soil samples below the state action limit of 50 mg/kg in soil samples SS6-2 (2.1 mg/kg). UVF analysis indicated levels of TPH GRO in soil samples in excess of the NCDEQ action limit of 50 mg/kg in SS6-1 (102.1 mg/kg).

UVF analysis of Total PAHs indicated concentrations in soil samples SS6-1 (5.5 mg/kg) and SS6-2 (0.14 mg/kg).

UVF analysis of soil samples did not detect BaP or BTEX concentrations above the method detection limit.

Soil samples analyzed by EPA Method 8260 did not identify contaminant concentrations in excess of the NCDEQ Division of Waste Management (DWM) UST section regulatory standards. Naphthalene was detected in soil samples SS1-1 (0.0022 mg/kg), SS2-6 (0.0016 mg/kg), SS3-3 (0.0014 mg/kg), and SS6-1 (0.002 mg/kg). Trichloroethene was detected in soil sample SS1-1 (0.0023 mg/kg). These results were estimated concentrations between the laboratory reporting limit and the method detection limit.

Soil samples analyzed by the onsite GC identified cis-1,2-Dichloroethene in soil sample SS6-1 (0.00099 mg/kg). No other contaminant concentrations were identified. This detection was not present in the Pace-analyzed sample; however, the method detection limit was 0.0018 mg/kg,

above the detected concentration. The onsite GC did not identify the Trichloroethene detected in the Pace-analyzed soil sample SS1-1.

Based on analytical results and FID readings, petroleum impacted soils were identified, soil impact at sample SS6 appears to be related to a leaking 55-gallon drum. A summary of the analytical results are provided on Table 2 and on Figure 3. The laboratory reports and graphs are included in Appendix D.

5.3 SAMPLE OBSERVATIONS

Soils were observed for any obvious evidence of contamination. Soil boring SS6 at 1 foot was noted to have heavy staining and strong odors. No other visual or olfactory evidence of contamination was noted in any of the borings.

5.4 QUANTITY CALCULATIONS

The amount of petroleum impacted soil related to the leaking drum on parcel 117 is estimated to be approximately 1.5 cubic yards, based on estimated dimensions of 5 feet by 5 feet, with contamination to approximately 1.5 feet deep.

6 CONCLUSIONS

Based on results of the EM/GPR survey, soil assessment and field observations, Kleinfelder has reached the following conclusions:

- The GPR and EM investigation did not identify any features determined to be potential USTs. The survey did not detect any geophysical anomalies within the Project Study Area that could not be attributed to visible cultural features, vehicles, or a trailer parked on the Site.
- A review of current state environmental databases did not identify any UST, LUST, or IHSB listings for the parcel that indicated known contamination.
- Field observations of the Project Study Area identified 3 drums within a public utility easement, 1 of which appeared to be leaking.
- Field observations of Parcel 117, beyond the Project Study Area did not identify any features that indicate a past release.
- Based on field observations, laboratory analytical results, and FID readings, petroleum impacted soils was detected within the Project Study Area. The contamination appears to be associated with a leaking drum. Approximately 1.5 cubic yards of contaminated soil is estimated to exist.
- Groundwater was not encountered in the soil borings.

7 RECOMMENDATIONS

Based on results of this Preliminary Site Assessment, Kleinfelder recommends that construction workers be made aware of the contaminated soils within the Project Study Area on Parcel 117 in Sanford, Lee County, North Carolina. If encountered during construction, special handling of the soils would be necessary.

8 LIMITATIONS

Kleinfelder's work will be performed in a manner consistent with that level of care and skill ordinarily exercised by other members of its profession practicing in the same locality, under similar conditions and at the date the services are provided. Kleinfelder's conclusions, opinions and recommendations will be based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, Kleinfelder's clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that NCDOT has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. NCDOT is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of

Kleinfelder's services. NCDOT is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

TABLES

Table 1: Soil Sample Screening Results

Date	Sample ID	Depth (ft)	FID Reading	Notes
3/6/2018	R-3830-P117-SS1	1	3.70	Analyzed by UVF, GC, 8260
		2	1.20	
		3	1.50	
		4	1.03	
		5	0.53	
		6	1.50	
		7	0.70	
		8	0.43	
		9	0.44	
		10	0.12	
3/6/2018	R-3830-P117-SS2	1	1.23	
		2	0.81	
		3	0.50	
		4	0.23	
		5	0.43	
		6	2.18	Analyzed by UVF, GC, 8260
		7	0.80	
		8	0.50	
		9	1.15	
		10	0.63	
3/6/2018	R-3830-P117-SS3	1	0.44	
		2	1.12	
		3	1.00	Analyzed by UVF, GC, 8260
		4	0.79	
		5	0.54	
		6	1.14	
		7	0.25	
		8	0.80	
		9	0.69	
		10	0.48	
3/6/2018	R-3830-P117-SS4	1	1.84	Analyzed by UVF, GC, 8260
		2	1.38	
		3	1.23	
		4	0.53	
		5	1.57	
		6	0.76	
		7	0.87	
		8	0.63	
		9	1.65	
		10	0.81	
3/6/2018	R-3830-P117-SS5	1	1.50	
		2	1.00	
		3	0.73	
		4	0.72	
		5	0.63	
		6	4.11	Analyzed by UVF, GC, 8260
		7	1.23	
		8	0.83	
		9	0.89	
		10	1.36	
3/6/2018	R-3830-P117-SS6	1	740	Analyzed by UVF, GC, 8260
		2	8.68	Analyzed by UVF
		3	0.21	
3/6/2018	R-3830-P117-SS7	1	1.12	Analyzed by UVF, GC, 8260
		2	1.01	
		3	0.76	
4/20/2018	R-3830-P117-SS8	1	1.0	Analyzed by DRO & GRO
		2	0.3	
		3	0.8	
4/20/2018	R-3830-P117-SS9	1	1.2	Analyzed by DRO & GRO
		2	0.8	
		3	0.5	

Notes:

- 1) FID = Flame Ionization Detector
- 2) FID readings in parts per million (ppm)
- 3) GC = Gas Chromatography

TABLE 2: Soil Sample Analytical Summary

Parameter	Analytical Results										Comparison Criteria		
	Soil Sample Results												
Sample ID	SS-1	SS-2	SS-3	SS-4	SS-5	SS6	SS6	SS7	SS8	SS9	State Action Limit	Soil-to-Water MSCC	Residential Soil Cleanup Levels
FID Reading (ppm)	3.70	2.18	1.00	1.84	4.11	740	8.68	1.12	0.87	0.97			
Collection Depth (ft bgs)	1	6	3	1	6	1	2	1	1	1			
Collection Date	3/6/18	3/6/18	3/6/18	3/6/18	3/6/18	3/6/18	3/6/18	3/6/18	4/20/18	4/20/18			
UVF Method													
Total Petroleum Hydrocarbons	<0.61	<0.41	<0.61	<0.59	<0.54	318.5	7	0.32	NA	NA	--	--	--
Diesel Range Organics	<0.05	<0.03	<0.05	<0.05	<0.04	216.4	4.9	0.32	NA	NA	100	--	--
Gasoline Range Organics	<0.61	<0.41	<0.61	<0.59	<0.54	102.1	2.1	<0.69	NA	NA	50	--	--
BaP	<0.012	<0.008	<0.012	<0.012	<0.011	<0.17	<0.013	<0.014	NA	NA	--	--	--
16 EPA PAHs	<0.02	<0.02	<0.02	<0.02	<0.02	5.5	0.14	<0.03	NA	NA	--	--	--
Total Aromatics (C10-C35)	<0.12	<0.08	<0.12	<0.12	<0.11	144.5	3	0.32	NA	NA	--	--	--
Total BTEX	<0.61	<0.41	<0.61	<0.59	<0.54	<16.5	<1.3	<0.69	NA	NA	--	--	--
GRO & DRO													
Diesel Range Organics	NA	NA	NA	NA	NA	NA	NA	NA	<4.8	<4.8	100	--	--
Gasoline Range Organics	NA	NA	NA	NA	NA	NA	NA	NA	<6.4	<8.7	50	--	--
EPA Method 8260													
Acetone	0.014 J	0.0179 J	<0.0114	0.0224 J	0.033 J	0.0335 J	NA	<0.0092	NA	NA	--	25	12000
2-Butanone (MEK)	<0.0026	<0.0028	<0.0033	<0.0028	0.0025 J	<0.0029	NA	<0.0027	NA	NA	--	17	5500
Naphthalene	0.0022 J	0.0016 J	0.0014 J	<0.0012	<0.00089	0.002 J	NA	<0.0011	NA	NA	--	0.16	313
Styrene	0.0299 J	<0.0018	<0.0021	<0.0018	<0.0013	<0.0018	NA	<0.0017	NA	NA	--	1.5	3128
Trichloroethene	0.0023 J	<0.0017	<0.0024	<0.0021	<0.0016	<0.0021	NA	<0.0019	NA	NA	--	0.019	4.6
Cis-1,2-Dichloroethene	<0.0012	<0.0014	<0.0016	<0.0014	<0.0010	<0.0014	NA	<0.0013	NA	NA	--	0.35	156
Gas Chromatography Method													
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.00099	NA	ND	NA	NA	--	0.35	156

Notes:

- 1) Results displayed in milligram per kilogram (mg/kg)
- 2) ft bgs = Feet below ground surface
- 3) Bold = Above Laboratory Detection Limit
- 4) UVF = Ultraviolet Fluorescence
- 5) BaP = Benzo(a)pyrene
- 6) EPA = Environmental Protection Agency
- 7) PAHs = Polycyclic Aromatic Hydrocarbons
- 8) BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes
- 9) FID = Flame Ionization Detector
- 10) J = Estimated value between the method detection limit and laboratory reporting limit
- 11) NA = Not Analyzed
- 12) ND = Not Detected
- 11) MSCC = Maximum Soil Contaminant Concentration
- 11) Soil-to-Water MSCC and Residential Soil Cleanup Levels data obtained from the NCDEQ
- 12) Onsite Gas Chromatography (GC) analysis was provided by RedLab
- 13) Bold, highlighted, underlined, and italicized values are above the State Action Limit

FIGURES

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

Note: Not to Scale *S.U.E. = *Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	
Sign	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	

HYDROLOGY:

Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY:

Baseline Control Point	
Existing Right of Way Marker	
Existing Right of Way Line	
Proposed Right of Way Line	
Proposed Right of Way Line with Iron Pin and Cap Marker	
Proposed Right of Way Line with Concrete or Granite RW Marker	
Proposed Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
Proposed Control of Access	
Existing Easement Line	
Proposed Temporary Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage / Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	
Proposed Permanent Easement with Iron Pin and Cap Marker	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
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	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
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	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
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.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	
U/G Fiber Optics Cable LOS B (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)	
U/G Fiber Optics Cable LOS D (S.U.E.*)	

WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
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	

TV:

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

GAS:

Gas Valve	
Gas Meter	
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	

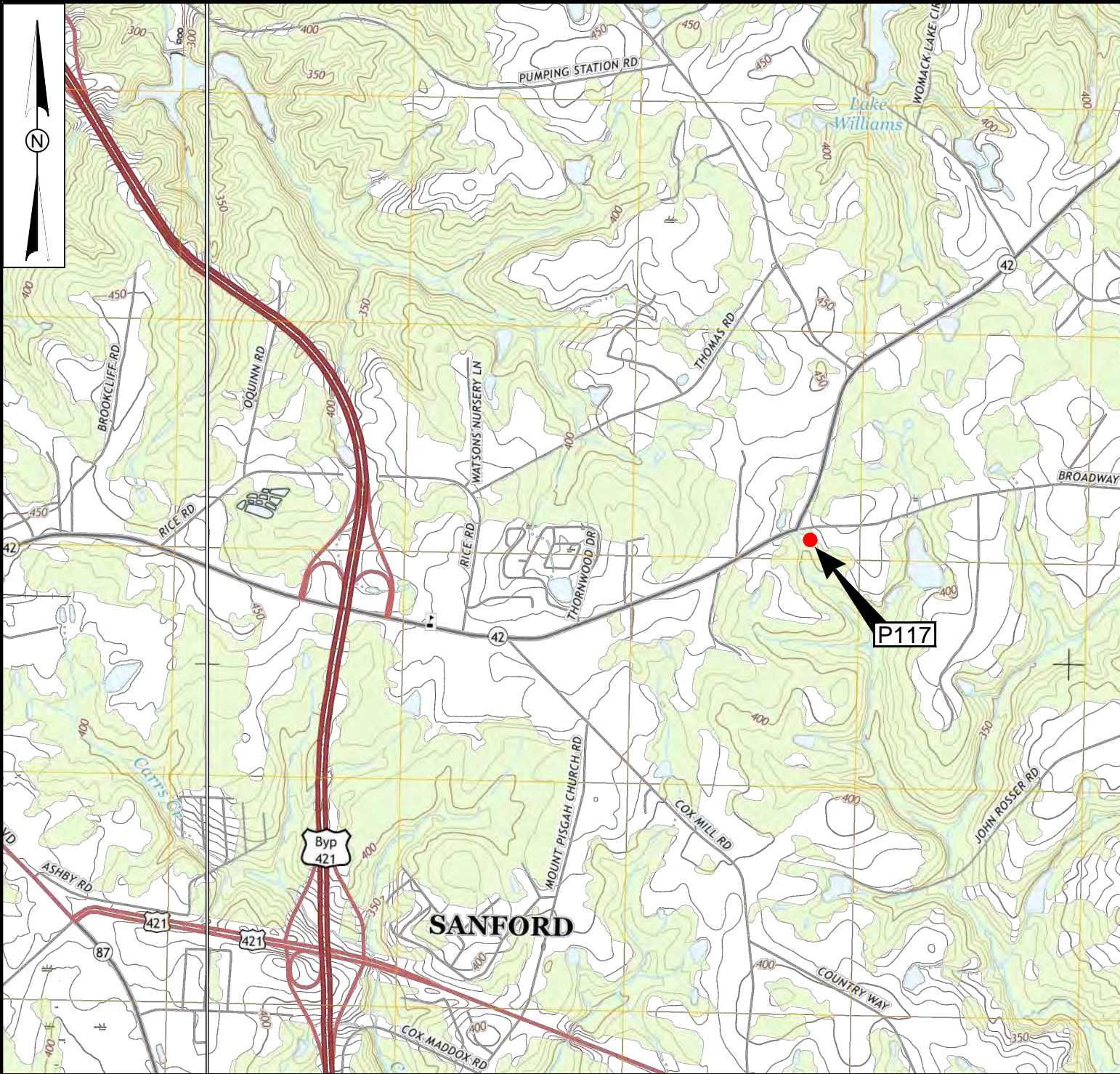
SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
R-3830-P117	1
SITE LOCATION MAP	
FEET	



P117

SANFORD

Byp
421

42

42

421

421

87

PUMPING STATION RD

THOMAS RD

LONGSTREET RD

BROADWAY RD

RICE RD

RICE RD

MOUNT PISGAH CHURCH RD

COX MILL RD

JOHN ROSSETT RD

COUNTRY WAY

COX MADDOX RD

NTWS

WET THOMAS RD

DALRYMPLE FARM RD

DALRYMPLE RD

EDGEWATER DR

HUNTER DR

COZY HOLLOW DR

400

SABRE DR

DIXIE FARM RD

Lake Williams

Patchet Cr



PROJECT REFERENCE NO.	SHEET NO.
R-3830-P117	2

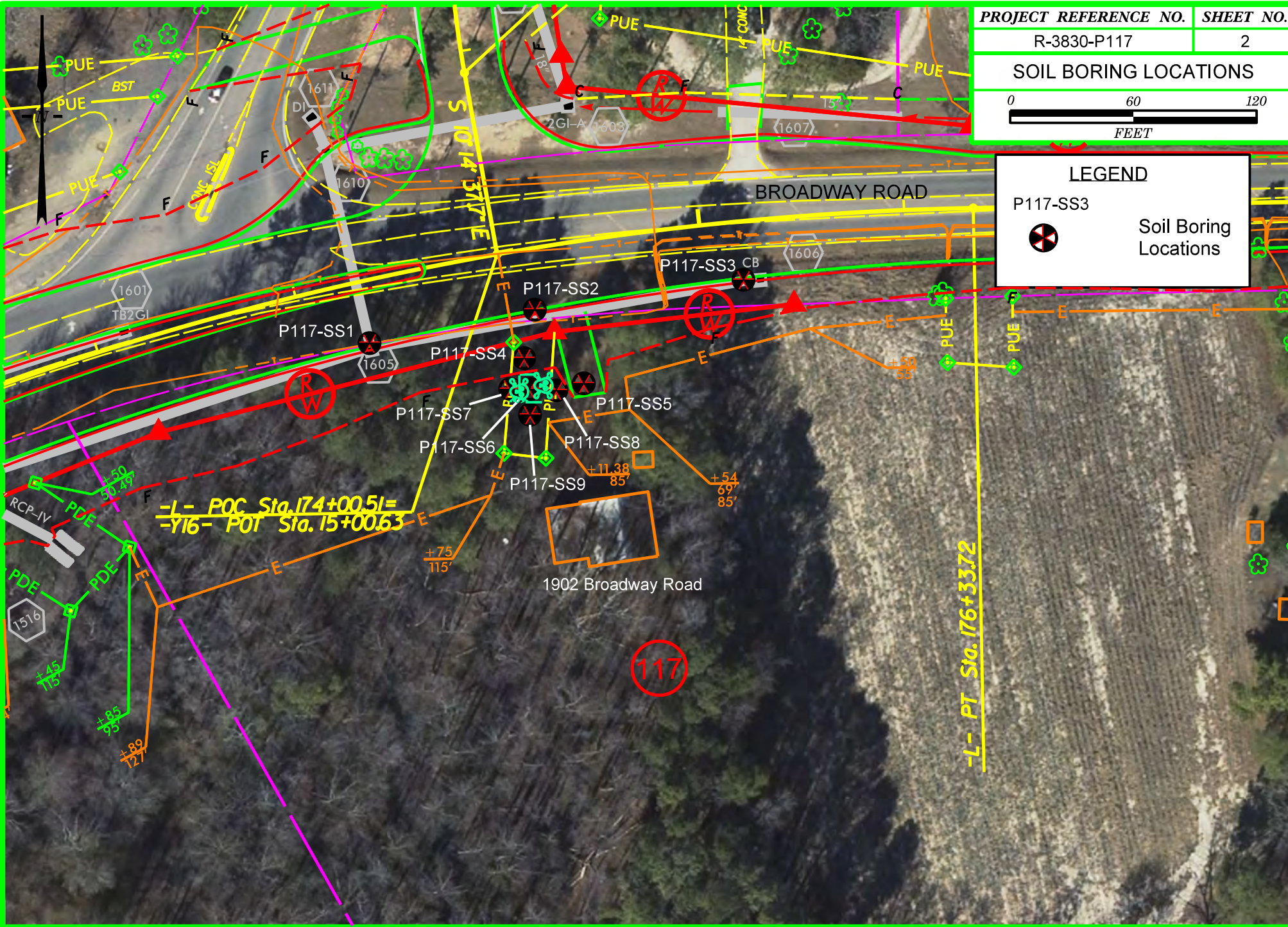
SOIL BORING LOCATIONS

0 60 120
FEET

LEGEND

P117-SS3

Soil Boring Locations



PROJECT REFERENCE NO.	SHEET NO.
R-3830-P117	3
SOIL SAMPLE ANALYTICAL RESULTS	

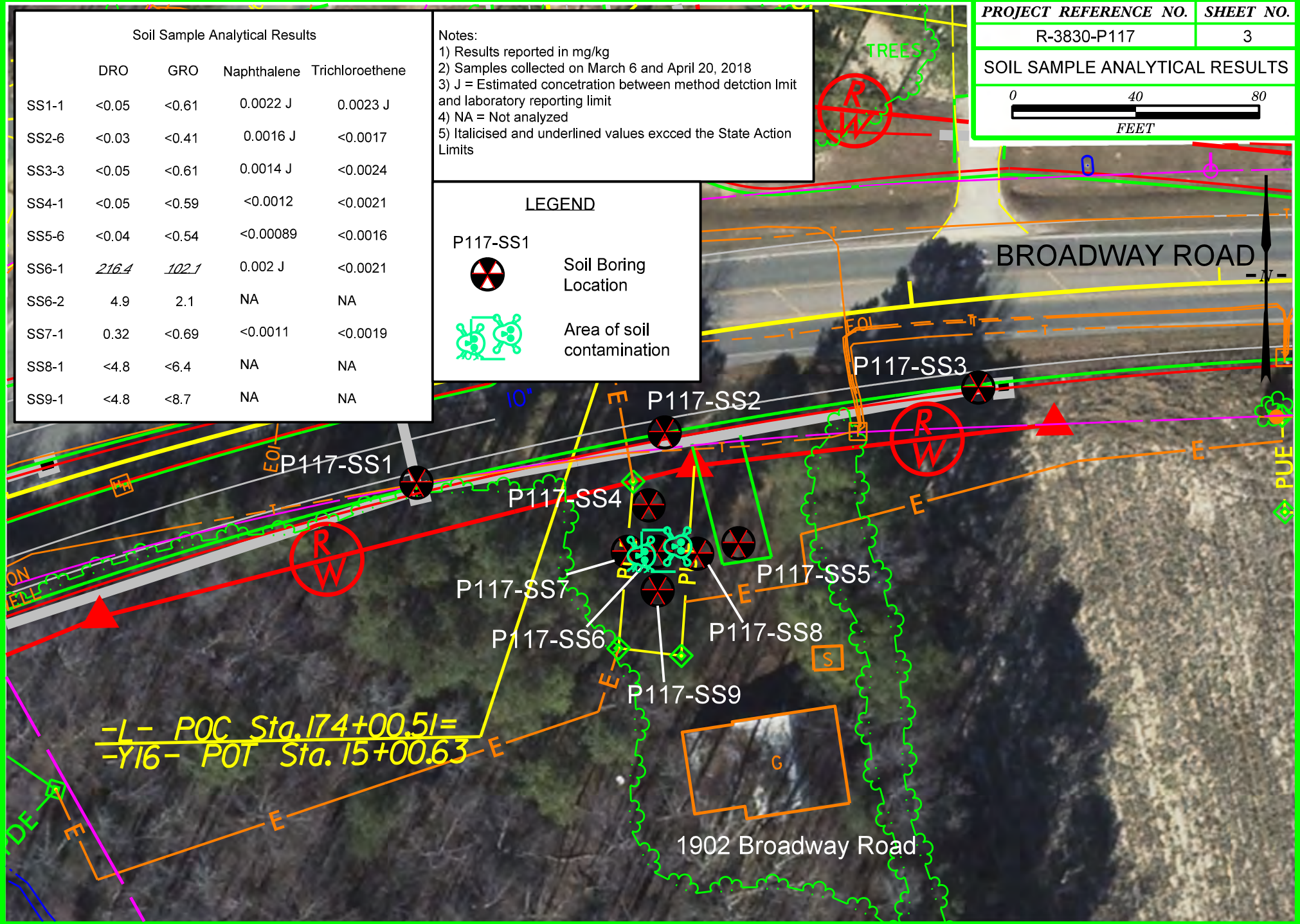
Soil Sample Analytical Results				
	DRO	GRO	Naphthalene	Trichloroethene
SS1-1	<0.05	<0.61	0.0022 J	0.0023 J
SS2-6	<0.03	<0.41	0.0016 J	<0.0017
SS3-3	<0.05	<0.61	0.0014 J	<0.0024
SS4-1	<0.05	<0.59	<0.0012	<0.0021
SS5-6	<0.04	<0.54	<0.00089	<0.0016
SS6-1	<u>216.4</u>	<u>102.1</u>	0.002 J	<0.0021
SS6-2	4.9	2.1	NA	NA
SS7-1	0.32	<0.69	<0.0011	<0.0019
SS8-1	<4.8	<6.4	NA	NA
SS9-1	<4.8	<8.7	NA	NA

Notes:
 1) Results reported in mg/kg
 2) Samples collected on March 6 and April 20, 2018
 3) J = Estimated concentration between method detection limit and laboratory reporting limit
 4) NA = Not analyzed
 5) Italicised and underlined values exceeded the State Action Limits

LEGEND

P117-SS1
 Soil Boring Location

Area of soil contamination



-L- POC Sta. 174+00.51=
 -Y16- POT Sta. 15+00.63=

1902 Broadway Road

APPENDIX A
SITE PHOTOGRAPHS



View of electromagnetic survey of Parcel 117.



View of drilling on Parcel 117.

Original in Color



PROJECT NO.:	20183507
DRAWN:	April 2018
DRAWN BY:	JCH
CHECKED BY:	MB
FILE NAME:	

SITE PHOTOGRAPHS

R-3830-P117
 1902 Broadway Road
 Sanford
 Lee County, NC

Photo
 Page

1

APPENDIX B
GEOPHYSICAL SURVEY REPORT



PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2018-041)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCEL 117 NCDOT PROJECT R-3830 (38887.1.1)

1902 BROADWAY RD., SANFORD, NC

MARCH 30, 2018

Report prepared for: Michael Burns, P.G.
Kleinfelder
3200 Gateway Centre Blvd., Suite 100
Morrisville, NC 27560

Prepared by: _____

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

Reviewed by: _____

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

503 INDUSTRIAL AVENUE, GREENSBORO, NC 27406

P: 336.335.3174 F: 336.691.0648

C257: GEOLOGY C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 117 – 1902 Broadway Rd.
Sanford, Lee County, North Carolina

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Executive Summary	1
Introduction.....	2
Field Methodology.....	2
Discussion of Results.....	3
<i>Discussion of EM Results</i>	3
<i>Discussion of GPR Results</i>	4
Summary & Conclusions	4
Limitations	5

Figures

- Figure 1 – Parcel 117 Geophysical Survey Boundaries and Site Photographs
- Figure 2 – Parcel 117 EM61 Results Contour Map
- Figure 3 – Parcel 117 GPR Transect Locations and Select Images
- Figure 4 – Overlay of Geophysical Survey Boundaries 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 Kleinfelder at Parcel 117, located at 1902 Broadway Rd., in Sanford, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-3830). 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 February 16-22, 2018, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of four EM anomalies were identified. GPR was performed around vehicles and a trailer due to metallic interference observed in the EM data. GPR did not record evidence of large buried structures such as USTs. Evidence of possible utilities or conduits was observed in the vicinity of the trailer. Collectively, the geophysical data did not record any evidence of metallic USTs at Parcel 117.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Kleinfelder at Parcel 117, located at 1902 Broadway Rd., in Sanford, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-3830). 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 February 16-22, 2018, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included a residential building surrounded by an agricultural field, and dirt, gravel, and grass 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 metal detector integrated with a Trimble AG-114 GPS antenna. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

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

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

GPR data were acquired across select EM anomalies on February 22, 2018, using a Geophysical Survey Systems, Inc. (GSSI) UtilityScan DF unit equipped with a dual frequency 300/800 MHz antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 6 feet, based on dielectric constants calculated by the DF unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the DF unit for post-processing and figure generation.

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

Geophysical Surveys for Underground Storage Tanks on NCDOT Projects			
High Confidence	Intermediate Confidence	Low Confidence	No Confidence
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	Vehicles	☑
2	Reinforced Concrete Pipe	
3	Hydrant/Utilities	
4	Trailer	☑

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface, including vehicles, a reinforced concrete pipe, a hydrant, utilities and a trailer. GPR was performed around the vehicles and trailer due to the metallic interference observed in the EM data.

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 GPR transect images are included in **Appendix A**. A total of nine GPR transects were performed at the property. GPR Transects 1-4 were performed around the vehicles (Anomaly 1) and did not record any significant buried structures. GPR Transects 5-9 were performed around the trailer (Anomaly 4) and recorded isolated hyperbolic reflectors consistent with buried utilities or conduits. No evidence of larger structures such as USTs was observed.

Collectively, the geophysical data did not record any evidence of metallic USTs at Parcel 117. **Figure 4** provides an overlay of the geophysical survey onto the NCDOT MicroStation engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid’s evaluation of the EM61 and GPR data collected at Parcel 117 in Sanford, 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.
- GPR was performed around vehicles and a trailer due to metallic interference observed in the EM data.
- GPR did not record evidence of large buried structures such as USTs. Evidence of possible utilities or conduits was observed in the vicinity of the trailer.
- Collectively, the geophysical data did not record any evidence of metallic USTs at Parcel 117.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Kleinfelder 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.

N ↑


APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



View of Survey Area
(Facing Approximately West)



View of Survey Area
(Facing Approximately East)

TITLE		PARCEL 117 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS	
PROJECT		PARCEL 117 SANFORD, NORTH CAROLINA NCDOT PROJECT R-3830	
		503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	
DATE	2/22/2018	CLIENT	KLEINFELDER
PYRAMID PROJECT #:	2018-041	FIGURE 1	



EM61 METAL DETECTION RESULTS

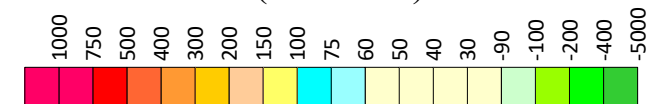



NUMBERS IN BLUE (x) CORRESPOND TO EM ANOMALY TABLE IN REPORT

NO EVIDENCE OF UNKNOWN METALLIC USTs OBSERVED.

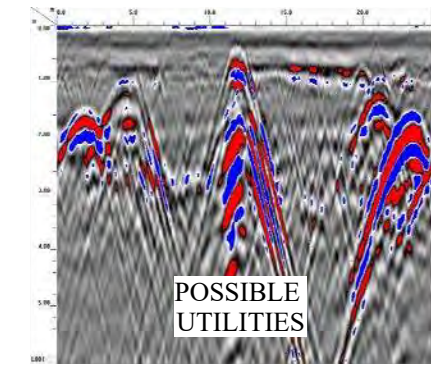
The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM61 data were collected on February 16, 2018, using a Geonics EM61 instrument. Verification GPR data were collected using a GSSI UtilityScan DF instrument with a dual frequency 300/800 MHz antenna on February 22, 2018.

EM61 Metal Detection Response (millivolts)

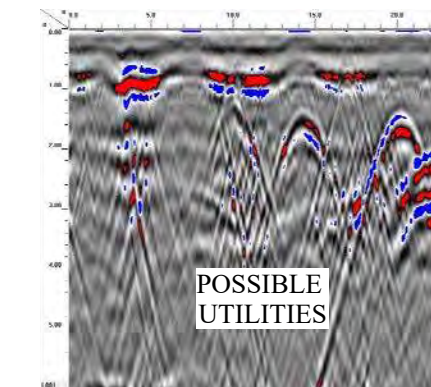


TITLE		PARCEL 117 - EM61 METAL DETECTION CONTOUR MAP	
PROJECT		PARCEL 117 SANFORD, NORTH CAROLINA NCDOT PROJECT R-3830	
		503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	
DATE	2/22/2018	CLIENT	KLEINFELDER
PYRAMID PROJECT #:	2018-041	FIGURE 2	

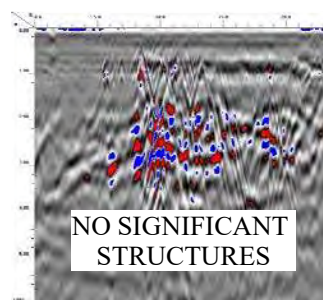
LOCATIONS OF GPR TRANSECTS



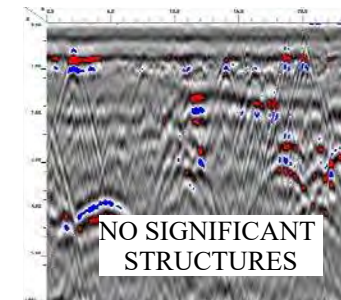
GPR TRANSECT 7 (T7)




GPR TRANSECT 9 (T9)

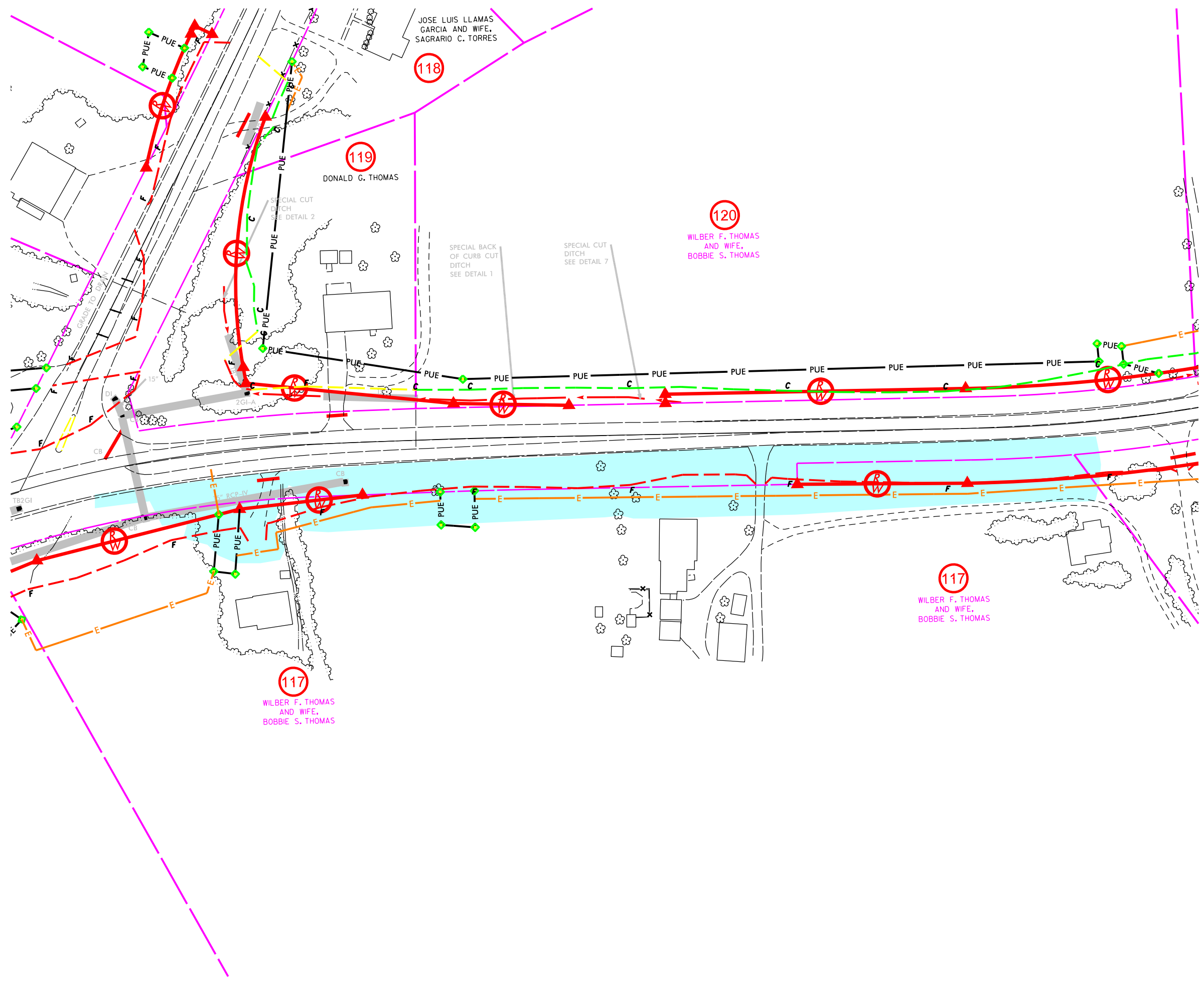


GPR TRANSECT 1 (T1)



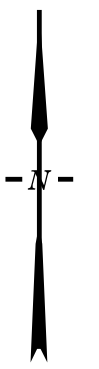
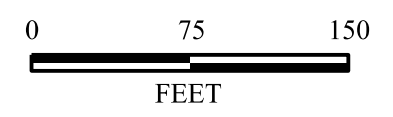
GPR TRANSECT 5 (T5)

TITLE		PARCEL 117 - GPR TRANSECT LOCATIONS AND SELECT IMAGES	
PROJECT		PARCEL 117 SANFORD, NORTH CAROLINA NCDOT PROJECT R-3830	
		503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	
DATE	3/7/2018	CLIENT	KLEINFELDER
PYRAMID PROJECT #:	2018-041	FIGURE 3	



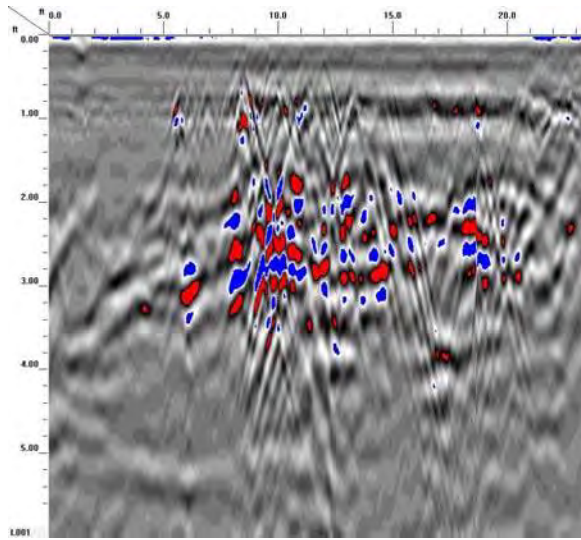
LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- TEMPORARY CONSTRUCTION EASEMENT
- PDE PROPOSED PERMANENT DRAINAGE
- PUE PROPOSED PERMANENT UTILITY
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE
- GEOPHYSICAL SURVEY AREA

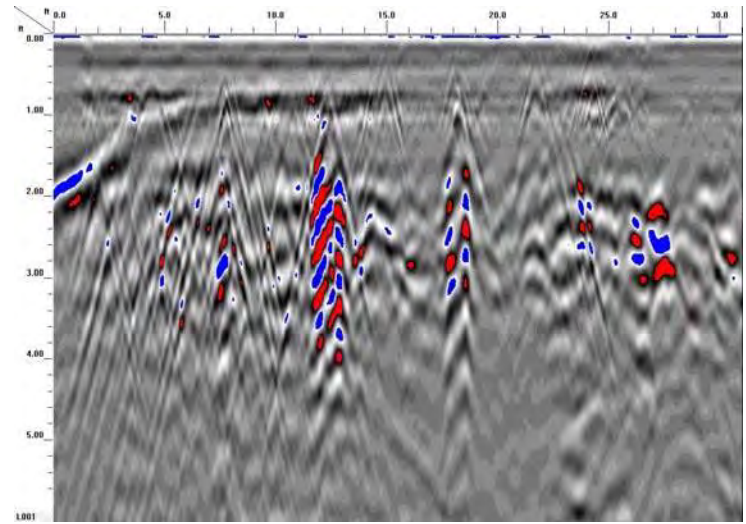


<small>TITLE</small> OVERLAY OF GEOPHYSICAL SURVEY BOUNDARIES ON NCDOT ENGINEERING PLANS	
<small>PROJECT</small> PARCEL 117 SANFORD, NORTH CAROLINA NCDOT PROJECT R-3830	
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="font-size: 8px;"> 503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology </div> </div>	
<small>DATE:</small> 03-13-2018	<small>REVISION NO.</small> 0
<small>PYRAMID PROJECT NO.</small> 2018-041	<small>FIGURE NO.</small> 4

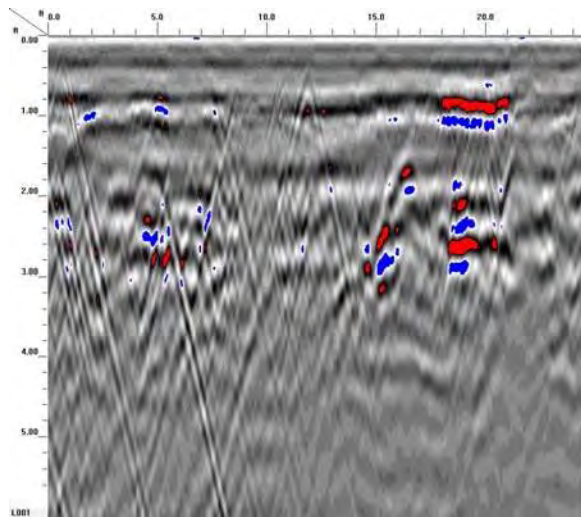
Appendix A – GPR Transect Images



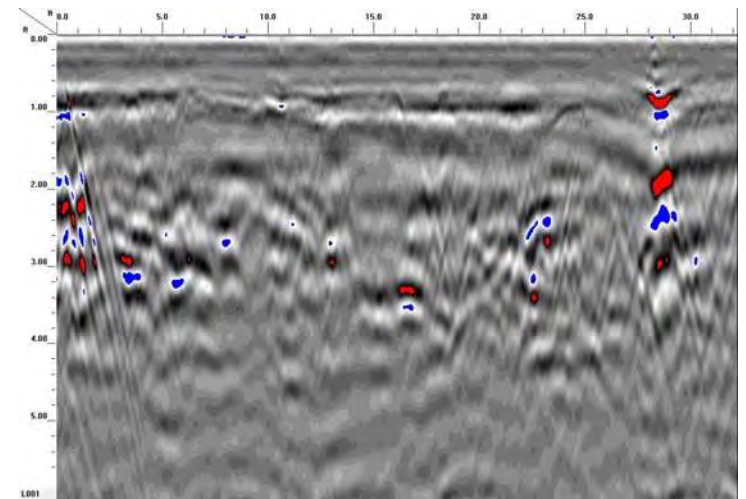
Transect 1



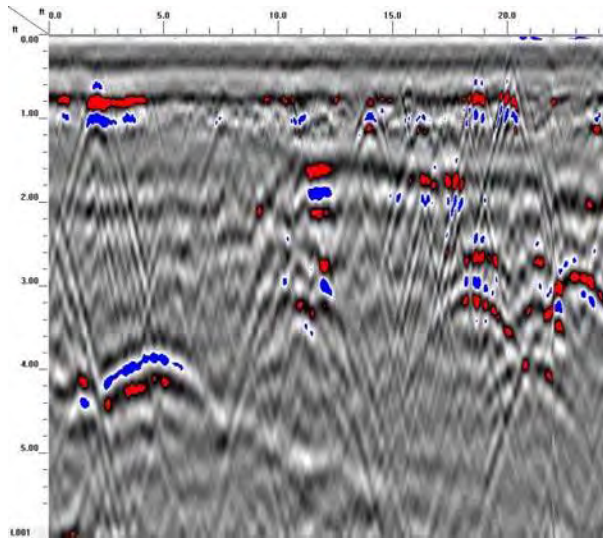
Transect 3



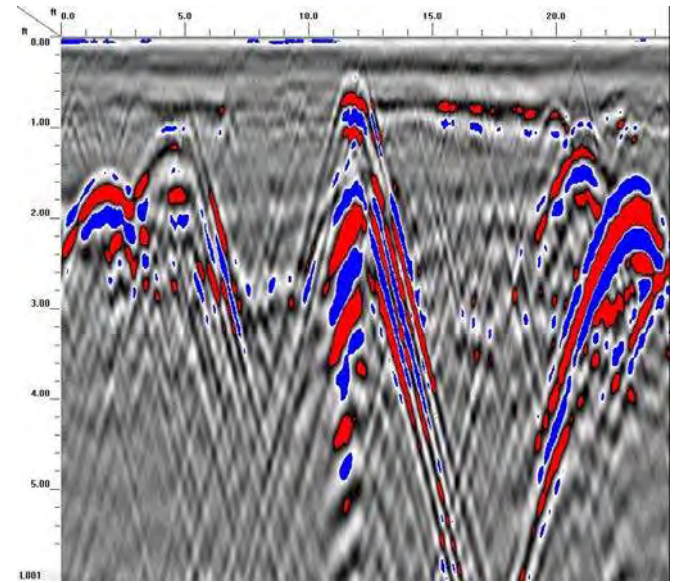
Transect 2



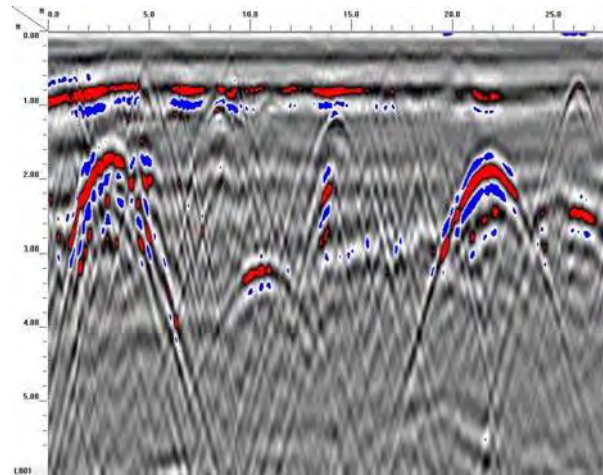
Transect 4



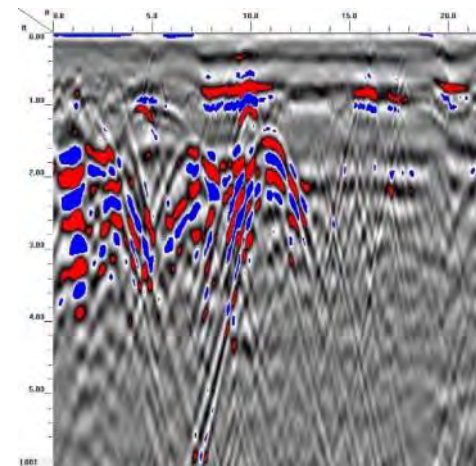
Transect 5



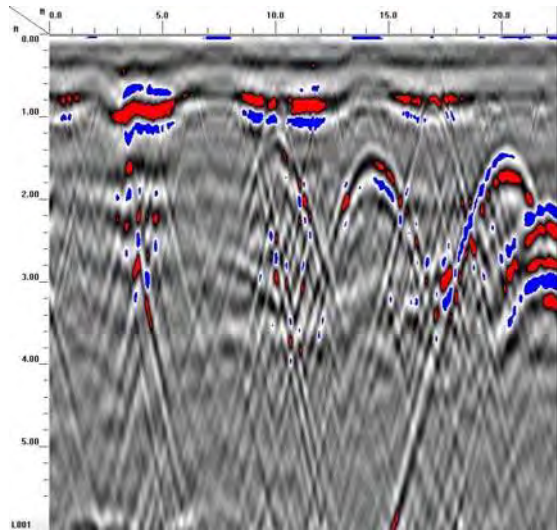
Transect 7



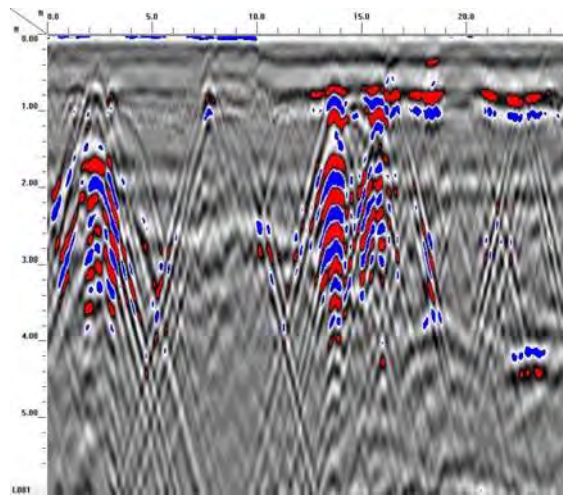
Transect 6



Transect 8



Transect 9



Transect 10

APPENDIX C
BORING LOGS

Date Begin - End: 3/06/2018	Drilling Company: Quantex	BORING LOG P117-SS1
Logged By: J. Hollinger	Drill Crew: JD Barker	
Hor.-Vert. Datum: Not Available	Drilling Equipment: 6620DT GeoProbe	
Plunge: -90 degrees	Drilling Method: See Drilling Method Column	
Weather: Rain	Bore Diameter: 2 in. O.D.	

FIELD EXPLORATION						
Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
Northing: 623667.8979 Easting: 1971361.3692 Surface Condition: Grass						
Lithologic Description						
						TOPSOIL
			1 (UVF, GC, 8260)	100%	3.70	
	Hand Auger		2	100%	1.20	
	Hand Auger		3	100%	1.50	
	Hand Auger		4	100%	1.03	
5	Direct Push Sleeves		5	100%	0.53	
	Direct Push Sleeves		6	100%	1.50	
	Direct Push Sleeves		7	100%	0.70	
	Direct Push Sleeves		8	100%	0.43	
	Direct Push Sleeves		9	100%	0.44	
10	Direct Push Sleeves		10	100%	0.12	
<p>The borehole was terminated at approximately 10 ft. below ground surface.</p> <p>GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion.</p> <p>GENERAL NOTES: The boring was backfilled with excavated material on March 06, 2018.</p>						

OFFICE FILTER: RALEIGH

PROJECT NUMBER: 20183507.001A
 GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2017.GLB [KLF_ENVIRONMENTAL LOG]

	PROJECT NO.: 20183507	BORING LOG P117-SS1
	DRAWN BY: JCH	
	CHECKED BY: MJB	
	DATE: 4/26/2018	
	REVISED: -	
		R-3830 WBS 38887.1.1 Sanford, NC

Date Begin - End: 3/06/2018 **Drilling Company:** Quantex
Logged By: J. Hollinger **Drill Crew:** JD Barker
Hor.-Vert. Datum: Not Available **Drilling Equipment:** 6620DT GeoProbe
Plunge: -90 degrees **Drilling Method:** See Drilling Method Column
Weather: Rain **Bore Diameter:** 2 in. O.D.

FIELD EXPLORATION

Northing: 623684.1751
 Easting: 1971441.8598
 Surface Condition: Grass

Lithologic Description

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
	Hand Auger		1	100%	1.23	[Symbol]
			2	100%	0.81	[Symbol]
			3	100%	0.50	[Symbol]
			4	100%	0.23	[Symbol]
			5	100%	0.43	[Symbol]
5	Direct Push Sleeves		6 (UVF, GC, 8260)	100%	2.18	[Symbol]
			7	100%	0.80	[Symbol]
			8	100%	0.50	[Symbol]
			9	100%	1.15	[Symbol]
10			10	100%	0.63	[Symbol]

TOPSOIL

Sandy SILT: tan/orange

SAND and GRAVEL: coarse-grained

SILT: tan

The borehole was terminated at approximately 10 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
 Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
 The boring was backfilled with excavated material on March 06, 2018.



PROJECT NO.: 20183507
 DRAWN BY: JCH
 CHECKED BY: MJB
 DATE: 4/26/2018
 REVISED: -

BORING LOG P117-SS2

R-3830
 WBS 38887.1.1
 Sanford, NC

Date Begin - End: 3/06/2018
Logged By: J. Hollinger
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Rain

Drilling Company: Quantex
Drill Crew: JD Barker
Drilling Equipment: 6620DT GeoProbe
Drilling Method: See Drilling Method Column
Bore Diameter: 2 in. O.D.

FIELD EXPLORATION

Northing: 623698.7730
 Easting: 1971543.5222
 Surface Condition: Bare Earth

Lithologic Description

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
	Hand Auger		1	100%	0.44	
			2	100%	1.12	
			3 (UVF, GC, 8260)	100%	1.00	
			4	100%	0.79	
5	Direct Push Sleeves		5	100%	0.54	
			6	100%	1.14	
			7	100%	0.25	
			8	100%	0.80	
			9	100%	0.69	
10			10	100%	0.48	

TOPSOIL

SAND: coarse-grained, tan

Silty CLAY: orange/red

Silty SAND: orange

Silty SAND: red

The borehole was terminated at approximately 10 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
 Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
 The boring was backfilled with excavated material on March 06, 2018.



PROJECT NO.: 20183507
 DRAWN BY: JCH
 CHECKED BY: MJB
 DATE: 4/26/2018
 REVISED: -

BORING LOG P117-SS3

R-3830
 WBS 38887.1.1
 Sanford, NC

Date Begin - End: 3/06/2018
Logged By: J. Hollinger
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Rain

Drilling Company: Quantex
Drill Crew: JD Barker
Drilling Equipment: 6620DT GeoProbe
Drilling Method: See Drilling Method Column
Bore Diameter: 2 in. O.D.

BORING LOG P117-SS4

FIELD EXPLORATION

Northing: 623660.5985
 Easting: 1971436.6377
 Surface Condition: Bare Earth

Lithologic Description

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
5	Hand Auger	[Symbol]	1 (UVF, GC, 8260)	100%	1.84	[Hatched Pattern]
			2	100%	1.38	
			3	100%	1.23	
5	Direct Push Sleeves	[Symbol]	4	100%	0.53	
			5	100%	1.57	
			6	100%	0.76	
			7	100%	0.87	
			8	100%	0.63	
			9	100%	1.65	
			10	100%	0.81	

Clayey SAND: orange

Clayey SAND: red/orange/gray

Silty SAND and GRAVEL: red

Clayey SILT: gray/orange

The borehole was terminated at approximately 10 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
 Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
 The boring was backfilled with excavated material on March 06, 2018.







PROJECT NO.: 20183507
 DRAWN BY: JCH
 CHECKED BY: MJB
 DATE: 4/26/2018
 REVISED: -

BORING LOG P117-SS4

R-3830
 WBS 38887.1.1
 Sanford, NC

Date Begin - End: 3/06/2018	Drilling Company: Quantex	BORING LOG P117-SS5
Logged By: J. Hollinger	Drill Crew: JD Barker	
Hor.-Vert. Datum: Not Available	Drilling Equipment: 6620DT GeoProbe	
Plunge: -90 degrees	Drilling Method: See Drilling Method Column	
Weather: Rain	Bore Diameter: 2 in. O.D.	

FIELD EXPLORATION						
Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
						Northing: 623648.2741 Easting: 1971465.7180 Surface Condition: Bare Earth
						Lithologic Description
	Hand Auger		1	100%	1.50	 TOPSOIL SAND: coarse-grained, tan
			2	100%	1.00	 Silty SAND: red/orange
			3	100%	0.73	
	Direct Push Sleeves		4	100%	0.72	 Clayey SAND: gray/orange Sandy CLAY: orange/gray
			5	100%	0.63	
			6 (UVF, GC, 8260)	100%	4.11	
			7	100%	1.23	
			8	100%	0.83	
			9	100%	0.89	
			10	100%	1.36	
The borehole was terminated at approximately 10 ft. below ground surface.						GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The boring was backfilled with excavated material on March 06, 2018.

 <p>KLEINFELDER Bright People. Right Solutions.</p>	PROJECT NO.: 20183507 DRAWN BY: JCH CHECKED BY: MJB DATE: 4/26/2018 REVISED: -	BORING LOG P117-SS5	
			R-3830 WBS 38887.1.1 Sanford, NC

Date Begin - End: 3/06/2018
Logged By: J. Hollinger
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Rain
Drilling Company: Quantex
Drill Crew: JD Barker
Drilling Equipment: Hand Auger
Drilling Method: See Drilling Method Column
Bore Diameter: 2 in. O.D.

FIELD EXPLORATION

Northing: 623645.4906
 Easting: 1971439.3914
 Surface Condition: Bare Earth

Lithologic Description

SAND: tan, dry, Heavy petroleum staining at one foot

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
0	Hand Auger	[Symbol]	1 (UVF, 8260)	100%	740	[Symbol]
			2 (UVF)	100%	8.68	
			3	100%	0.21	
5	The borehole was terminated at approximately 3 ft. below ground surface.					

GROUNDWATER LEVEL INFORMATION:
 Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
 The boring was backfilled with excavated material on March 06, 2018.



PROJECT NO.: 20183507
 DRAWN BY: JCH
 CHECKED BY: MJB
 DATE: 4/26/2018
 REVISED: -

BORING LOG P117-SS6

R-3830
 WBS 38887.1.1
 Sanford, NC

Date Begin - End: 3/06/2018
Logged By: J. Hollinger
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Rain
Drilling Company: Quantex
Drill Crew: JD Barker
Drilling Equipment: Hand Auger
Drilling Method: See Drilling Method Column
Bore Diameter: 2 in. O.D.

FIELD EXPLORATION

Northing: 623645.5379
 Easting: 1971429.8702
 Surface Condition: Bare Earth

Lithologic Description

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	
	Hand Auger		1 (UVF)	100%	1.12		SAND: tan, dry
			2	100%	1.01		
			3	100%	0.76		
5	The borehole was terminated at approximately 3 ft. below ground surface.						<p><u>GROUNDWATER LEVEL INFORMATION:</u> Groundwater was not observed during drilling or after completion.</p> <p><u>GENERAL NOTES:</u> The boring was backfilled with excavated material on March 06, 2018.</p>




PROJECT NO.: 20183507
 DRAWN BY: JCH
 CHECKED BY: MJB
 DATE: 4/26/2018
 REVISED: -

BORING LOG P117-SS7

R-3830
 WBS 38887.1.1
 Sanford, NC

Date Begin - End: 4/20/2018	Drilling Company: Kleinfelder	BORING LOG P117-SS8
Logged By: J. Hollinger	Drill Crew: J. Hollinger	
Hor.-Vert. Datum: Not Available	Drilling Equipment: Hand Auger	
Plunge: -90 degrees	Drilling Method: See Drilling Method Column	
Weather: Cloudy	Bore Diameter: 2 in. O.D.	

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	FIELD EXPLORATION	
							Lithologic Description	
	Hand Auger		1 (DRO & GRO)	100%	1.0		Northing: 623644.9014 Easting: 1971452.3556 Surface Condition: Bare Earth	
			2	100%	0.3		SAND: tan, dry	
			3	100%	0.8			
5	The borehole was terminated at approximately 3 ft. below ground surface.							

	PROJECT NO.: 20183507	BORING LOG P117-SS8
	DRAWN BY: JCH CHECKED BY: MJB DATE: 4/26/2018 REVISED: -	

Date Begin - End: 4/20/2018
Logged By: J. Hollinger
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Cloudy
Drilling Company: Kleinfelder
Drill Crew: J. Hollinger
Drilling Equipment: Hand Auger
Drilling Method: See Drilling Method Column
Bore Diameter: 2 in. O.D.

FIELD EXPLORATION

Northing: 623632.9901
 Easting: 1971439.5525
 Surface Condition: Bare Earth

Lithologic Description

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log		
	Hand Auger		1 (GRO, DRO)	100%	1.2		SAND: tan, dry	
			2	100%	0.8			
			3	100%	0.5			
5	The borehole was terminated at approximately 3 ft. below ground surface.						GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The boring was backfilled with excavated material on April 20, 2018.	



PROJECT NO.: 20183507
 DRAWN BY: JCH
 CHECKED BY: MJB
 DATE: 4/26/2018
 REVISED: -

BORING LOG P117-SS9

R-3830
 WBS 38887.1.1
 Sanford, NC

APPENDIX D
ANALYTICAL REPORT AND GRAPHS



Hydrocarbon Analysis Results

Client: Kleinfelder
Address: 3200 Gateway Centre Blvd
 Morrisville, NC

Samples taken Tuesday, March 6, 2018
Samples extracted Tuesday, March 6, 2018
Samples analysed Tuesday, March 6, 2018

Contact: Michael Burns

Operator J. Joseph Hodge

Project: R3830

U00902

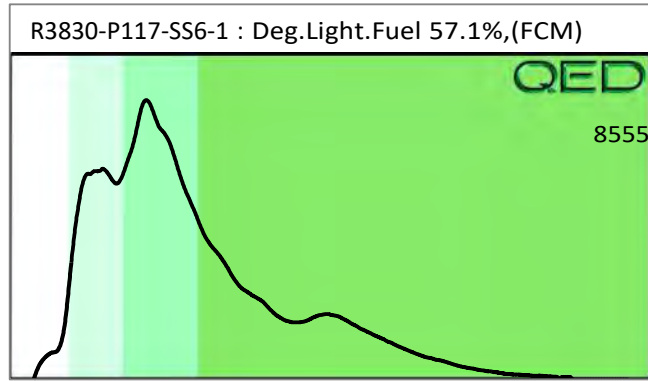
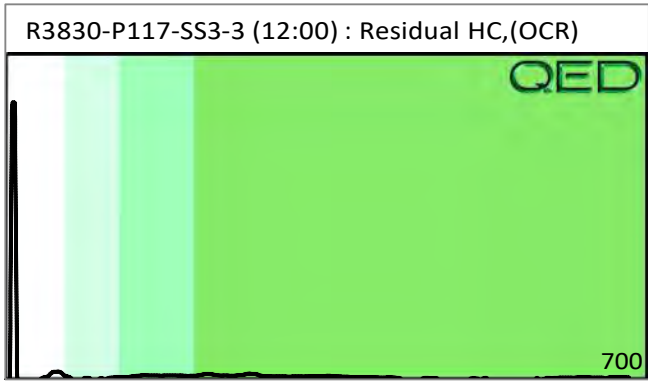
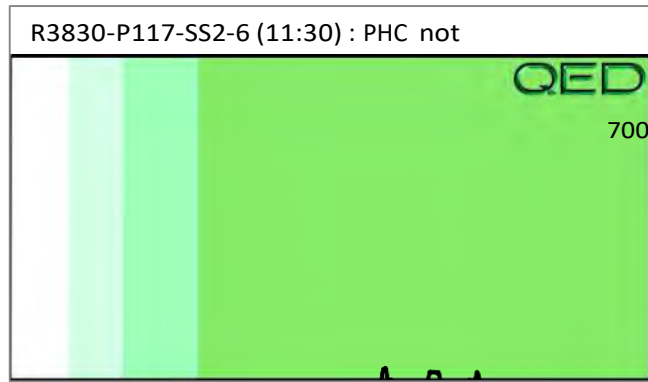
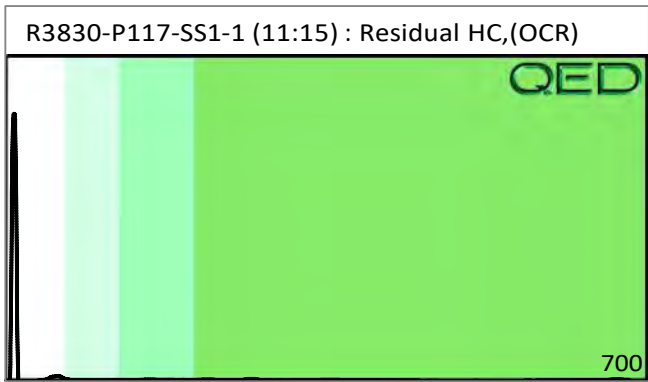
Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5 - C10	C10 - C18	C18	
s	R3830-P117-SS1-1 (11:15)	24.3	<0.61	<0.61	<0.05	<0.61	<0.12	<0.02	<0.012	0	0	0	Residual HC,(OCR)
s	R3830-P117-SS2-6 (11:30)	16.3	<0.41	<0.41	<0.03	<0.41	<0.08	<0.02	<0.008	0	0	0	PHC not detected,(OCR)
s	R3830-P117-SS3-3 (12:00)	24.5	<0.61	<0.61	<0.05	<0.61	<0.12	<0.02	<0.012	0	0	0	Residual HC,(OCR)
s	R3830-P117-SS6-1	330.0	<16.5	102.1	216.4	318.5	144.5	5.5	<0.17	45.9	53.4	0.6	Deg.Light.Fuel 57.1%,(FCM)

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

103.6 %

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**





Hydrocarbon Analysis Results

Client: Kleinfelder
Address: 3200 Gateway Centre Blvd
 Morrisville, NC

Samples taken Tuesday, March 6, 2018
Samples extracted Tuesday, March 6, 2018
Samples analysed Tuesday, March 6, 2018

Contact: Michael Burns

Operator J. Joseph Hodge

Project: R3830

U00902

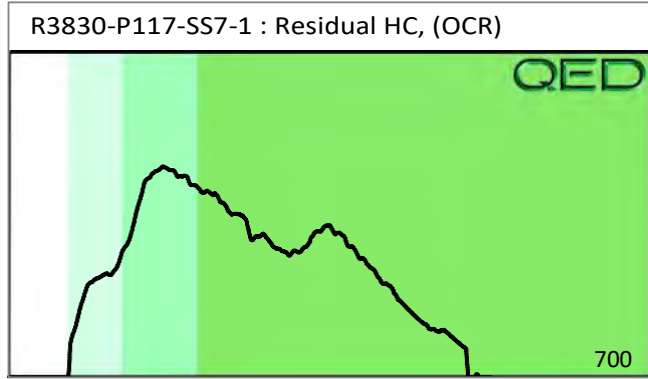
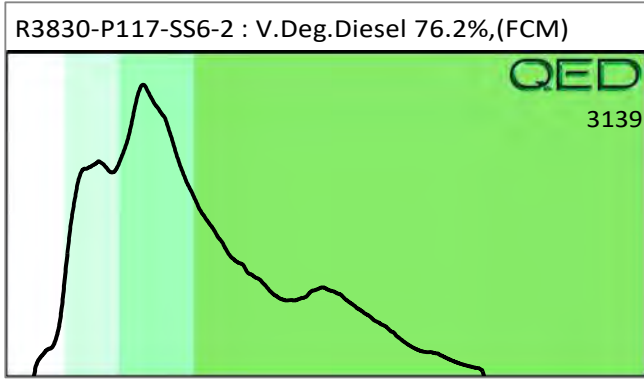
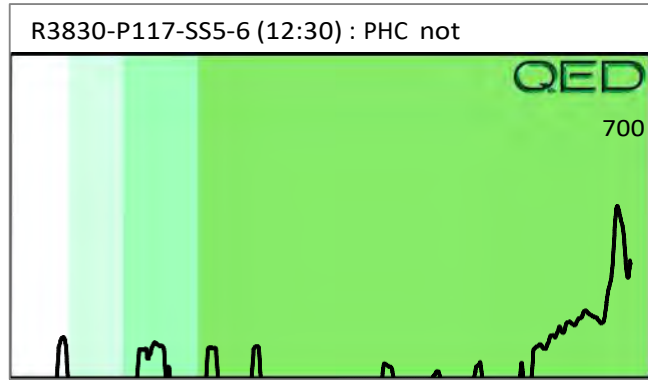
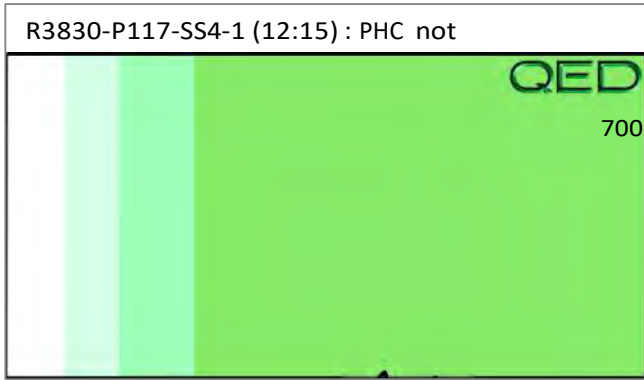
Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5 - C10	C10 - C18	C18	
s	R3830-P117-SS4-1 (12:15)	23.4	<0.59	<0.59	<0.05	<0.59	<0.12	<0.02	<0.012	0	0	0	PHC not detected,(OCR)
s	R3830-P117-SS5-6 (12:30)	21.7	<0.54	<0.54	<0.04	<0.54	<0.11	<0.02	<0.011	0	0	0	PHC not detected,(OCR)
s	R3830-P117-SS6-2	26.3	<1.3	2.1	4.9	7	3	0.14	<0.013	46.2	53.2	0.6	V.Deg.Diesel 76.2%,(FCM)
s	R3830-P117-SS7-1	27.7	<0.69	<0.69	0.32	0.32	0.32	<0.03	<0.014	0	97.4	2.3	Residual HC,(OCR)

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

98.9 %

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**





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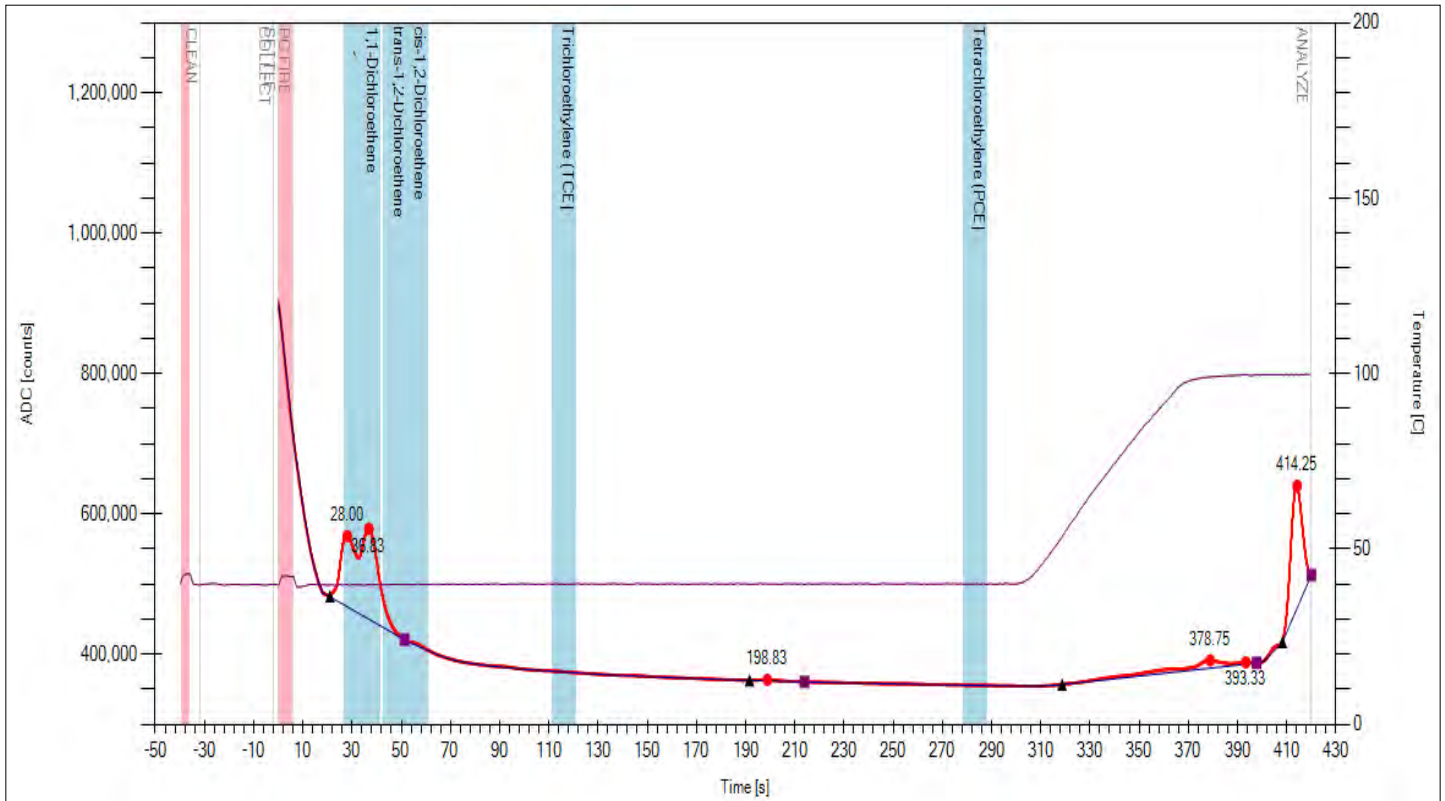
Dilution = 8.16

Client: KLEINFELDER
Sample ID: R3830-P117-SS-1-1
Project Reference: R3830

Sample Taken: 02/06/18
Sample Extracted: 02/06/18
Sample Analyzed: 02/06/18

Analyst: Rachel Pantesco

Peak	Analyte Name	Time	Concentration (µg/Kg)
-	Vinyl Chloride	-	ND
-	1,1-Dichloroethene	-	ND
-	Trans-1,2-Dichloroethene	-	ND
-	Cis-1,2-Dichloroethene	-	ND
-	Trichloroethylene (TCE)	-	ND
-	Tetrachloroethylene (PCE)	-	ND





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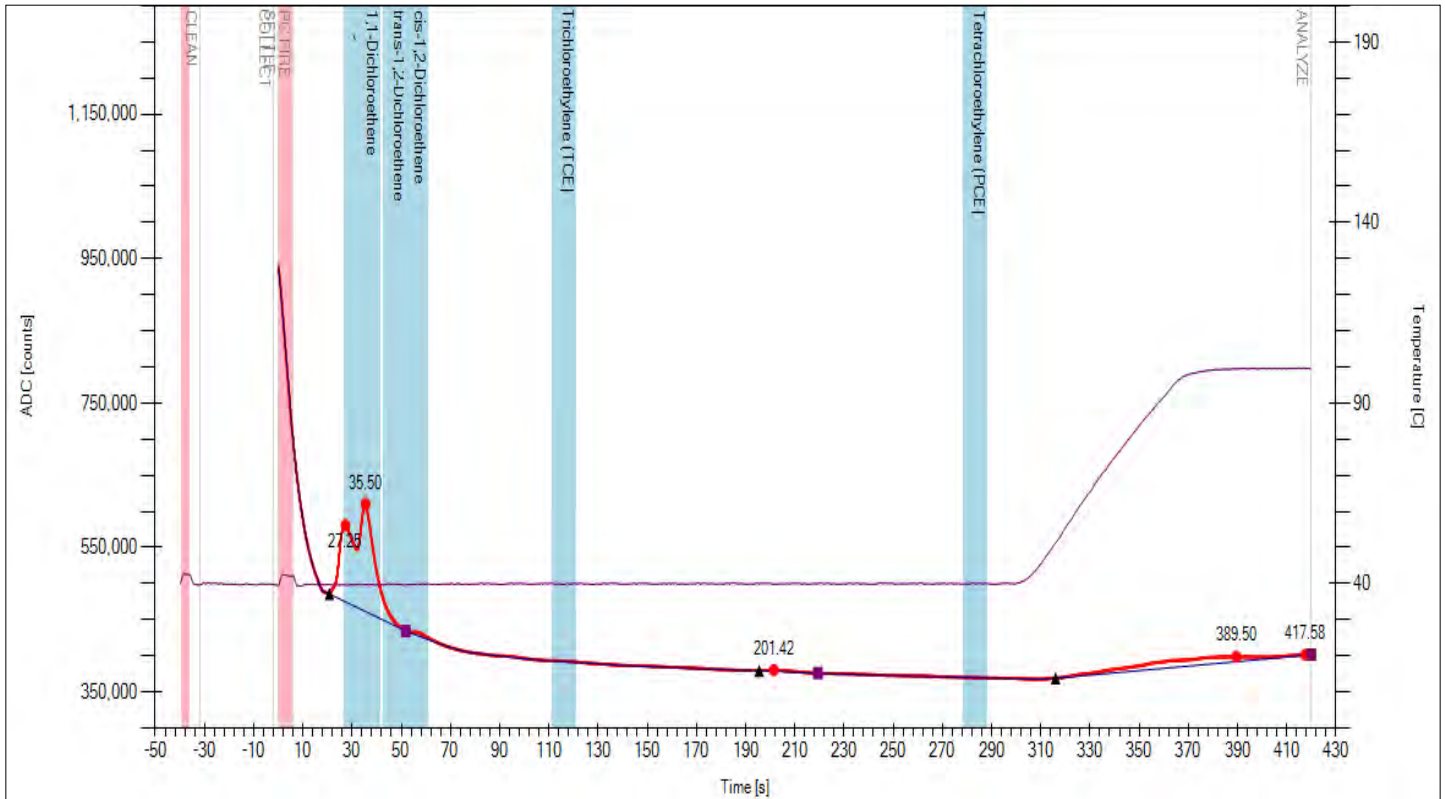
Dilution = 6.78

Client: KLEINFELDER
Sample ID: R3830-P117-SS-2-6
Project Reference: R3830

Sample Taken: 02/06/18
Sample Extracted: 02/06/18
Sample Analyzed: 02/06/18

Analyst: Rachel Pantesco

Peak	Analyte Name	Time	Concentration (µg/Kg)
-	Vinyl Chloride	-	ND
-	1,1-Dichloroethene	-	ND
-	Trans-1,2-Dichloroethene	-	ND
-	Cis-1,2-Dichloroethene	-	ND
-	Trichloroethylene (TCE)	-	ND
-	Tetrachloroethylene (PCE)	-	ND





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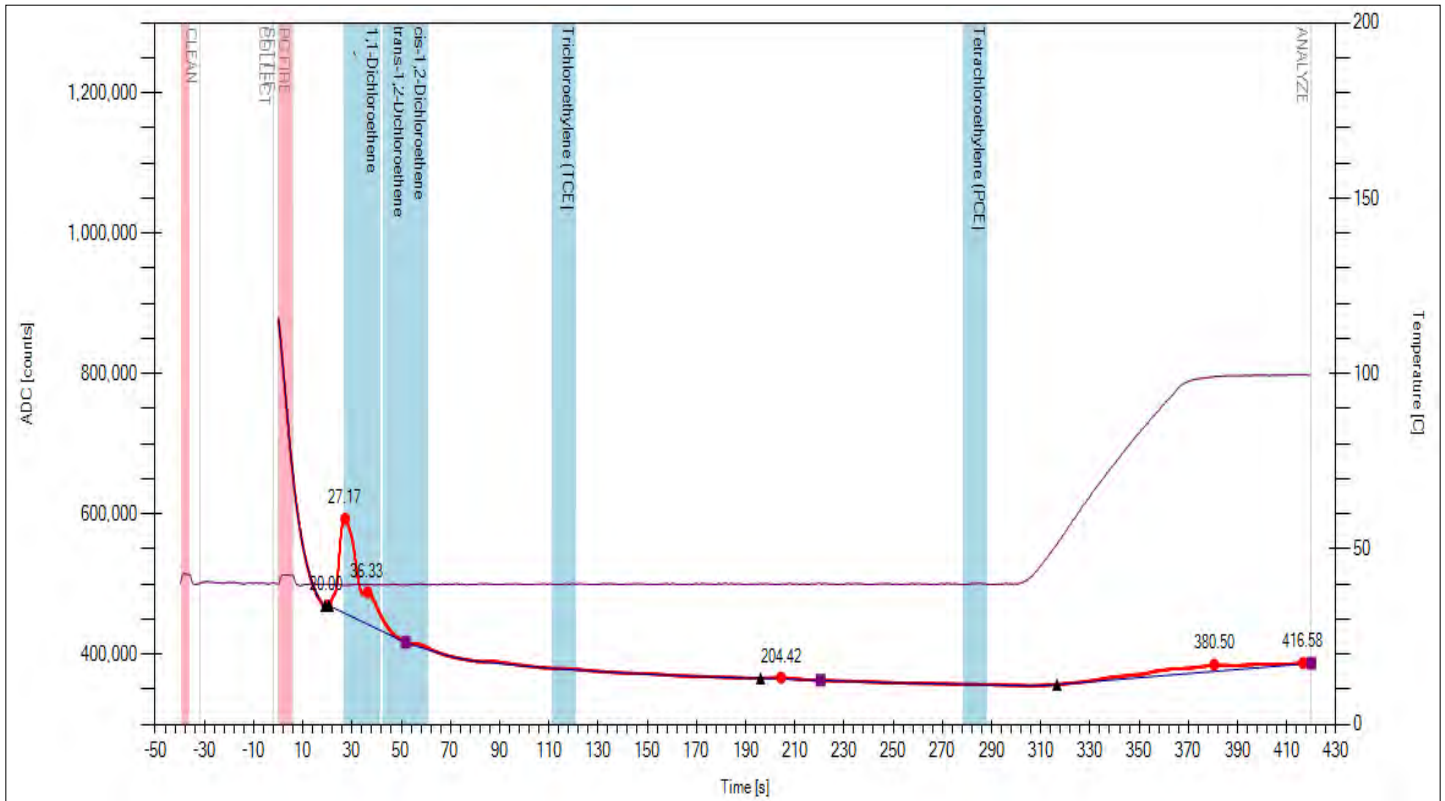
Dilution = 8.00

Client: KLEINFELDER
Sample ID: R3830-P117-SS-3-3
Project Reference: R3830

Sample Taken: 02/06/18
Sample Extracted: 02/06/18
Sample Analyzed: 02/06/18

Analyst: Rachel Pantesco

Peak	Analyte Name	Time	Concentration (µg/Kg)
-	Vinyl Chloride	-	ND
-	1,1-Dichloroethene	-	ND
-	Trans-1,2-Dichloroethene	-	ND
-	Cis-1,2-Dichloroethene	-	ND
-	Trichloroethylene (TCE)	-	ND
-	Tetrachloroethylene (PCE)	-	ND





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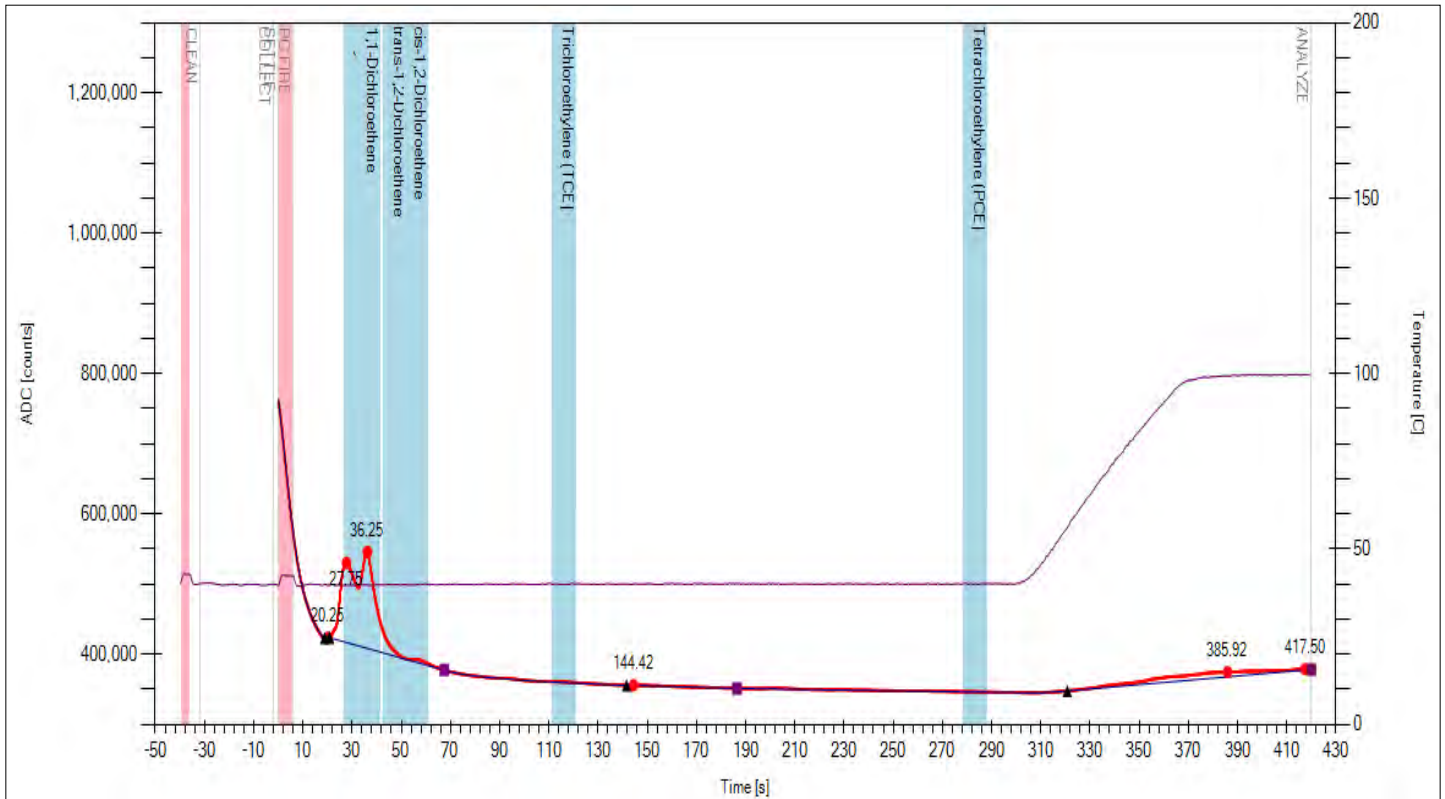
Dilution = 7.27

Client: KLEINFELDER
Sample ID: R3830-P117-SS-4-1
Project Reference: R3830

Sample Taken: 02/06/18
Sample Extracted: 02/06/18
Sample Analyzed: 02/06/18

Analyst: Rachel Pantesco

Peak	Analyte Name	Time	Concentration (µg/Kg)
-	Vinyl Chloride	-	ND
-	1,1-Dichloroethene	-	ND
-	Trans-1,2-Dichloroethene	-	ND
-	Cis-1,2-Dichloroethene	-	ND
-	Trichloroethylene (TCE)	-	ND
-	Tetrachloroethylene (PCE)	-	ND





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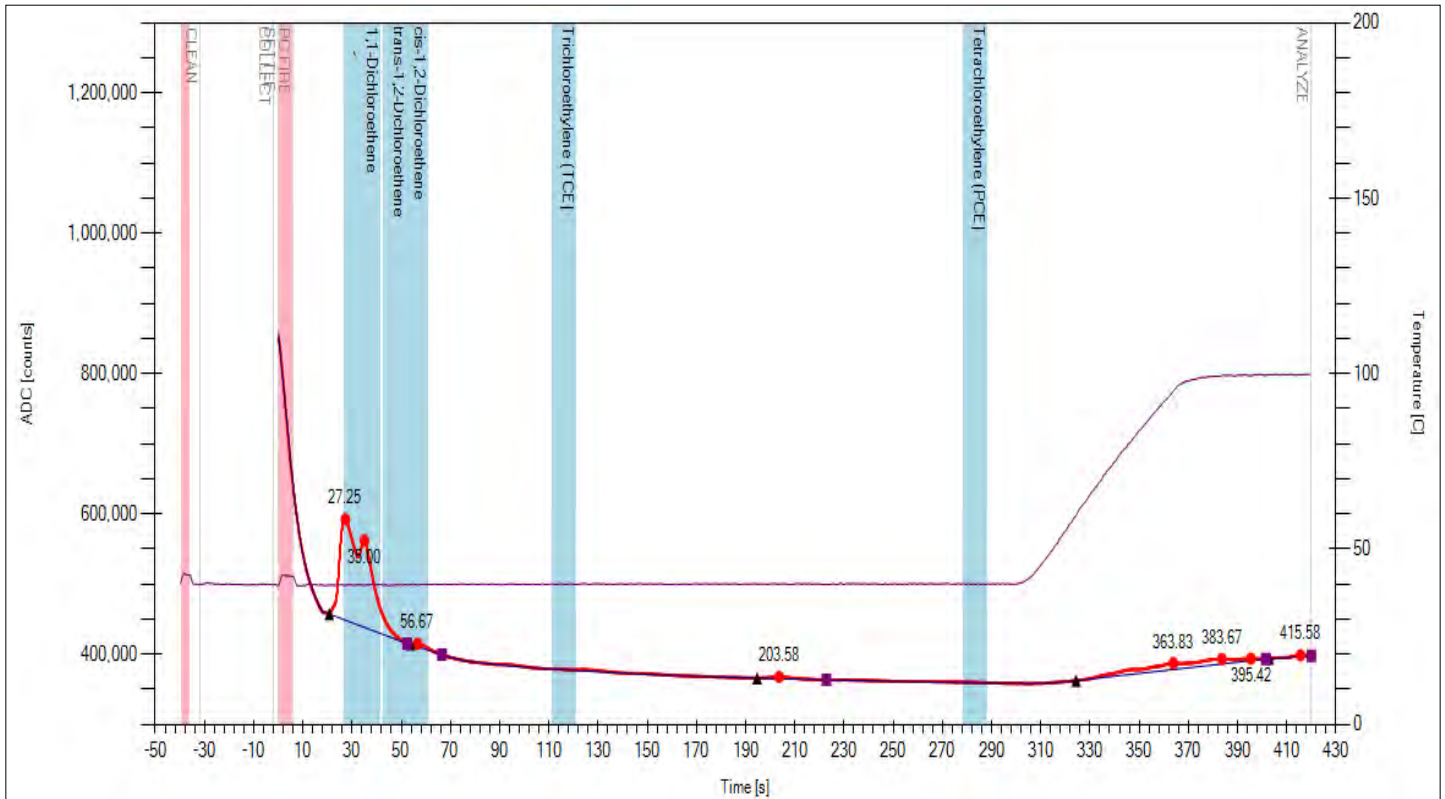
Dilution = 8.00

Client: KLEINFELDER
Sample ID: R3830-P117-SS-5-6
Project Reference: R3830

Sample Taken: 02/06/18
Sample Extracted: 02/06/18
Sample Analyzed: 02/06/18

Analyst: Rachel Pantesco

Peak	Analyte Name	Time	Concentration (µg/Kg)
-	Vinyl Chloride	-	ND
-	1,1-Dichloroethene	-	ND
-	Trans-1,2-Dichloroethene	-	ND
-	Cis-1,2-Dichloroethene	-	ND
-	Trichloroethylene (TCE)	-	ND
-	Tetrachloroethylene (PCE)	-	ND





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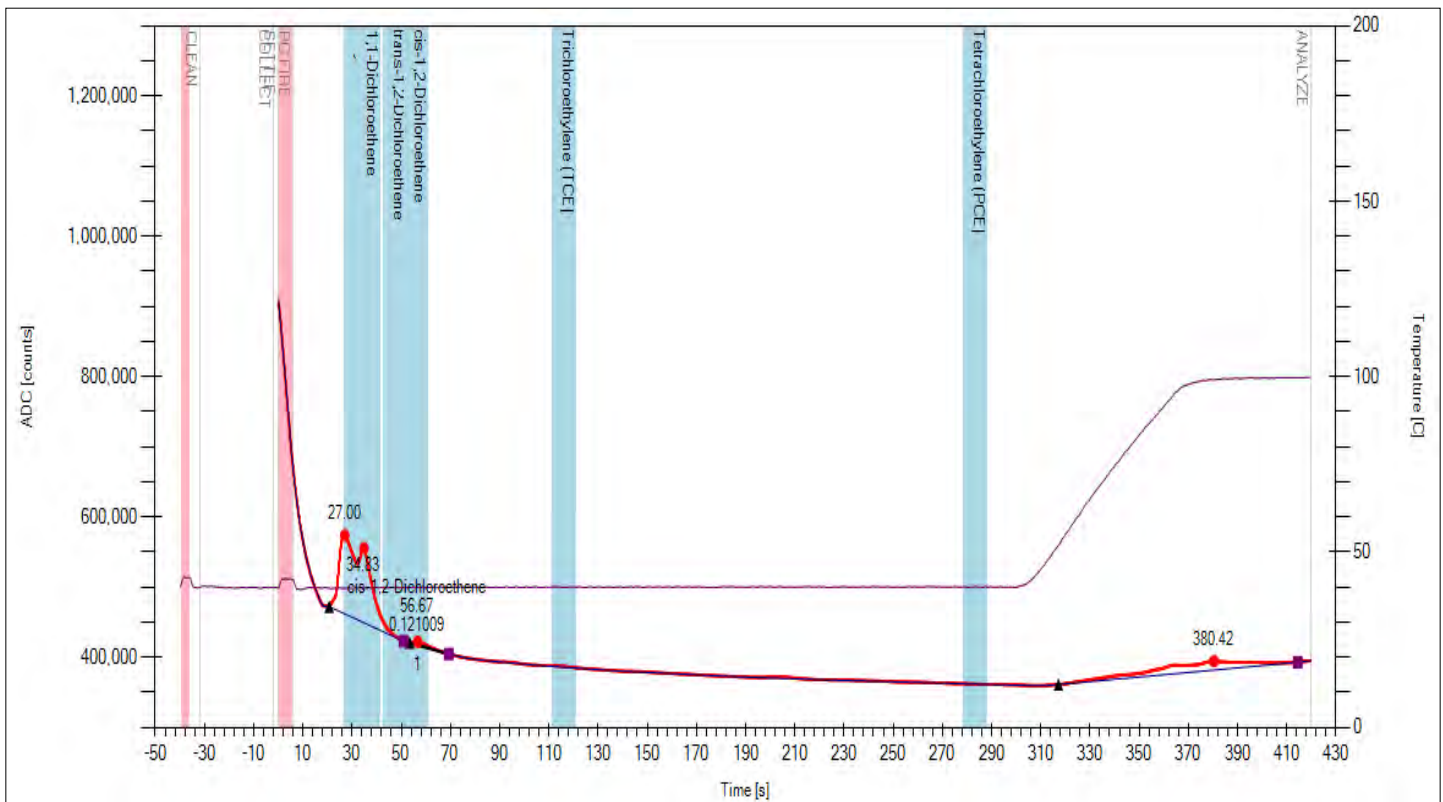
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Client: KLEINFELDER
Sample ID: R3830-P117-SS-6-1
Project Reference: R3830

Sample Taken: 02/06/18
Sample Extracted: 02/06/18
Sample Analyzed: 02/06/18

Analyst: Rachel Pantesco

Peak	Analyte Name	Time	Concentration (µg/Kg)
-	Vinyl Chloride	-	ND
-	1,1-Dichloroethene	-	ND
-	Trans-1,2-Dichloroethene	-	ND
1	Cis-1,2-Dichloroethene	56.67	0.987436
-	Trichloroethylene (TCE)	-	ND
-	Tetrachloroethylene (PCE)	-	ND





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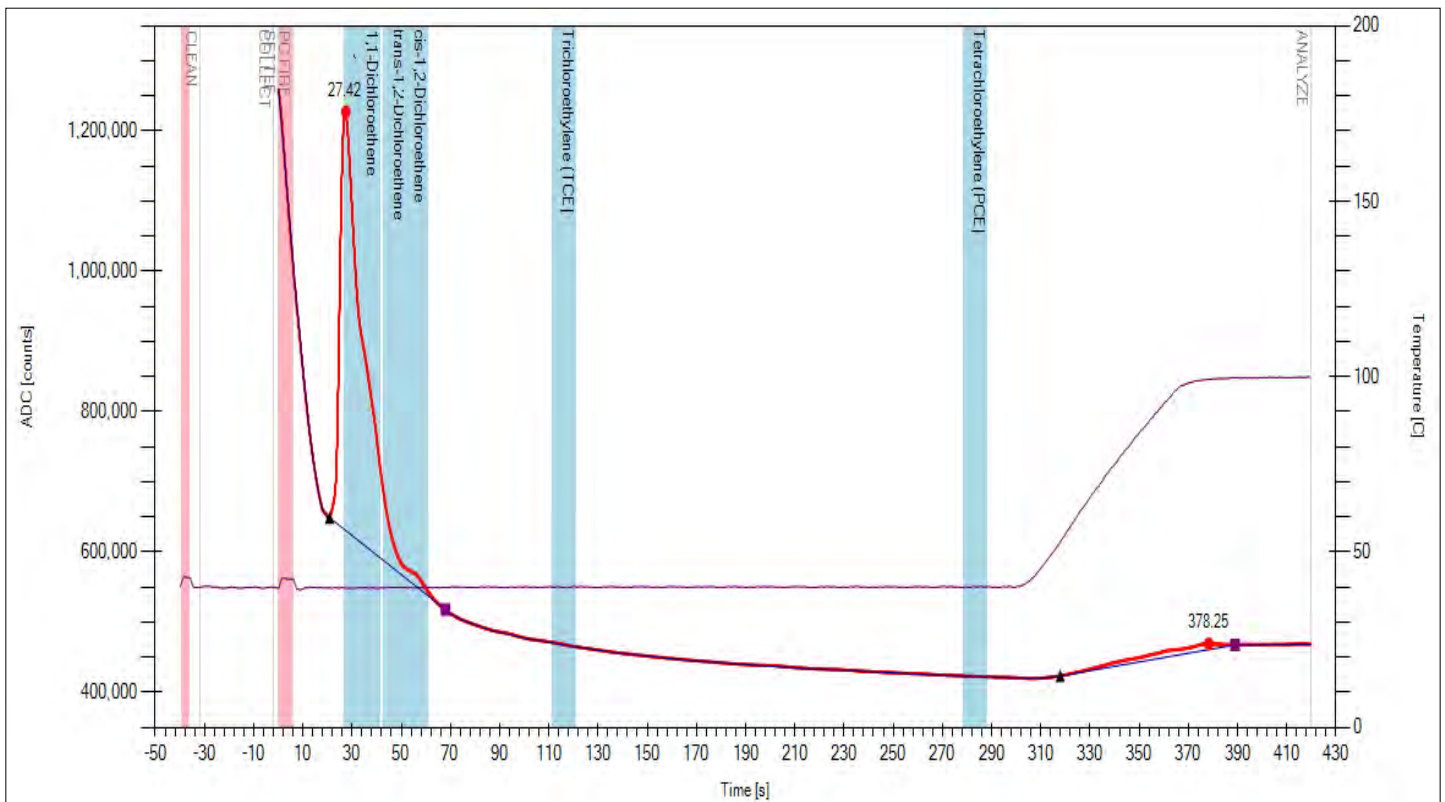
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Client: KLEINFELDER
Sample ID: R3830-P117-SS-7-1
Project Reference: R3830

Sample Taken: 02/07/18
Sample Extracted: 02/07/18
Sample Analyzed: 02/07/18

Analyst: Rachel Pantesco

Peak	Analyte Name	Time	Concentration (µg/Kg)
-	Vinyl Chloride	-	ND
-	1,1-Dichloroethene	-	ND
-	Trans-1,2-Dichloroethene	-	ND
-	Cis-1,2-Dichloroethene	-	ND
-	Trichloroethylene (TCE)	-	ND
-	Tetrachloroethylene (PCE)	-	ND



March 13, 2018

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

RE: Project: R3830_WBS38887.1.1
Pace Project No.: 92375960

Dear Chemical Engineer:

Enclosed are the analytical results for sample(s) received by the laboratory on March 07, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Taylor Ezell
taylor.ezell@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Michael Burns, Kleinfelder
Chris Hollinger, Kleinfelder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078

Louisiana/NELAP Certification # LA170028

North Carolina Drinking Water Certification #: 37706

North Carolina Field Services Certification #: 5342

North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001

Florida/NELAP Certification #: E87627

Kentucky UST Certification #: 84

Virginia/VELAP Certification #: 460221

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SAMPLE SUMMARY

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92375960001	R3830_P117_551_1	Solid	03/06/18 11:15	03/07/18 14:00
92375960002	R3830_P117_552_6	Solid	03/06/18 11:30	03/07/18 14:00
92375960003	R3830_P117_553_3	Solid	03/06/18 12:00	03/07/18 14:00
92375960004	R3830_P117_554_1	Solid	03/06/18 12:15	03/07/18 14:00
92375960005	R3830_P117_555_6	Solid	03/06/18 12:30	03/07/18 14:00
92375960006	R3830_P117_556_1	Solid	03/06/18 13:30	03/07/18 14:00
92375960007	R3830_P117_557_1	Solid	03/06/18 14:15	03/07/18 14:00

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SAMPLE ANALYTE COUNT

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92375960001	R3830_P117_551_1	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92375960002	R3830_P117_552_6	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92375960003	R3830_P117_553_3	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92375960004	R3830_P117_554_1	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92375960005	R3830_P117_555_6	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92375960006	R3830_P117_556_1	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92375960007	R3830_P117_557_1	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_551_1 **Lab ID:** 92375960001 Collected: 03/06/18 11:15 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
Acetone	14.0J	ug/kg	88.3	8.8	1		03/08/18 21:36	67-64-1	M1
Benzene	ND	ug/kg	4.4	1.4	1		03/08/18 21:36	71-43-2	
Bromobenzene	ND	ug/kg	4.4	1.8	1		03/08/18 21:36	108-86-1	
Bromochloromethane	ND	ug/kg	4.4	1.5	1		03/08/18 21:36	74-97-5	
Bromodichloromethane	ND	ug/kg	4.4	1.7	1		03/08/18 21:36	75-27-4	
Bromoform	ND	ug/kg	4.4	2.0	1		03/08/18 21:36	75-25-2	
Bromomethane	ND	ug/kg	8.8	2.2	1		03/08/18 21:36	74-83-9	
2-Butanone (MEK)	ND	ug/kg	88.3	2.6	1		03/08/18 21:36	78-93-3	
n-Butylbenzene	ND	ug/kg	4.4	1.6	1		03/08/18 21:36	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.4	1.4	1		03/08/18 21:36	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.4	1.8	1		03/08/18 21:36	98-06-6	
Carbon tetrachloride	ND	ug/kg	4.4	2.3	1		03/08/18 21:36	56-23-5	
Chlorobenzene	ND	ug/kg	4.4	1.7	1		03/08/18 21:36	108-90-7	
Chloroethane	ND	ug/kg	8.8	2.1	1		03/08/18 21:36	75-00-3	
Chloroform	ND	ug/kg	4.4	1.4	1		03/08/18 21:36	67-66-3	
Chloromethane	ND	ug/kg	8.8	2.1	1		03/08/18 21:36	74-87-3	M1
2-Chlorotoluene	ND	ug/kg	4.4	1.5	1		03/08/18 21:36	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.4	1.6	1		03/08/18 21:36	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.4	3.2	1		03/08/18 21:36	96-12-8	
Dibromochloromethane	ND	ug/kg	4.4	1.6	1		03/08/18 21:36	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.4	1.6	1		03/08/18 21:36	106-93-4	
Dibromomethane	ND	ug/kg	4.4	2.2	1		03/08/18 21:36	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.4	1.7	1		03/08/18 21:36	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.4	1.8	1		03/08/18 21:36	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.4	1.5	1		03/08/18 21:36	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	8.8	3.2	1		03/08/18 21:36	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.4	1.3	1		03/08/18 21:36	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.4	1.9	1		03/08/18 21:36	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.4	1.6	1		03/08/18 21:36	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.4	1.2	1		03/08/18 21:36	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.4	1.7	1		03/08/18 21:36	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.4	1.5	1		03/08/18 21:36	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.4	1.7	1		03/08/18 21:36	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.4	1.5	1		03/08/18 21:36	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.4	1.3	1		03/08/18 21:36	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.4	1.6	1		03/08/18 21:36	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.4	1.3	1		03/08/18 21:36	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.4	1.5	1		03/08/18 21:36	108-20-3	
Ethylbenzene	ND	ug/kg	4.4	1.6	1		03/08/18 21:36	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	4.4	1.8	1		03/08/18 21:36	87-68-3	
2-Hexanone	ND	ug/kg	44.1	3.4	1		03/08/18 21:36	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.4	1.7	1		03/08/18 21:36	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.4	1.5	1		03/08/18 21:36	99-87-6	
Methylene Chloride	ND	ug/kg	17.7	2.6	1		03/08/18 21:36	75-09-2	M1
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	44.1	3.3	1		03/08/18 21:36	108-10-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_551_1 Lab ID: 92375960001 Collected: 03/06/18 11:15 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
Methyl-tert-butyl ether	ND	ug/kg	4.4	1.3	1		03/08/18 21:36	1634-04-4	
Naphthalene	2.2J	ug/kg	4.4	1.1	1		03/08/18 21:36	91-20-3	
n-Propylbenzene	ND	ug/kg	4.4	1.5	1		03/08/18 21:36	103-65-1	
Styrene	29.9	ug/kg	4.4	1.6	1		03/08/18 21:36	100-42-5	M1
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.4	1.9	1		03/08/18 21:36	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.4	1.7	1		03/08/18 21:36	79-34-5	
Tetrachloroethene	ND	ug/kg	4.4	1.5	1		03/08/18 21:36	127-18-4	
Toluene	ND	ug/kg	4.4	1.6	1		03/08/18 21:36	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.4	1.9	1		03/08/18 21:36	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.4	1.4	1		03/08/18 21:36	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.4	1.6	1		03/08/18 21:36	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.4	1.9	1		03/08/18 21:36	79-00-5	
Trichloroethene	2.3J	ug/kg	4.4	1.9	1		03/08/18 21:36	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.4	1.9	1		03/08/18 21:36	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.4	1.4	1		03/08/18 21:36	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.4	1.8	1		03/08/18 21:36	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.4	1.6	1		03/08/18 21:36	108-67-8	
Vinyl acetate	ND	ug/kg	44.1	7.8	1		03/08/18 21:36	108-05-4	M1
Vinyl chloride	ND	ug/kg	8.8	1.6	1		03/08/18 21:36	75-01-4	
Xylene (Total)	ND	ug/kg	8.8	3.2	1		03/08/18 21:36	1330-20-7	
m&p-Xylene	ND	ug/kg	8.8	3.2	1		03/08/18 21:36	179601-23-1	
o-Xylene	ND	ug/kg	4.4	1.7	1		03/08/18 21:36	95-47-6	
Surrogates									
Toluene-d8 (S)	99	%	70-130		1		03/08/18 21:36	2037-26-5	
4-Bromofluorobenzene (S)	88	%	70-130		1		03/08/18 21:36	460-00-4	
1,2-Dichloroethane-d4 (S)	89	%	70-132		1		03/08/18 21:36	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	18.2	%	0.10	0.10	1		03/08/18 11:20		

Sample: R3830_P117_552_6 Lab ID: 92375960002 Collected: 03/06/18 11:30 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
Acetone	17.9J	ug/kg	97.5	9.7	1		03/08/18 21:56	67-64-1	
Benzene	ND	ug/kg	4.9	1.6	1		03/08/18 21:56	71-43-2	
Bromobenzene	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	108-86-1	
Bromochloromethane	ND	ug/kg	4.9	1.7	1		03/08/18 21:56	74-97-5	
Bromodichloromethane	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	75-27-4	
Bromoform	ND	ug/kg	4.9	2.2	1		03/08/18 21:56	75-25-2	
Bromomethane	ND	ug/kg	9.7	2.4	1		03/08/18 21:56	74-83-9	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_552_6 **Lab ID: 92375960002** Collected: 03/06/18 11:30 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
2-Butanone (MEK)	ND	ug/kg	97.5	2.8	1		03/08/18 21:56	78-93-3	
n-Butylbenzene	ND	ug/kg	4.9	1.8	1		03/08/18 21:56	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.9	1.6	1		03/08/18 21:56	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	98-06-6	
Carbon tetrachloride	ND	ug/kg	4.9	2.5	1		03/08/18 21:56	56-23-5	
Chlorobenzene	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	108-90-7	
Chloroethane	ND	ug/kg	9.7	2.3	1		03/08/18 21:56	75-00-3	
Chloroform	ND	ug/kg	4.9	1.6	1		03/08/18 21:56	67-66-3	
Chloromethane	ND	ug/kg	9.7	2.3	1		03/08/18 21:56	74-87-3	
2-Chlorotoluene	ND	ug/kg	4.9	1.7	1		03/08/18 21:56	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.9	1.8	1		03/08/18 21:56	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.9	3.5	1		03/08/18 21:56	96-12-8	
Dibromochloromethane	ND	ug/kg	4.9	1.8	1		03/08/18 21:56	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.9	1.8	1		03/08/18 21:56	106-93-4	
Dibromomethane	ND	ug/kg	4.9	2.4	1		03/08/18 21:56	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.9	1.7	1		03/08/18 21:56	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	9.7	3.5	1		03/08/18 21:56	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.9	1.5	1		03/08/18 21:56	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.9	2.1	1		03/08/18 21:56	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.9	1.8	1		03/08/18 21:56	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.9	1.4	1		03/08/18 21:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.9	1.7	1		03/08/18 21:56	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.9	1.7	1		03/08/18 21:56	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.9	1.5	1		03/08/18 21:56	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.9	1.8	1		03/08/18 21:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.9	1.5	1		03/08/18 21:56	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.9	1.7	1		03/08/18 21:56	108-20-3	
Ethylbenzene	ND	ug/kg	4.9	1.8	1		03/08/18 21:56	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	87-68-3	
2-Hexanone	ND	ug/kg	48.7	3.8	1		03/08/18 21:56	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.9	1.7	1		03/08/18 21:56	99-87-6	
Methylene Chloride	ND	ug/kg	19.5	2.9	1		03/08/18 21:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	48.7	3.6	1		03/08/18 21:56	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.9	1.5	1		03/08/18 21:56	1634-04-4	
Naphthalene	1.6J	ug/kg	4.9	1.2	1		03/08/18 21:56	91-20-3	
n-Propylbenzene	ND	ug/kg	4.9	1.7	1		03/08/18 21:56	103-65-1	
Styrene	ND	ug/kg	4.9	1.8	1		03/08/18 21:56	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.9	2.0	1		03/08/18 21:56	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	79-34-5	
Tetrachloroethene	ND	ug/kg	4.9	1.7	1		03/08/18 21:56	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_552_6 **Lab ID: 92375960002** Collected: 03/06/18 11:30 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics Analytical Method: EPA 8260									
Toluene	ND	ug/kg	4.9	1.8	1		03/08/18 21:56	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.9	2.1	1		03/08/18 21:56	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.9	1.6	1		03/08/18 21:56	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.9	1.8	1		03/08/18 21:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.9	2.0	1		03/08/18 21:56	79-00-5	
Trichloroethene	ND	ug/kg	4.9	2.0	1		03/08/18 21:56	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.9	2.1	1		03/08/18 21:56	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.9	1.6	1		03/08/18 21:56	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.9	1.8	1		03/08/18 21:56	108-67-8	
Vinyl acetate	ND	ug/kg	48.7	8.6	1		03/08/18 21:56	108-05-4	
Vinyl chloride	ND	ug/kg	9.7	1.8	1		03/08/18 21:56	75-01-4	
Xylene (Total)	ND	ug/kg	9.7	3.5	1		03/08/18 21:56	1330-20-7	
m&p-Xylene	ND	ug/kg	9.7	3.5	1		03/08/18 21:56	179601-23-1	
o-Xylene	ND	ug/kg	4.9	1.9	1		03/08/18 21:56	95-47-6	
Surrogates									
Toluene-d8 (S)	99	%	70-130		1		03/08/18 21:56	2037-26-5	
4-Bromofluorobenzene (S)	70	%	70-130		1		03/08/18 21:56	460-00-4	
1,2-Dichloroethane-d4 (S)	87	%	70-132		1		03/08/18 21:56	17060-07-0	

Percent Moisture Analytical Method: ASTM D2974-87

Percent Moisture **16.7** % 0.10 0.10 1 03/08/18 11:20

Sample: R3830_P117_553_3 **Lab ID: 92375960003** Collected: 03/06/18 12:00 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics Analytical Method: EPA 8260									
Acetone	ND	ug/kg	114	11.4	1		03/08/18 22:15	67-64-1	
Benzene	ND	ug/kg	5.7	1.8	1		03/08/18 22:15	71-43-2	
Bromobenzene	ND	ug/kg	5.7	2.3	1		03/08/18 22:15	108-86-1	
Bromochloromethane	ND	ug/kg	5.7	1.9	1		03/08/18 22:15	74-97-5	
Bromodichloromethane	ND	ug/kg	5.7	2.2	1		03/08/18 22:15	75-27-4	
Bromoform	ND	ug/kg	5.7	2.6	1		03/08/18 22:15	75-25-2	
Bromomethane	ND	ug/kg	11.4	2.8	1		03/08/18 22:15	74-83-9	
2-Butanone (MEK)	ND	ug/kg	114	3.3	1		03/08/18 22:15	78-93-3	
n-Butylbenzene	ND	ug/kg	5.7	2.1	1		03/08/18 22:15	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.7	1.8	1		03/08/18 22:15	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.7	2.3	1		03/08/18 22:15	98-06-6	
Carbon tetrachloride	ND	ug/kg	5.7	3.0	1		03/08/18 22:15	56-23-5	
Chlorobenzene	ND	ug/kg	5.7	2.2	1		03/08/18 22:15	108-90-7	
Chloroethane	ND	ug/kg	11.4	2.7	1		03/08/18 22:15	75-00-3	

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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_553_3 Lab ID: 92375960003 Collected: 03/06/18 12:00 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
Chloroform	ND	ug/kg	5.7	1.8	1		03/08/18 22:15	67-66-3	
Chloromethane	ND	ug/kg	11.4	2.7	1		03/08/18 22:15	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.7	1.9	1		03/08/18 22:15	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.7	2.1	1		03/08/18 22:15	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.7	4.1	1		03/08/18 22:15	96-12-8	
Dibromochloromethane	ND	ug/kg	5.7	2.1	1		03/08/18 22:15	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.7	2.1	1		03/08/18 22:15	106-93-4	
Dibromomethane	ND	ug/kg	5.7	2.8	1		03/08/18 22:15	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.7	2.2	1		03/08/18 22:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.7	2.3	1		03/08/18 22:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.7	1.9	1		03/08/18 22:15	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	11.4	4.1	1		03/08/18 22:15	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.7	1.7	1		03/08/18 22:15	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.7	2.5	1		03/08/18 22:15	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.7	2.1	1		03/08/18 22:15	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.7	1.6	1		03/08/18 22:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.7	2.2	1		03/08/18 22:15	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.7	1.9	1		03/08/18 22:15	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.7	2.2	1		03/08/18 22:15	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.7	1.9	1		03/08/18 22:15	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.7	1.7	1		03/08/18 22:15	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.7	2.1	1		03/08/18 22:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.7	1.7	1		03/08/18 22:15	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.7	1.9	1		03/08/18 22:15	108-20-3	
Ethylbenzene	ND	ug/kg	5.7	2.1	1		03/08/18 22:15	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.7	2.3	1		03/08/18 22:15	87-68-3	
2-Hexanone	ND	ug/kg	57.0	4.4	1		03/08/18 22:15	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.7	2.2	1		03/08/18 22:15	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.7	1.9	1		03/08/18 22:15	99-87-6	
Methylene Chloride	ND	ug/kg	22.8	3.4	1		03/08/18 22:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	57.0	4.2	1		03/08/18 22:15	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.7	1.7	1		03/08/18 22:15	1634-04-4	
Naphthalene	1.4J	ug/kg	5.7	1.4	1		03/08/18 22:15	91-20-3	
n-Propylbenzene	ND	ug/kg	5.7	1.9	1		03/08/18 22:15	103-65-1	
Styrene	ND	ug/kg	5.7	2.1	1		03/08/18 22:15	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.7	2.4	1		03/08/18 22:15	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.7	2.2	1		03/08/18 22:15	79-34-5	
Tetrachloroethene	ND	ug/kg	5.7	1.9	1		03/08/18 22:15	127-18-4	
Toluene	ND	ug/kg	5.7	2.1	1		03/08/18 22:15	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.7	2.5	1		03/08/18 22:15	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.7	1.8	1		03/08/18 22:15	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.7	2.1	1		03/08/18 22:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.7	2.4	1		03/08/18 22:15	79-00-5	
Trichloroethene	ND	ug/kg	5.7	2.4	1		03/08/18 22:15	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.7	2.5	1		03/08/18 22:15	75-69-4	

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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_553_3 **Lab ID: 92375960003** Collected: 03/06/18 12:00 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
1,2,3-Trichloropropane	ND	ug/kg	5.7	1.8	1		03/08/18 22:15	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.7	2.3	1		03/08/18 22:15	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.7	2.1	1		03/08/18 22:15	108-67-8	
Vinyl acetate	ND	ug/kg	57.0	10.0	1		03/08/18 22:15	108-05-4	
Vinyl chloride	ND	ug/kg	11.4	2.1	1		03/08/18 22:15	75-01-4	
Xylene (Total)	ND	ug/kg	11.4	4.1	1		03/08/18 22:15	1330-20-7	
m&p-Xylene	ND	ug/kg	11.4	4.1	1		03/08/18 22:15	179601-23-1	
o-Xylene	ND	ug/kg	5.7	2.2	1		03/08/18 22:15	95-47-6	
Surrogates									
Toluene-d8 (S)	97	%	70-130		1		03/08/18 22:15	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130		1		03/08/18 22:15	460-00-4	
1,2-Dichloroethane-d4 (S)	88	%	70-132		1		03/08/18 22:15	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	25.6	%	0.10	0.10	1		03/08/18 11:20		

Sample: R3830_P117_554_1 **Lab ID: 92375960004** Collected: 03/06/18 12:15 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
Acetone	22.4J	ug/kg	97.7	9.8	1		03/08/18 22:35	67-64-1	
Benzene	ND	ug/kg	4.9	1.6	1		03/08/18 22:35	71-43-2	
Bromobenzene	ND	ug/kg	4.9	2.0	1		03/08/18 22:35	108-86-1	
Bromochloromethane	ND	ug/kg	4.9	1.7	1		03/08/18 22:35	74-97-5	
Bromodichloromethane	ND	ug/kg	4.9	1.9	1		03/08/18 22:35	75-27-4	
Bromoform	ND	ug/kg	4.9	2.2	1		03/08/18 22:35	75-25-2	
Bromomethane	ND	ug/kg	9.8	2.4	1		03/08/18 22:35	74-83-9	
2-Butanone (MEK)	ND	ug/kg	97.7	2.8	1		03/08/18 22:35	78-93-3	
n-Butylbenzene	ND	ug/kg	4.9	1.8	1		03/08/18 22:35	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.9	1.6	1		03/08/18 22:35	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.9	2.0	1		03/08/18 22:35	98-06-6	
Carbon tetrachloride	ND	ug/kg	4.9	2.5	1		03/08/18 22:35	56-23-5	
Chlorobenzene	ND	ug/kg	4.9	1.9	1		03/08/18 22:35	108-90-7	
Chloroethane	ND	ug/kg	9.8	2.3	1		03/08/18 22:35	75-00-3	
Chloroform	ND	ug/kg	4.9	1.6	1		03/08/18 22:35	67-66-3	
Chloromethane	ND	ug/kg	9.8	2.3	1		03/08/18 22:35	74-87-3	
2-Chlorotoluene	ND	ug/kg	4.9	1.7	1		03/08/18 22:35	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.9	1.8	1		03/08/18 22:35	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.9	3.5	1		03/08/18 22:35	96-12-8	
Dibromochloromethane	ND	ug/kg	4.9	1.8	1		03/08/18 22:35	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.9	1.8	1		03/08/18 22:35	106-93-4	

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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_554_1 Lab ID: 92375960004 Collected: 03/06/18 12:15 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
Dibromomethane	ND	ug/kg	4.9	2.4	1		03/08/18 22:35	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.9	1.9	1		03/08/18 22:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.9	2.0	1		03/08/18 22:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.9	1.7	1		03/08/18 22:35	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	9.8	3.5	1		03/08/18 22:35	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.9	1.5	1		03/08/18 22:35	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.9	2.2	1		03/08/18 22:35	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.9	1.8	1		03/08/18 22:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.9	1.4	1		03/08/18 22:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.9	1.9	1		03/08/18 22:35	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.9	1.7	1		03/08/18 22:35	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.9	1.9	1		03/08/18 22:35	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.9	1.7	1		03/08/18 22:35	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.9	1.5	1		03/08/18 22:35	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.9	1.8	1		03/08/18 22:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.9	1.5	1		03/08/18 22:35	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.9	1.7	1		03/08/18 22:35	108-20-3	
Ethylbenzene	ND	ug/kg	4.9	1.8	1		03/08/18 22:35	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	4.9	2.0	1		03/08/18 22:35	87-68-3	
2-Hexanone	ND	ug/kg	48.9	3.8	1		03/08/18 22:35	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.9	1.9	1		03/08/18 22:35	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.9	1.7	1		03/08/18 22:35	99-87-6	
Methylene Chloride	ND	ug/kg	19.5	2.9	1		03/08/18 22:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	48.9	3.6	1		03/08/18 22:35	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.9	1.5	1		03/08/18 22:35	1634-04-4	
Naphthalene	ND	ug/kg	4.9	1.2	1		03/08/18 22:35	91-20-3	
n-Propylbenzene	ND	ug/kg	4.9	1.7	1		03/08/18 22:35	103-65-1	
Styrene	ND	ug/kg	4.9	1.8	1		03/08/18 22:35	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.9	2.1	1		03/08/18 22:35	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.9	1.9	1		03/08/18 22:35	79-34-5	
Tetrachloroethene	ND	ug/kg	4.9	1.7	1		03/08/18 22:35	127-18-4	
Toluene	ND	ug/kg	4.9	1.8	1		03/08/18 22:35	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.9	2.2	1		03/08/18 22:35	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.9	1.6	1		03/08/18 22:35	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.9	1.8	1		03/08/18 22:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.9	2.1	1		03/08/18 22:35	79-00-5	
Trichloroethene	ND	ug/kg	4.9	2.1	1		03/08/18 22:35	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.9	2.2	1		03/08/18 22:35	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.9	1.6	1		03/08/18 22:35	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.9	2.0	1		03/08/18 22:35	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.9	1.8	1		03/08/18 22:35	108-67-8	
Vinyl acetate	ND	ug/kg	48.9	8.6	1		03/08/18 22:35	108-05-4	
Vinyl chloride	ND	ug/kg	9.8	1.8	1		03/08/18 22:35	75-01-4	
Xylene (Total)	ND	ug/kg	9.8	3.5	1		03/08/18 22:35	1330-20-7	
m&p-Xylene	ND	ug/kg	9.8	3.5	1		03/08/18 22:35	179601-23-1	

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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_554_1 **Lab ID:** 92375960004 Collected: 03/06/18 12:15 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
o-Xylene	ND	ug/kg	4.9	1.9	1		03/08/18 22:35	95-47-6	
Surrogates									
Toluene-d8 (S)	94	%	70-130		1		03/08/18 22:35	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130		1		03/08/18 22:35	460-00-4	
1,2-Dichloroethane-d4 (S)	88	%	70-132		1		03/08/18 22:35	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	21.9	%	0.10	0.10	1		03/08/18 11:20		

Sample: R3830_P117_555_6 **Lab ID:** 92375960005 Collected: 03/06/18 12:30 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
Acetone	33.0J	ug/kg	74.3	7.4	1		03/08/18 22:55	67-64-1	
Benzene	ND	ug/kg	3.7	1.2	1		03/08/18 22:55	71-43-2	
Bromobenzene	ND	ug/kg	3.7	1.5	1		03/08/18 22:55	108-86-1	
Bromochloromethane	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	74-97-5	
Bromodichloromethane	ND	ug/kg	3.7	1.4	1		03/08/18 22:55	75-27-4	
Bromoform	ND	ug/kg	3.7	1.7	1		03/08/18 22:55	75-25-2	
Bromomethane	ND	ug/kg	7.4	1.9	1		03/08/18 22:55	74-83-9	
2-Butanone (MEK)	2.5J	ug/kg	74.3	2.2	1		03/08/18 22:55	78-93-3	
n-Butylbenzene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	104-51-8	
sec-Butylbenzene	ND	ug/kg	3.7	1.2	1		03/08/18 22:55	135-98-8	
tert-Butylbenzene	ND	ug/kg	3.7	1.5	1		03/08/18 22:55	98-06-6	
Carbon tetrachloride	ND	ug/kg	3.7	1.9	1		03/08/18 22:55	56-23-5	
Chlorobenzene	ND	ug/kg	3.7	1.4	1		03/08/18 22:55	108-90-7	
Chloroethane	ND	ug/kg	7.4	1.8	1		03/08/18 22:55	75-00-3	
Chloroform	ND	ug/kg	3.7	1.2	1		03/08/18 22:55	67-66-3	
Chloromethane	ND	ug/kg	7.4	1.8	1		03/08/18 22:55	74-87-3	
2-Chlorotoluene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	95-49-8	
4-Chlorotoluene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	3.7	2.7	1		03/08/18 22:55	96-12-8	
Dibromochloromethane	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	106-93-4	
Dibromomethane	ND	ug/kg	3.7	1.9	1		03/08/18 22:55	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	3.7	1.4	1		03/08/18 22:55	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	3.7	1.5	1		03/08/18 22:55	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	7.4	2.7	1		03/08/18 22:55	75-71-8	
1,1-Dichloroethane	ND	ug/kg	3.7	1.1	1		03/08/18 22:55	75-34-3	
1,2-Dichloroethane	ND	ug/kg	3.7	1.6	1		03/08/18 22:55	107-06-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_555_6 **Lab ID: 92375960005** Collected: 03/06/18 12:30 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
1,1-Dichloroethene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	3.7	1.0	1		03/08/18 22:55	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	3.7	1.4	1		03/08/18 22:55	156-60-5	
1,2-Dichloropropane	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	78-87-5	
1,3-Dichloropropane	ND	ug/kg	3.7	1.4	1		03/08/18 22:55	142-28-9	
2,2-Dichloropropane	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	594-20-7	
1,1-Dichloropropene	ND	ug/kg	3.7	1.1	1		03/08/18 22:55	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	3.7	1.1	1		03/08/18 22:55	10061-02-6	
Diisopropyl ether	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	108-20-3	
Ethylbenzene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	3.7	1.5	1		03/08/18 22:55	87-68-3	
2-Hexanone	ND	ug/kg	37.2	2.9	1		03/08/18 22:55	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	3.7	1.4	1		03/08/18 22:55	98-82-8	
p-Isopropyltoluene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	99-87-6	
Methylene Chloride	ND	ug/kg	14.9	2.2	1		03/08/18 22:55	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	37.2	2.7	1		03/08/18 22:55	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	3.7	1.1	1		03/08/18 22:55	1634-04-4	
Naphthalene	ND	ug/kg	3.7	0.89	1		03/08/18 22:55	91-20-3	
n-Propylbenzene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	103-65-1	
Styrene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	3.7	1.6	1		03/08/18 22:55	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	3.7	1.4	1		03/08/18 22:55	79-34-5	
Tetrachloroethene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	127-18-4	
Toluene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	3.7	1.6	1		03/08/18 22:55	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	3.7	1.2	1		03/08/18 22:55	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	3.7	1.6	1		03/08/18 22:55	79-00-5	
Trichloroethene	ND	ug/kg	3.7	1.6	1		03/08/18 22:55	79-01-6	
Trichlorofluoromethane	ND	ug/kg	3.7	1.6	1		03/08/18 22:55	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	3.7	1.2	1		03/08/18 22:55	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	3.7	1.5	1		03/08/18 22:55	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.7	1.3	1		03/08/18 22:55	108-67-8	
Vinyl acetate	ND	ug/kg	37.2	6.5	1		03/08/18 22:55	108-05-4	
Vinyl chloride	ND	ug/kg	7.4	1.3	1		03/08/18 22:55	75-01-4	
Xylene (Total)	ND	ug/kg	7.4	2.7	1		03/08/18 22:55	1330-20-7	
m&p-Xylene	ND	ug/kg	7.4	2.7	1		03/08/18 22:55	179601-23-1	
o-Xylene	ND	ug/kg	3.7	1.4	1		03/08/18 22:55	95-47-6	
Surrogates									
Toluene-d8 (S)	97	%	70-130		1		03/08/18 22:55	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		1		03/08/18 22:55	460-00-4	
1,2-Dichloroethane-d4 (S)	90	%	70-132		1		03/08/18 22:55	17060-07-0	

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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_555_2 **Lab ID: 92375960005** Collected: 03/06/18 12:30 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: ASTM D2974-87									
Percent Moisture	13.4	%	0.10	0.10	1		03/08/18 11:20		

Sample: R3830_P117_556_1 **Lab ID: 92375960006** Collected: 03/06/18 13:30 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: EPA 8260									
8260/5035A Volatile Organics									
Acetone	33.5J	ug/kg	101	10.1	1		03/08/18 23:15	67-64-1	
Benzene	ND	ug/kg	5.0	1.6	1		03/08/18 23:15	71-43-2	
Bromobenzene	ND	ug/kg	5.0	2.0	1		03/08/18 23:15	108-86-1	
Bromochloromethane	ND	ug/kg	5.0	1.7	1		03/08/18 23:15	74-97-5	
Bromodichloromethane	ND	ug/kg	5.0	1.9	1		03/08/18 23:15	75-27-4	
Bromoform	ND	ug/kg	5.0	2.3	1		03/08/18 23:15	75-25-2	
Bromomethane	ND	ug/kg	10.1	2.5	1		03/08/18 23:15	74-83-9	
2-Butanone (MEK)	ND	ug/kg	101	2.9	1		03/08/18 23:15	78-93-3	
n-Butylbenzene	ND	ug/kg	5.0	1.8	1		03/08/18 23:15	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.0	1.6	1		03/08/18 23:15	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.0	2.0	1		03/08/18 23:15	98-06-6	
Carbon tetrachloride	ND	ug/kg	5.0	2.6	1		03/08/18 23:15	56-23-5	
Chlorobenzene	ND	ug/kg	5.0	1.9	1		03/08/18 23:15	108-90-7	
Chloroethane	ND	ug/kg	10.1	2.4	1		03/08/18 23:15	75-00-3	
Chloroform	ND	ug/kg	5.0	1.6	1		03/08/18 23:15	67-66-3	
Chloromethane	ND	ug/kg	10.1	2.4	1		03/08/18 23:15	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.0	1.7	1		03/08/18 23:15	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.0	1.8	1		03/08/18 23:15	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.0	3.6	1		03/08/18 23:15	96-12-8	
Dibromochloromethane	ND	ug/kg	5.0	1.8	1		03/08/18 23:15	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.0	1.8	1		03/08/18 23:15	106-93-4	
Dibromomethane	ND	ug/kg	5.0	2.5	1		03/08/18 23:15	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.0	1.9	1		03/08/18 23:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.0	2.0	1		03/08/18 23:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.0	1.7	1		03/08/18 23:15	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	10.1	3.6	1		03/08/18 23:15	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.0	1.5	1		03/08/18 23:15	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.0	2.2	1		03/08/18 23:15	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.0	1.8	1		03/08/18 23:15	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.0	1.4	1		03/08/18 23:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.0	1.9	1		03/08/18 23:15	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.0	1.7	1		03/08/18 23:15	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.0	1.9	1		03/08/18 23:15	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.0	1.7	1		03/08/18 23:15	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.0	1.5	1		03/08/18 23:15	563-58-6	

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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_556_1 **Lab ID: 92375960006** Collected: 03/06/18 13:30 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
cis-1,3-Dichloropropene	ND	ug/kg	5.0	1.8	1		03/08/18 23:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.0	1.5	1		03/08/18 23:15	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.0	1.7	1		03/08/18 23:15	108-20-3	
Ethylbenzene	ND	ug/kg	5.0	1.8	1		03/08/18 23:15	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.0	2.0	1		03/08/18 23:15	87-68-3	
2-Hexanone	ND	ug/kg	50.3	3.9	1		03/08/18 23:15	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.0	1.9	1		03/08/18 23:15	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.0	1.7	1		03/08/18 23:15	99-87-6	
Methylene Chloride	ND	ug/kg	20.1	3.0	1		03/08/18 23:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	50.3	3.7	1		03/08/18 23:15	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.0	1.5	1		03/08/18 23:15	1634-04-4	
Naphthalene	2.0J	ug/kg	5.0	1.2	1		03/08/18 23:15	91-20-3	
n-Propylbenzene	ND	ug/kg	5.0	1.7	1		03/08/18 23:15	103-65-1	
Styrene	ND	ug/kg	5.0	1.8	1		03/08/18 23:15	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.0	2.1	1		03/08/18 23:15	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.0	1.9	1		03/08/18 23:15	79-34-5	
Tetrachloroethene	ND	ug/kg	5.0	1.7	1		03/08/18 23:15	127-18-4	
Toluene	ND	ug/kg	5.0	1.8	1		03/08/18 23:15	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.0	2.2	1		03/08/18 23:15	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.0	1.6	1		03/08/18 23:15	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.0	1.8	1		03/08/18 23:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.0	2.1	1		03/08/18 23:15	79-00-5	
Trichloroethene	ND	ug/kg	5.0	2.1	1		03/08/18 23:15	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.0	2.2	1		03/08/18 23:15	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.0	1.6	1		03/08/18 23:15	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.0	2.0	1		03/08/18 23:15	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.0	1.8	1		03/08/18 23:15	108-67-8	
Vinyl acetate	ND	ug/kg	50.3	8.8	1		03/08/18 23:15	108-05-4	
Vinyl chloride	ND	ug/kg	10.1	1.8	1		03/08/18 23:15	75-01-4	
Xylene (Total)	ND	ug/kg	10.1	3.6	1		03/08/18 23:15	1330-20-7	
m&p-Xylene	ND	ug/kg	10.1	3.6	1		03/08/18 23:15	179601-23-1	
o-Xylene	ND	ug/kg	5.0	1.9	1		03/08/18 23:15	95-47-6	
Surrogates									
Toluene-d8 (S)	83	%	70-130		1		03/08/18 23:15	2037-26-5	1g
4-Bromofluorobenzene (S)	83	%	70-130		1		03/08/18 23:15	460-00-4	
1,2-Dichloroethane-d4 (S)	113	%	70-132		1		03/08/18 23:15	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	9.1	%	0.10	0.10	1		03/08/18 11:21		
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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_557_1 **Lab ID:** 92375960007 Collected: 03/06/18 14:15 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
Acetone	ND	ug/kg	92.4	9.2	1		03/09/18 18:10	67-64-1	
Benzene	ND	ug/kg	4.6	1.5	1		03/09/18 18:10	71-43-2	
Bromobenzene	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	108-86-1	
Bromochloromethane	ND	ug/kg	4.6	1.6	1		03/09/18 18:10	74-97-5	
Bromodichloromethane	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	75-27-4	
Bromoform	ND	ug/kg	4.6	2.1	1		03/09/18 18:10	75-25-2	
Bromomethane	ND	ug/kg	9.2	2.3	1		03/09/18 18:10	74-83-9	
2-Butanone (MEK)	ND	ug/kg	92.4	2.7	1		03/09/18 18:10	78-93-3	
n-Butylbenzene	ND	ug/kg	4.6	1.7	1		03/09/18 18:10	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.6	1.5	1		03/09/18 18:10	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	98-06-6	
Carbon tetrachloride	ND	ug/kg	4.6	2.4	1		03/09/18 18:10	56-23-5	
Chlorobenzene	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	108-90-7	
Chloroethane	ND	ug/kg	9.2	2.2	1		03/09/18 18:10	75-00-3	
Chloroform	ND	ug/kg	4.6	1.5	1		03/09/18 18:10	67-66-3	
Chloromethane	ND	ug/kg	9.2	2.2	1		03/09/18 18:10	74-87-3	
2-Chlorotoluene	ND	ug/kg	4.6	1.6	1		03/09/18 18:10	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.6	1.7	1		03/09/18 18:10	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.6	3.3	1		03/09/18 18:10	96-12-8	
Dibromochloromethane	ND	ug/kg	4.6	1.7	1		03/09/18 18:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.6	1.7	1		03/09/18 18:10	106-93-4	
Dibromomethane	ND	ug/kg	4.6	2.3	1		03/09/18 18:10	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.6	1.6	1		03/09/18 18:10	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	9.2	3.3	1		03/09/18 18:10	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.6	1.4	1		03/09/18 18:10	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.6	2.0	1		03/09/18 18:10	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.6	1.7	1		03/09/18 18:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.6	1.3	1		03/09/18 18:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.6	1.6	1		03/09/18 18:10	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.6	1.6	1		03/09/18 18:10	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.6	1.4	1		03/09/18 18:10	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.6	1.7	1		03/09/18 18:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.6	1.4	1		03/09/18 18:10	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.6	1.6	1		03/09/18 18:10	108-20-3	
Ethylbenzene	ND	ug/kg	4.6	1.7	1		03/09/18 18:10	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	87-68-3	
2-Hexanone	ND	ug/kg	46.2	3.6	1		03/09/18 18:10	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.6	1.6	1		03/09/18 18:10	99-87-6	
Methylene Chloride	ND	ug/kg	18.5	2.8	1		03/09/18 18:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	46.2	3.4	1		03/09/18 18:10	108-10-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Sample: R3830_P117_557_1 **Lab ID:** 92375960007 Collected: 03/06/18 14:15 Received: 03/07/18 14:00 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260							
Methyl-tert-butyl ether	ND	ug/kg	4.6	1.4	1		03/09/18 18:10	1634-04-4	
Naphthalene	ND	ug/kg	4.6	1.1	1		03/09/18 18:10	91-20-3	
n-Propylbenzene	ND	ug/kg	4.6	1.6	1		03/09/18 18:10	103-65-1	
Styrene	ND	ug/kg	4.6	1.7	1		03/09/18 18:10	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.6	1.9	1		03/09/18 18:10	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	79-34-5	
Tetrachloroethene	ND	ug/kg	4.6	1.6	1		03/09/18 18:10	127-18-4	
Toluene	ND	ug/kg	4.6	1.7	1		03/09/18 18:10	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.6	2.0	1		03/09/18 18:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.6	1.5	1		03/09/18 18:10	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.6	1.7	1		03/09/18 18:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.6	1.9	1		03/09/18 18:10	79-00-5	
Trichloroethene	ND	ug/kg	4.6	1.9	1		03/09/18 18:10	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.6	2.0	1		03/09/18 18:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.6	1.5	1		03/09/18 18:10	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.6	1.7	1		03/09/18 18:10	108-67-8	
Vinyl acetate	ND	ug/kg	46.2	8.1	1		03/09/18 18:10	108-05-4	
Vinyl chloride	ND	ug/kg	9.2	1.7	1		03/09/18 18:10	75-01-4	
Xylene (Total)	ND	ug/kg	9.2	3.3	1		03/09/18 18:10	1330-20-7	
m&p-Xylene	ND	ug/kg	9.2	3.3	1		03/09/18 18:10	179601-23-1	
o-Xylene	ND	ug/kg	4.6	1.8	1		03/09/18 18:10	95-47-6	
Surrogates									
Toluene-d8 (S)	97	%	70-130		1		03/09/18 18:10	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130		1		03/09/18 18:10	460-00-4	
1,2-Dichloroethane-d4 (S)	92	%	70-132		1		03/09/18 18:10	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	8.0	%	0.10	0.10	1		03/08/18 11:21		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

QC Batch: 401196

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV 5035A Volatile Organics

Associated Lab Samples: 92375960001, 92375960002, 92375960003, 92375960004, 92375960005, 92375960006

METHOD BLANK: 2225289

Matrix: Solid

Associated Lab Samples: 92375960001, 92375960002, 92375960003, 92375960004, 92375960005, 92375960006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	5.8	2.4	03/08/18 13:24	
1,1,1-Trichloroethane	ug/kg	ND	5.8	2.1	03/08/18 13:24	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.8	2.2	03/08/18 13:24	
1,1,2-Trichloroethane	ug/kg	ND	5.8	2.4	03/08/18 13:24	
1,1-Dichloroethane	ug/kg	ND	5.8	1.7	03/08/18 13:24	
1,1-Dichloroethene	ug/kg	ND	5.8	2.1	03/08/18 13:24	
1,1-Dichloropropene	ug/kg	ND	5.8	1.7	03/08/18 13:24	
1,2,3-Trichlorobenzene	ug/kg	ND	5.8	2.6	03/08/18 13:24	
1,2,3-Trichloropropane	ug/kg	ND	5.8	1.9	03/08/18 13:24	
1,2,4-Trichlorobenzene	ug/kg	ND	5.8	1.9	03/08/18 13:24	
1,2,4-Trimethylbenzene	ug/kg	ND	5.8	2.3	03/08/18 13:24	
1,2-Dibromo-3-chloropropane	ug/kg	ND	5.8	4.2	03/08/18 13:24	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.8	2.1	03/08/18 13:24	
1,2-Dichlorobenzene	ug/kg	ND	5.8	2.2	03/08/18 13:24	
1,2-Dichloroethane	ug/kg	ND	5.8	2.6	03/08/18 13:24	
1,2-Dichloropropane	ug/kg	ND	5.8	2.0	03/08/18 13:24	
1,3,5-Trimethylbenzene	ug/kg	ND	5.8	2.1	03/08/18 13:24	
1,3-Dichlorobenzene	ug/kg	ND	5.8	2.3	03/08/18 13:24	
1,3-Dichloropropane	ug/kg	ND	5.8	2.2	03/08/18 13:24	
1,4-Dichlorobenzene	ug/kg	ND	5.8	2.0	03/08/18 13:24	
2,2-Dichloropropane	ug/kg	ND	5.8	2.0	03/08/18 13:24	
2-Butanone (MEK)	ug/kg	ND	116	3.4	03/08/18 13:24	
2-Chlorotoluene	ug/kg	ND	5.8	2.0	03/08/18 13:24	
2-Hexanone	ug/kg	ND	58.0	4.5	03/08/18 13:24	
4-Chlorotoluene	ug/kg	ND	5.8	2.1	03/08/18 13:24	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	58.0	4.3	03/08/18 13:24	
Acetone	ug/kg	ND	116	11.6	03/08/18 13:24	
Benzene	ug/kg	ND	5.8	1.9	03/08/18 13:24	
Bromobenzene	ug/kg	ND	5.8	2.3	03/08/18 13:24	
Bromochloromethane	ug/kg	ND	5.8	2.0	03/08/18 13:24	
Bromodichloromethane	ug/kg	ND	5.8	2.2	03/08/18 13:24	
Bromoform	ug/kg	ND	5.8	2.7	03/08/18 13:24	
Bromomethane	ug/kg	ND	11.6	2.9	03/08/18 13:24	
Carbon tetrachloride	ug/kg	ND	5.8	3.0	03/08/18 13:24	
Chlorobenzene	ug/kg	ND	5.8	2.2	03/08/18 13:24	
Chloroethane	ug/kg	ND	11.6	2.8	03/08/18 13:24	
Chloroform	ug/kg	ND	5.8	1.9	03/08/18 13:24	
Chloromethane	ug/kg	ND	11.6	2.8	03/08/18 13:24	
cis-1,2-Dichloroethene	ug/kg	ND	5.8	1.6	03/08/18 13:24	
cis-1,3-Dichloropropene	ug/kg	ND	5.8	2.1	03/08/18 13:24	
Dibromochloromethane	ug/kg	ND	5.8	2.1	03/08/18 13:24	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

METHOD BLANK: 2225289

Matrix: Solid

Associated Lab Samples: 92375960001, 92375960002, 92375960003, 92375960004, 92375960005, 92375960006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dibromomethane	ug/kg	ND	5.8	2.9	03/08/18 13:24	
Dichlorodifluoromethane	ug/kg	ND	11.6	4.2	03/08/18 13:24	
Diisopropyl ether	ug/kg	ND	5.8	2.0	03/08/18 13:24	
Ethylbenzene	ug/kg	ND	5.8	2.1	03/08/18 13:24	
Hexachloro-1,3-butadiene	ug/kg	ND	5.8	2.3	03/08/18 13:24	
Isopropylbenzene (Cumene)	ug/kg	ND	5.8	2.2	03/08/18 13:24	
m&p-Xylene	ug/kg	ND	11.6	4.2	03/08/18 13:24	
Methyl-tert-butyl ether	ug/kg	ND	5.8	1.7	03/08/18 13:24	
Methylene Chloride	ug/kg	ND	23.2	3.5	03/08/18 13:24	
n-Butylbenzene	ug/kg	ND	5.8	2.1	03/08/18 13:24	
n-Propylbenzene	ug/kg	ND	5.8	2.0	03/08/18 13:24	
Naphthalene	ug/kg	ND	5.8	1.4	03/08/18 13:24	
o-Xylene	ug/kg	ND	5.8	2.2	03/08/18 13:24	
p-Isopropyltoluene	ug/kg	ND	5.8	2.0	03/08/18 13:24	
sec-Butylbenzene	ug/kg	ND	5.8	1.9	03/08/18 13:24	
Styrene	ug/kg	ND	5.8	2.1	03/08/18 13:24	
tert-Butylbenzene	ug/kg	ND	5.8	2.3	03/08/18 13:24	
Tetrachloroethene	ug/kg	ND	5.8	2.0	03/08/18 13:24	
Toluene	ug/kg	ND	5.8	2.1	03/08/18 13:24	
trans-1,2-Dichloroethene	ug/kg	ND	5.8	2.2	03/08/18 13:24	
trans-1,3-Dichloropropene	ug/kg	ND	5.8	1.7	03/08/18 13:24	
Trichloroethene	ug/kg	ND	5.8	2.4	03/08/18 13:24	
Trichlorofluoromethane	ug/kg	ND	5.8	2.6	03/08/18 13:24	
Vinyl acetate	ug/kg	ND	58.0	10.2	03/08/18 13:24	
Vinyl chloride	ug/kg	ND	11.6	2.1	03/08/18 13:24	
Xylene (Total)	ug/kg	ND	11.6	4.2	03/08/18 13:24	
1,2-Dichloroethane-d4 (S)	%	99	70-132		03/08/18 13:24	
4-Bromofluorobenzene (S)	%	96	70-130		03/08/18 13:24	
Toluene-d8 (S)	%	96	70-130		03/08/18 13:24	

LABORATORY CONTROL SAMPLE: 2225290

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	57.9	61.5	106	74-137	
1,1,1-Trichloroethane	ug/kg	57.9	55.1	95	67-140	
1,1,2,2-Tetrachloroethane	ug/kg	57.9	51.4	89	72-141	
1,1,2-Trichloroethane	ug/kg	57.9	55.7	96	78-138	
1,1-Dichloroethane	ug/kg	57.9	48.4	84	69-134	
1,1-Dichloroethene	ug/kg	57.9	49.1	85	67-138	
1,1-Dichloropropene	ug/kg	57.9	50.0	86	69-139	
1,2,3-Trichlorobenzene	ug/kg	57.9	61.2	106	70-146	
1,2,3-Trichloropropane	ug/kg	57.9	56.3	97	69-144	
1,2,4-Trichlorobenzene	ug/kg	57.9	62.7	108	68-148	
1,2,4-Trimethylbenzene	ug/kg	57.9	57.1	99	74-137	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

LABORATORY CONTROL SAMPLE: 2225290

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromo-3-chloropropane	ug/kg	57.9	59.7	103	65-140	
1,2-Dibromoethane (EDB)	ug/kg	57.9	59.4	103	77-135	
1,2-Dichlorobenzene	ug/kg	57.9	58.9	102	77-141	
1,2-Dichloroethane	ug/kg	57.9	53.9	93	65-137	
1,2-Dichloropropane	ug/kg	57.9	52.4	91	72-136	
1,3,5-Trimethylbenzene	ug/kg	57.9	57.2	99	76-133	
1,3-Dichlorobenzene	ug/kg	57.9	58.6	101	74-138	
1,3-Dichloropropane	ug/kg	57.9	56.3	97	71-139	
1,4-Dichlorobenzene	ug/kg	57.9	58.5	101	76-138	
2,2-Dichloropropane	ug/kg	57.9	54.5	94	68-137	
2-Butanone (MEK)	ug/kg	116	91.2J	79	58-147	
2-Chlorotoluene	ug/kg	57.9	54.8	95	73-139	
2-Hexanone	ug/kg	116	106	91	62-145	
4-Chlorotoluene	ug/kg	57.9	54.4	94	76-141	
4-Methyl-2-pentanone (MIBK)	ug/kg	116	102	88	64-149	
Acetone	ug/kg	116	87.6J	76	53-153	
Benzene	ug/kg	57.9	52.9	91	73-135	
Bromobenzene	ug/kg	57.9	59.0	102	75-133	
Bromochloromethane	ug/kg	57.9	51.9	90	73-134	
Bromodichloromethane	ug/kg	57.9	57.9	100	71-135	
Bromoform	ug/kg	57.9	66.3	114	66-141	
Bromomethane	ug/kg	57.9	63.4	110	53-160	
Carbon tetrachloride	ug/kg	57.9	60.7	105	60-145	
Chlorobenzene	ug/kg	57.9	58.1	100	78-130	
Chloroethane	ug/kg	57.9	58.7	101	64-149	
Chloroform	ug/kg	57.9	51.9	90	70-134	
Chloromethane	ug/kg	57.9	44.8	77	52-150	
cis-1,2-Dichloroethene	ug/kg	57.9	51.3	89	70-133	
cis-1,3-Dichloropropene	ug/kg	57.9	57.3	99	68-134	
Dibromochloromethane	ug/kg	57.9	62.5	108	71-138	
Dibromomethane	ug/kg	57.9	61.9	107	74-130	
Dichlorodifluoromethane	ug/kg	57.9	48.8	84	40-160	
Diisopropyl ether	ug/kg	57.9	45.8	79	69-141	
Ethylbenzene	ug/kg	57.9	58.0	100	75-133	
Hexachloro-1,3-butadiene	ug/kg	57.9	64.5	111	68-143	
Isopropylbenzene (Cumene)	ug/kg	57.9	60.5	104	76-143	
m&p-Xylene	ug/kg	116	118	102	75-136	
Methyl-tert-butyl ether	ug/kg	57.9	49.4	85	68-144	
Methylene Chloride	ug/kg	57.9	43.2	75	45-154	
n-Butylbenzene	ug/kg	57.9	54.8	95	72-137	
n-Propylbenzene	ug/kg	57.9	55.2	95	76-136	
Naphthalene	ug/kg	57.9	58.6	101	68-151	
o-Xylene	ug/kg	57.9	59.2	102	76-141	
p-Isopropyltoluene	ug/kg	57.9	57.7	100	76-140	
sec-Butylbenzene	ug/kg	57.9	56.3	97	79-139	
Styrene	ug/kg	57.9	59.0	102	79-137	
tert-Butylbenzene	ug/kg	57.9	52.1	90	74-143	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

LABORATORY CONTROL SAMPLE: 2225290

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	57.9	57.9	100	71-138	
Toluene	ug/kg	57.9	56.7	98	74-131	
trans-1,2-Dichloroethene	ug/kg	57.9	49.3	85	67-135	
trans-1,3-Dichloropropene	ug/kg	57.9	57.3	99	65-146	
Trichloroethene	ug/kg	57.9	62.2	107	67-135	
Trichlorofluoromethane	ug/kg	57.9	55.8	96	59-144	
Vinyl acetate	ug/kg	116	88.5	76	40-160	
Vinyl chloride	ug/kg	57.9	51.5	89	56-141	
Xylene (Total)	ug/kg	174	177	102	76-137	
1,2-Dichloroethane-d4 (S)	%			93	70-132	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			96	70-130	

MATRIX SPIKE SAMPLE: 2225890

Parameter	Units	92375960001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	20.8	20.9	101	70-130	
1,1,1-Trichloroethane	ug/kg	ND	20.8	19.0	92	70-130	
1,1,2,2-Tetrachloroethane	ug/kg	ND	20.8	18.9	91	70-130	
1,1,2-Trichloroethane	ug/kg	ND	20.8	19.6	94	70-130	
1,1-Dichloroethane	ug/kg	ND	20.8	16.5	79	70-130	
1,1-Dichloroethene	ug/kg	ND	20.8	17.1	82	49-180	
1,1-Dichloropropene	ug/kg	ND	20.8	17.7	85	70-130	
1,2,3-Trichlorobenzene	ug/kg	ND	20.8	17.7	85	70-130	
1,2,3-Trichloropropane	ug/kg	ND	20.8	19.9	96	70-130	
1,2,4-Trichlorobenzene	ug/kg	ND	20.8	18.6	90	70-130	
1,2,4-Trimethylbenzene	ug/kg	ND	20.8	19.9	96	70-130	
1,2-Dibromo-3-chloropropane	ug/kg	ND	20.8	21.8	105	70-130	
1,2-Dibromoethane (EDB)	ug/kg	ND	20.8	20.5	99	70-130	
1,2-Dichlorobenzene	ug/kg	ND	20.8	19.9	96	70-130	
1,2-Dichloroethane	ug/kg	ND	20.8	18.2	88	70-130	
1,2-Dichloropropane	ug/kg	ND	20.8	17.9	86	70-130	
1,3,5-Trimethylbenzene	ug/kg	ND	20.8	20.3	98	70-130	
1,3-Dichlorobenzene	ug/kg	ND	20.8	19.9	96	70-130	
1,3-Dichloropropane	ug/kg	ND	20.8	19.6	94	70-130	
1,4-Dichlorobenzene	ug/kg	ND	20.8	20.2	97	70-130	
2,2-Dichloropropane	ug/kg	ND	20.8	18.3	88	70-130	
2-Butanone (MEK)	ug/kg	ND	41.5	29.8J	72	70-130	
2-Chlorotoluene	ug/kg	ND	20.8	19.4	93	70-130	
2-Hexanone	ug/kg	ND	41.5	32.2J	77	70-130	
4-Chlorotoluene	ug/kg	ND	20.8	19.1	92	70-130	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	41.5	33.4J	80	70-130	
Acetone	ug/kg	14.0J	41.5	30.4J	39	70-130 M1	
Benzene	ug/kg	ND	20.8	18.5	89	50-166	
Bromobenzene	ug/kg	ND	20.8	21.0	101	70-130	

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

MATRIX SPIKE SAMPLE:	2225890	92375960001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Bromochloromethane	ug/kg	ND	20.8	20.0	96	70-130	
Bromodichloromethane	ug/kg	ND	20.8	19.2	92	70-130	
Bromoform	ug/kg	ND	20.8	22.1	107	70-130	
Bromomethane	ug/kg	ND	20.8	19.9	96	70-130	
Carbon tetrachloride	ug/kg	ND	20.8	20.2	97	70-130	
Chlorobenzene	ug/kg	ND	20.8	20.1	97	43-169	
Chloroethane	ug/kg	ND	20.8	20.2	97	70-130	
Chloroform	ug/kg	ND	20.8	18.4	89	70-130	
Chloromethane	ug/kg	ND	20.8	13.6	65	70-130	M1
cis-1,2-Dichloroethene	ug/kg	ND	20.8	18.0	87	70-130	
cis-1,3-Dichloropropene	ug/kg	ND	20.8	18.9	91	70-130	
Dibromochloromethane	ug/kg	ND	20.8	20.5	99	70-130	
Dibromomethane	ug/kg	ND	20.8	22.7	109	70-130	
Dichlorodifluoromethane	ug/kg	ND	20.8	14.9	72	70-130	
Diisopropyl ether	ug/kg	ND	20.8	15.5	74	70-130	
Ethylbenzene	ug/kg	ND	20.8	20.1	97	70-130	
Hexachloro-1,3-butadiene	ug/kg	ND	20.8	19.5	94	70-130	
Isopropylbenzene (Cumene)	ug/kg	ND	20.8	20.7	100	70-130	
m&p-Xylene	ug/kg	ND	41.5	40.0	96	70-130	
Methyl-tert-butyl ether	ug/kg	ND	20.8	17.9	86	70-130	
Methylene Chloride	ug/kg	ND	20.8	14.3J	69	70-130	M1
n-Butylbenzene	ug/kg	ND	20.8	18.7	90	70-130	
n-Propylbenzene	ug/kg	ND	20.8	19.5	94	70-130	
Naphthalene	ug/kg	2.2J	20.8	19.5	83	70-130	
o-Xylene	ug/kg	ND	20.8	20.5	99	70-130	
p-Isopropyltoluene	ug/kg	ND	20.8	20.0	96	70-130	
sec-Butylbenzene	ug/kg	ND	20.8	19.9	96	70-130	
Styrene	ug/kg	29.9	20.8	20.0	-48	70-130	M1
tert-Butylbenzene	ug/kg	ND	20.8	18.8	91	70-130	
Tetrachloroethene	ug/kg	ND	20.8	20.5	98	70-130	
Toluene	ug/kg	ND	20.8	19.8	95	52-163	
trans-1,2-Dichloroethene	ug/kg	ND	20.8	17.1	82	70-130	
trans-1,3-Dichloropropene	ug/kg	ND	20.8	18.7	90	70-130	
Trichloroethene	ug/kg	2.3J	20.8	21.5	92	49-167	
Trichlorofluoromethane	ug/kg	ND	20.8	19.4	93	70-130	
Vinyl acetate	ug/kg	ND	41.5	23.0J	55	70-130	M1
Vinyl chloride	ug/kg	ND	20.8	16.6	80	70-130	
Xylene (Total)	ug/kg	ND	62.3	60.6	97	70-130	
1,2-Dichloroethane-d4 (S)	%				86	70-132	
4-Bromofluorobenzene (S)	%				95	70-130	
Toluene-d8 (S)	%				96	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

SAMPLE DUPLICATE: 2225889

Parameter	Units	92375942001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,1-Trichloroethane	ug/kg	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,2-Trichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethene	ug/kg	ND	ND		30	
1,1-Dichloropropene	ug/kg	ND	ND		30	
1,2,3-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,3-Trichloropropane	ug/kg	ND	ND		30	
1,2,4-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,4-Trimethylbenzene	ug/kg	ND	3.1J		30	
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		30	
1,2-Dichlorobenzene	ug/kg	ND	ND		30	
1,2-Dichloroethane	ug/kg	ND	ND		30	
1,2-Dichloropropane	ug/kg	ND	ND		30	
1,3,5-Trimethylbenzene	ug/kg	ND	ND		30	
1,3-Dichlorobenzene	ug/kg	ND	ND		30	
1,3-Dichloropropane	ug/kg	ND	ND		30	
1,4-Dichlorobenzene	ug/kg	ND	ND		30	
2,2-Dichloropropane	ug/kg	ND	ND		30	
2-Butanone (MEK)	ug/kg	ND	ND		30	
2-Chlorotoluene	ug/kg	ND	ND		30	
2-Hexanone	ug/kg	ND	ND		30	
4-Chlorotoluene	ug/kg	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	8.8J		30	
Acetone	ug/kg	188	170	10	30	
Benzene	ug/kg	ND	ND		30	
Bromobenzene	ug/kg	ND	ND		30	
Bromochloromethane	ug/kg	ND	ND		30	
Bromodichloromethane	ug/kg	ND	ND		30	
Bromoform	ug/kg	ND	ND		30	
Bromomethane	ug/kg	ND	ND		30	
Carbon tetrachloride	ug/kg	ND	ND		30	
Chlorobenzene	ug/kg	ND	ND		30	
Chloroethane	ug/kg	ND	ND		30	
Chloroform	ug/kg	ND	ND		30	
Chloromethane	ug/kg	ND	ND		30	
cis-1,2-Dichloroethene	ug/kg	ND	ND		30	
cis-1,3-Dichloropropene	ug/kg	ND	ND		30	
Dibromochloromethane	ug/kg	ND	ND		30	
Dibromomethane	ug/kg	ND	ND		30	
Dichlorodifluoromethane	ug/kg	ND	ND		30	
Diisopropyl ether	ug/kg	ND	ND		30	
Ethylbenzene	ug/kg	17.4	14.5	19	30	
Hexachloro-1,3-butadiene	ug/kg	ND	ND		30	
Isopropylbenzene (Cumene)	ug/kg	ND	ND		30	

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

SAMPLE DUPLICATE: 2225889

Parameter	Units	92375942001 Result	Dup Result	RPD	Max RPD	Qualifiers
m&p-Xylene	ug/kg	77.3	61.1	23	30	
Methyl-tert-butyl ether	ug/kg	ND	ND		30	
Methylene Chloride	ug/kg	ND	ND		30	
n-Butylbenzene	ug/kg	ND	ND		30	
n-Propylbenzene	ug/kg	ND	ND		30	
Naphthalene	ug/kg	ND	11.5		30	
o-Xylene	ug/kg	33.5	28.0	18	30	
p-Isopropyltoluene	ug/kg	ND	ND		30	
sec-Butylbenzene	ug/kg	ND	ND		30	
Styrene	ug/kg	ND	ND		30	
tert-Butylbenzene	ug/kg	ND	ND		30	
Tetrachloroethene	ug/kg	32.9	38.2	15	30	
Toluene	ug/kg	ND	ND		30	
trans-1,2-Dichloroethene	ug/kg	ND	ND		30	
trans-1,3-Dichloropropene	ug/kg	ND	ND		30	
Trichloroethene	ug/kg	ND	ND		30	
Trichlorofluoromethane	ug/kg	ND	ND		30	
Vinyl acetate	ug/kg	ND	ND		30	
Vinyl chloride	ug/kg	ND	ND		30	
Xylene (Total)	ug/kg	111	89.2	22	30	
1,2-Dichloroethane-d4 (S)	%	124	123	7		
4-Bromofluorobenzene (S)	%	86	79	0		
Toluene-d8 (S)	%	82	81	7		1g

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1
Pace Project No.: 92375960

QC Batch: 401362 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92375960007

METHOD BLANK: 2226186 Matrix: Solid
Associated Lab Samples: 92375960007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	5.2	2.2	03/09/18 11:36	
1,1,1-Trichloroethane	ug/kg	ND	5.2	1.9	03/09/18 11:36	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.2	2.0	03/09/18 11:36	
1,1,2-Trichloroethane	ug/kg	ND	5.2	2.2	03/09/18 11:36	
1,1-Dichloroethane	ug/kg	ND	5.2	1.6	03/09/18 11:36	
1,1-Dichloroethene	ug/kg	ND	5.2	1.9	03/09/18 11:36	
1,1-Dichloropropene	ug/kg	ND	5.2	1.6	03/09/18 11:36	
1,2,3-Trichlorobenzene	ug/kg	ND	5.2	2.3	03/09/18 11:36	
1,2,3-Trichloropropane	ug/kg	ND	5.2	1.7	03/09/18 11:36	
1,2,4-Trichlorobenzene	ug/kg	ND	5.2	1.7	03/09/18 11:36	
1,2,4-Trimethylbenzene	ug/kg	ND	5.2	2.1	03/09/18 11:36	
1,2-Dibromo-3-chloropropane	ug/kg	ND	5.2	3.8	03/09/18 11:36	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.2	1.9	03/09/18 11:36	
1,2-Dichlorobenzene	ug/kg	ND	5.2	2.0	03/09/18 11:36	
1,2-Dichloroethane	ug/kg	ND	5.2	2.3	03/09/18 11:36	
1,2-Dichloropropane	ug/kg	ND	5.2	1.8	03/09/18 11:36	
1,3,5-Trimethylbenzene	ug/kg	ND	5.2	1.9	03/09/18 11:36	
1,3-Dichlorobenzene	ug/kg	ND	5.2	2.1	03/09/18 11:36	
1,3-Dichloropropane	ug/kg	ND	5.2	2.0	03/09/18 11:36	
1,4-Dichlorobenzene	ug/kg	ND	5.2	1.8	03/09/18 11:36	
2,2-Dichloropropane	ug/kg	ND	5.2	1.8	03/09/18 11:36	
2-Butanone (MEK)	ug/kg	ND	104	3.0	03/09/18 11:36	
2-Chlorotoluene	ug/kg	ND	5.2	1.8	03/09/18 11:36	
2-Hexanone	ug/kg	ND	52.2	4.1	03/09/18 11:36	
4-Chlorotoluene	ug/kg	ND	5.2	1.9	03/09/18 11:36	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	52.2	3.9	03/09/18 11:36	
Acetone	ug/kg	ND	104	10.4	03/09/18 11:36	
Benzene	ug/kg	ND	5.2	1.7	03/09/18 11:36	
Bromobenzene	ug/kg	ND	5.2	2.1	03/09/18 11:36	
Bromochloromethane	ug/kg	ND	5.2	1.8	03/09/18 11:36	
Bromodichloromethane	ug/kg	ND	5.2	2.0	03/09/18 11:36	
Bromoform	ug/kg	ND	5.2	2.4	03/09/18 11:36	
Bromomethane	ug/kg	ND	10.4	2.6	03/09/18 11:36	
Carbon tetrachloride	ug/kg	ND	5.2	2.7	03/09/18 11:36	
Chlorobenzene	ug/kg	ND	5.2	2.0	03/09/18 11:36	
Chloroethane	ug/kg	ND	10.4	2.5	03/09/18 11:36	
Chloroform	ug/kg	ND	5.2	1.7	03/09/18 11:36	
Chloromethane	ug/kg	ND	10.4	2.5	03/09/18 11:36	
cis-1,2-Dichloroethene	ug/kg	ND	5.2	1.5	03/09/18 11:36	
cis-1,3-Dichloropropene	ug/kg	ND	5.2	1.9	03/09/18 11:36	
Dibromochloromethane	ug/kg	ND	5.2	1.9	03/09/18 11:36	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

METHOD BLANK: 2226186

Matrix: Solid

Associated Lab Samples: 92375960007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dibromomethane	ug/kg	ND	5.2	2.6	03/09/18 11:36	
Dichlorodifluoromethane	ug/kg	ND	10.4	3.8	03/09/18 11:36	
Diisopropyl ether	ug/kg	ND	5.2	1.8	03/09/18 11:36	
Ethylbenzene	ug/kg	ND	5.2	1.9	03/09/18 11:36	
Hexachloro-1,3-butadiene	ug/kg	ND	5.2	2.1	03/09/18 11:36	
Isopropylbenzene (Cumene)	ug/kg	ND	5.2	2.0	03/09/18 11:36	
m&p-Xylene	ug/kg	ND	10.4	3.8	03/09/18 11:36	
Methyl-tert-butyl ether	ug/kg	ND	5.2	1.6	03/09/18 11:36	
Methylene Chloride	ug/kg	ND	20.9	3.1	03/09/18 11:36	
n-Butylbenzene	ug/kg	ND	5.2	1.9	03/09/18 11:36	
n-Propylbenzene	ug/kg	ND	5.2	1.8	03/09/18 11:36	
Naphthalene	ug/kg	1.7J	5.2	1.3	03/09/18 11:36	
o-Xylene	ug/kg	ND	5.2	2.0	03/09/18 11:36	
p-Isopropyltoluene	ug/kg	ND	5.2	1.8	03/09/18 11:36	
sec-Butylbenzene	ug/kg	ND	5.2	1.7	03/09/18 11:36	
Styrene	ug/kg	ND	5.2	1.9	03/09/18 11:36	
tert-Butylbenzene	ug/kg	ND	5.2	2.1	03/09/18 11:36	
Tetrachloroethene	ug/kg	ND	5.2	1.8	03/09/18 11:36	
Toluene	ug/kg	ND	5.2	1.9	03/09/18 11:36	
trans-1,2-Dichloroethene	ug/kg	ND	5.2	2.0	03/09/18 11:36	
trans-1,3-Dichloropropene	ug/kg	ND	5.2	1.6	03/09/18 11:36	
Trichloroethene	ug/kg	ND	5.2	2.2	03/09/18 11:36	
Trichlorofluoromethane	ug/kg	ND	5.2	2.3	03/09/18 11:36	
Vinyl acetate	ug/kg	ND	52.2	9.2	03/09/18 11:36	
Vinyl chloride	ug/kg	ND	10.4	1.9	03/09/18 11:36	
Xylene (Total)	ug/kg	ND	10.4	3.8	03/09/18 11:36	
1,2-Dichloroethane-d4 (S)	%	91	70-132		03/09/18 11:36	
4-Bromofluorobenzene (S)	%	97	70-130		03/09/18 11:36	
Toluene-d8 (S)	%	96	70-130		03/09/18 11:36	

LABORATORY CONTROL SAMPLE: 2226187

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	46.6	45.7	98	74-137	
1,1,1-Trichloroethane	ug/kg	46.6	42.3	91	67-140	
1,1,2,2-Tetrachloroethane	ug/kg	46.6	38.9	83	72-141	
1,1,2-Trichloroethane	ug/kg	46.6	42.9	92	78-138	
1,1-Dichloroethane	ug/kg	46.6	38.0	81	69-134	
1,1-Dichloroethene	ug/kg	46.6	37.2	80	67-138	
1,1-Dichloropropene	ug/kg	46.6	38.8	83	69-139	
1,2,3-Trichlorobenzene	ug/kg	46.6	48.3	104	70-146	
1,2,3-Trichloropropane	ug/kg	46.6	42.8	92	69-144	
1,2,4-Trichlorobenzene	ug/kg	46.6	48.3	103	68-148	
1,2,4-Trimethylbenzene	ug/kg	46.6	44.8	96	74-137	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

LABORATORY CONTROL SAMPLE: 2226187

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromo-3-chloropropane	ug/kg	46.6	46.7	100	65-140	
1,2-Dibromoethane (EDB)	ug/kg	46.6	44.7	96	77-135	
1,2-Dichlorobenzene	ug/kg	46.6	45.6	98	77-141	
1,2-Dichloroethane	ug/kg	46.6	40.8	88	65-137	
1,2-Dichloropropane	ug/kg	46.6	39.9	86	72-136	
1,3,5-Trimethylbenzene	ug/kg	46.6	44.6	96	76-133	
1,3-Dichlorobenzene	ug/kg	46.6	45.7	98	74-138	
1,3-Dichloropropane	ug/kg	46.6	42.8	92	71-139	
1,4-Dichlorobenzene	ug/kg	46.6	45.9	99	76-138	
2,2-Dichloropropane	ug/kg	46.6	41.5	89	68-137	
2-Butanone (MEK)	ug/kg	93.3	65.8J	71	58-147	
2-Chlorotoluene	ug/kg	46.6	43.0	92	73-139	
2-Hexanone	ug/kg	93.3	76.6	82	62-145	
4-Chlorotoluene	ug/kg	46.6	43.0	92	76-141	
4-Methyl-2-pentanone (MIBK)	ug/kg	93.3	74.5	80	64-149	
Acetone	ug/kg	93.3	68.6J	74	53-153	
Benzene	ug/kg	46.6	40.8	87	73-135	
Bromobenzene	ug/kg	46.6	47.0	101	75-133	
Bromochloromethane	ug/kg	46.6	44.0	94	73-134	
Bromodichloromethane	ug/kg	46.6	43.8	94	71-135	
Bromoform	ug/kg	46.6	49.8	107	66-141	
Bromomethane	ug/kg	46.6	46.2	99	53-160	
Carbon tetrachloride	ug/kg	46.6	45.2	97	60-145	
Chlorobenzene	ug/kg	46.6	44.2	95	78-130	
Chloroethane	ug/kg	46.6	43.8	94	64-149	
Chloroform	ug/kg	46.6	41.3	88	70-134	
Chloromethane	ug/kg	46.6	31.5	67	52-150	
cis-1,2-Dichloroethene	ug/kg	46.6	40.8	87	70-133	
cis-1,3-Dichloropropene	ug/kg	46.6	43.5	93	68-134	
Dibromochloromethane	ug/kg	46.6	46.5	100	71-138	
Dibromomethane	ug/kg	46.6	49.3	106	74-130	
Dichlorodifluoromethane	ug/kg	46.6	33.0	71	40-160	
Diisopropyl ether	ug/kg	46.6	33.0	71	69-141	
Ethylbenzene	ug/kg	46.6	43.8	94	75-133	
Hexachloro-1,3-butadiene	ug/kg	46.6	51.3	110	68-143	
Isopropylbenzene (Cumene)	ug/kg	46.6	45.9	98	76-143	
m&p-Xylene	ug/kg	93.3	89.2	96	75-136	
Methyl-tert-butyl ether	ug/kg	46.6	39.1	84	68-144	
Methylene Chloride	ug/kg	46.6	34.3	74	45-154	
n-Butylbenzene	ug/kg	46.6	43.3	93	72-137	
n-Propylbenzene	ug/kg	46.6	43.3	93	76-136	
Naphthalene	ug/kg	46.6	46.5	100	68-151	
o-Xylene	ug/kg	46.6	45.6	98	76-141	
p-Isopropyltoluene	ug/kg	46.6	45.4	97	76-140	
sec-Butylbenzene	ug/kg	46.6	44.4	95	79-139	
Styrene	ug/kg	46.6	44.4	95	79-137	
tert-Butylbenzene	ug/kg	46.6	41.3	89	74-143	

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

LABORATORY CONTROL SAMPLE: 2226187

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	46.6	44.2	95	71-138	
Toluene	ug/kg	46.6	43.5	93	74-131	
trans-1,2-Dichloroethene	ug/kg	46.6	37.8	81	67-135	
trans-1,3-Dichloropropene	ug/kg	46.6	43.4	93	65-146	
Trichloroethene	ug/kg	46.6	47.3	101	67-135	
Trichlorofluoromethane	ug/kg	46.6	42.0	90	59-144	
Vinyl acetate	ug/kg	93.3	68.2	73	40-160	
Vinyl chloride	ug/kg	46.6	39.0	84	56-141	
Xylene (Total)	ug/kg	140	135	96	76-137	
1,2-Dichloroethane-d4 (S)	%			86	70-132	
4-Bromofluorobenzene (S)	%			95	70-130	
Toluene-d8 (S)	%			97	70-130	

MATRIX SPIKE SAMPLE: 2227120

Parameter	Units	92375962001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	16.7	12.5	75	70-130	
1,1,1-Trichloroethane	ug/kg	ND	16.7	11.8	71	70-130	
1,1,2,2-Tetrachloroethane	ug/kg	ND	16.7	14.1	85	70-130	
1,1,2-Trichloroethane	ug/kg	ND	16.7	15.2	91	70-130	
1,1-Dichloroethane	ug/kg	ND	16.7	12.4	74	70-130	
1,1-Dichloroethene	ug/kg	ND	16.7	12.9	77	49-180	
1,1-Dichloropropene	ug/kg	ND	16.7	12.0	72	70-130	
1,2,3-Trichlorobenzene	ug/kg	ND	16.7	12.8	77	70-130	
1,2,3-Trichloropropane	ug/kg	ND	16.7	14.3	86	70-130	
1,2,4-Trichlorobenzene	ug/kg	ND	16.7	12.8	77	70-130	
1,2,4-Trimethylbenzene	ug/kg	ND	16.7	13.1	79	70-130	
1,2-Dibromo-3-chloropropane	ug/kg	ND	16.7	13.7	82	70-130	
1,2-Dibromoethane (EDB)	ug/kg	ND	16.7	14.4	87	70-130	
1,2-Dichlorobenzene	ug/kg	ND	16.7	13.6	82	70-130	
1,2-Dichloroethane	ug/kg	ND	16.7	14.2	85	70-130	
1,2-Dichloropropane	ug/kg	ND	16.7	14.3	86	70-130	
1,3,5-Trimethylbenzene	ug/kg	ND	16.7	12.6	76	70-130	
1,3-Dichlorobenzene	ug/kg	ND	16.7	13.1	79	70-130	
1,3-Dichloropropane	ug/kg	ND	16.7	14.5	87	70-130	
1,4-Dichlorobenzene	ug/kg	ND	16.7	13.1	79	70-130	
2,2-Dichloropropane	ug/kg	ND	16.7	11.4	68	70-130 M1	
2-Butanone (MEK)	ug/kg	ND	33.3	30.6J	92	70-130	
2-Chlorotoluene	ug/kg	ND	16.7	12.9	78	70-130	
2-Hexanone	ug/kg	ND	33.3	30.1J	90	70-130	
4-Chlorotoluene	ug/kg	ND	16.7	13.0	78	70-130	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	33.3	29.6J	89	70-130	
Acetone	ug/kg	12.0J	33.3	57.0J	135	70-130 M1	
Benzene	ug/kg	ND	16.7	13.2	79	50-166	
Bromobenzene	ug/kg	ND	16.7	13.7	82	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

MATRIX SPIKE SAMPLE: 2227120		92375962001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Bromochloromethane	ug/kg	ND	16.7	13.5	81	70-130	
Bromodichloromethane	ug/kg	ND	16.7	13.9	83	70-130	
Bromoform	ug/kg	ND	16.7	12.5	75	70-130	
Bromomethane	ug/kg	ND	16.7	14.9	89	70-130	
Carbon tetrachloride	ug/kg	ND	16.7	12.1	73	70-130	
Chlorobenzene	ug/kg	ND	16.7	12.9	78	43-169	
Chloroethane	ug/kg	ND	16.7	15.7	94	70-130	
Chloroform	ug/kg	ND	16.7	13.0	78	70-130	
Chloromethane	ug/kg	ND	16.7	13.3	80	70-130	
cis-1,2-Dichloroethene	ug/kg	ND	16.7	12.6	76	70-130	
cis-1,3-Dichloropropene	ug/kg	ND	16.7	13.5	81	70-130	
Dibromochloromethane	ug/kg	ND	16.7	13.3	80	70-130	
Dibromomethane	ug/kg	ND	16.7	14.7	88	70-130	
Dichlorodifluoromethane	ug/kg	ND	16.7	14.4	87	70-130	
Diisopropyl ether	ug/kg	ND	16.7	14.2	85	70-130	
Ethylbenzene	ug/kg	ND	16.7	13.1	79	70-130	
Hexachloro-1,3-butadiene	ug/kg	ND	16.7	11.0	66	70-130	M1
Isopropylbenzene (Cumene)	ug/kg	ND	16.7	13.0	78	70-130	
m&p-Xylene	ug/kg	ND	33.3	26.4	79	70-130	
Methyl-tert-butyl ether	ug/kg	ND	16.7	15.4	92	70-130	
Methylene Chloride	ug/kg	ND	16.7	11.1J	66	70-130	M1
n-Butylbenzene	ug/kg	ND	16.7	11.8	71	70-130	
n-Propylbenzene	ug/kg	ND	16.7	12.5	75	70-130	
Naphthalene	ug/kg	ND	16.7	14.3	86	70-130	
o-Xylene	ug/kg	ND	16.7	13.7	82	70-130	
p-Isopropyltoluene	ug/kg	ND	16.7	12.2	73	70-130	
sec-Butylbenzene	ug/kg	ND	16.7	12.5	75	70-130	
Styrene	ug/kg	ND	16.7	13.1	79	70-130	
tert-Butylbenzene	ug/kg	ND	16.7	11.6	70	70-130	
Tetrachloroethene	ug/kg	ND	16.7	10.1	61	70-130	M1
Toluene	ug/kg	ND	16.7	13.0	78	52-163	
trans-1,2-Dichloroethene	ug/kg	ND	16.7	12.7	76	70-130	
trans-1,3-Dichloropropene	ug/kg	ND	16.7	14.2	85	70-130	
Trichloroethene	ug/kg	ND	16.7	12.7	77	49-167	
Trichlorofluoromethane	ug/kg	ND	16.7	14.4	86	70-130	
Vinyl acetate	ug/kg	ND	33.3	33.0J	99	70-130	
Vinyl chloride	ug/kg	ND	16.7	14.6	88	70-130	
Xylene (Total)	ug/kg	ND	50	40.1	80	70-130	
1,2-Dichloroethane-d4 (S)	%				98	70-132	
4-Bromofluorobenzene (S)	%				104	70-130	
Toluene-d8 (S)	%				101	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

SAMPLE DUPLICATE: 2227121

Parameter	Units	92375986002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,1-Trichloroethane	ug/kg	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,2-Trichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethene	ug/kg	ND	ND		30	
1,1-Dichloropropene	ug/kg	ND	ND		30	
1,2,3-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,3-Trichloropropane	ug/kg	ND	ND		30	
1,2,4-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,4-Trimethylbenzene	ug/kg	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		30	
1,2-Dichlorobenzene	ug/kg	ND	ND		30	
1,2-Dichloroethane	ug/kg	ND	ND		30	
1,2-Dichloropropane	ug/kg	ND	ND		30	
1,3,5-Trimethylbenzene	ug/kg	ND	ND		30	
1,3-Dichlorobenzene	ug/kg	ND	ND		30	
1,3-Dichloropropane	ug/kg	ND	ND		30	
1,4-Dichlorobenzene	ug/kg	ND	ND		30	
2,2-Dichloropropane	ug/kg	ND	ND		30	
2-Butanone (MEK)	ug/kg	ND	ND		30	
2-Chlorotoluene	ug/kg	ND	ND		30	
2-Hexanone	ug/kg	ND	ND		30	
4-Chlorotoluene	ug/kg	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		30	
Acetone	ug/kg	ND	132J		30	
Benzene	ug/kg	ND	ND		30	
Bromobenzene	ug/kg	ND	ND		30	
Bromochloromethane	ug/kg	ND	ND		30	
Bromodichloromethane	ug/kg	ND	ND		30	
Bromoform	ug/kg	ND	ND		30	
Bromomethane	ug/kg	ND	ND		30	
Carbon tetrachloride	ug/kg	ND	ND		30	
Chlorobenzene	ug/kg	ND	ND		30	
Chloroethane	ug/kg	ND	ND		30	
Chloroform	ug/kg	ND	ND		30	
Chloromethane	ug/kg	ND	ND		30	
cis-1,2-Dichloroethene	ug/kg	ND	ND		30	
cis-1,3-Dichloropropene	ug/kg	ND	ND		30	
Dibromochloromethane	ug/kg	ND	ND		30	
Dibromomethane	ug/kg	ND	ND		30	
Dichlorodifluoromethane	ug/kg	ND	ND		30	
Diisopropyl ether	ug/kg	ND	ND		30	
Ethylbenzene	ug/kg	ND	ND		30	
Hexachloro-1,3-butadiene	ug/kg	ND	ND		30	
Isopropylbenzene (Cumene)	ug/kg	ND	ND		30	

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

SAMPLE DUPLICATE: 2227121

Parameter	Units	92375986002 Result	Dup Result	RPD	Max RPD	Qualifiers
m&p-Xylene	ug/kg	ND	ND		30	
Methyl-tert-butyl ether	ug/kg	ND	ND		30	
Methylene Chloride	ug/kg	ND	ND		30	
n-Butylbenzene	ug/kg	ND	ND		30	
n-Propylbenzene	ug/kg	ND	ND		30	
Naphthalene	ug/kg	ND	ND		30	
o-Xylene	ug/kg	ND	ND		30	
p-Isopropyltoluene	ug/kg	ND	ND		30	
sec-Butylbenzene	ug/kg	ND	ND		30	
Styrene	ug/kg	ND	ND		30	
tert-Butylbenzene	ug/kg	ND	ND		30	
Tetrachloroethene	ug/kg	ND	ND		30	
Toluene	ug/kg	ND	ND		30	
trans-1,2-Dichloroethene	ug/kg	ND	ND		30	
trans-1,3-Dichloropropene	ug/kg	ND	ND		30	
Trichloroethene	ug/kg	ND	ND		30	
Trichlorofluoromethane	ug/kg	ND	ND		30	
Vinyl acetate	ug/kg	ND	ND		30	
Vinyl chloride	ug/kg	ND	ND		30	
Xylene (Total)	ug/kg	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	183	158	14		S1
4-Bromofluorobenzene (S)	%	72	79	11		
Toluene-d8 (S)	%	90	101	12		1g

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3830_WBS38887.1.1
Pace Project No.: 92375960

QC Batch: 401026 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92375960001, 92375960002, 92375960003, 92375960004, 92375960005, 92375960006, 92375960007

SAMPLE DUPLICATE: 2224318

Parameter	Units	92375700001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	46.2	47.4	3	25	

SAMPLE DUPLICATE: 2224319

Parameter	Units	92375893004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	18.6	19.3	3	25	

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QUALIFIERS

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

1g The internal standard response is below criteria. No hits associated with this internal standard. Results unaffected by high bias.

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

S1 Surrogate recovery outside laboratory control limits (confirmed by re-analysis).

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: R3830_WBS38887.1.1

Pace Project No.: 92375960

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92375960001	R3830_P117_551_1	EPA 8260	401196		
92375960002	R3830_P117_552_6	EPA 8260	401196		
92375960003	R3830_P117_553_3	EPA 8260	401196		
92375960004	R3830_P117_554_1	EPA 8260	401196		
92375960005	R3830_P117_555_6	EPA 8260	401196		
92375960006	R3830_P117_556_1	EPA 8260	401196		
92375960007	R3830_P117_557_1	EPA 8260	401362		
92375960001	R3830_P117_551_1	ASTM D2974-87	401026		
92375960002	R3830_P117_552_6	ASTM D2974-87	401026		
92375960003	R3830_P117_553_3	ASTM D2974-87	401026		
92375960004	R3830_P117_554_1	ASTM D2974-87	401026		
92375960005	R3830_P117_555_6	ASTM D2974-87	401026		
92375960006	R3830_P117_556_1	ASTM D2974-87	401026		
92375960007	R3830_P117_557_1	ASTM D2974-87	401026		

REPORT OF LABORATORY ANALYSIS

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Laboratory receiving samples:

Asheville Eden Greenwood Huntersville Raleigh Mechanicsville

WO# : 92375960



Date/Initials Person Examining Contents: 3/7/18

Sample Condition Upon Receipt

Client Name: Heintfelder

Project #

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Custody Seal Present? Yes No Seals Intact? Yes No

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer: IR Gun ID: 92T036 Type of Ice: Wet Blue None

Biological Tissue Frozen? Yes No N/A

Cooler Temp (°C): 4.7 Correction Factor: Add/Subtract (°C) +0.1

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

Cooler Temp Corrected (°C): 4.8

USDA Regulated Soil N/A, water sample)

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

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

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

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? Yes No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: [Signature]

Date: 3/8

Project Manager SRF Review: [Signature]

Date: 3/8

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

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

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

Project # **WO# : 92375960**

PM: PTE

Due Date: 03/14/18

CLIENT: 92-Klein RA

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2SO3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	V5GU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1																												
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples						
Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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



CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information: Company: Ken Felder Address: 3200 Gateway Center Email To: Morrisville, NC 27560 Phone: Challenger@KenFelder.com Requested Due Date/FAT: _____

Section B Required Project Information: Report To: Chris Bollinger Copy To: Mike Burns Project Name: R3830 - WBS 38887, 1.1 Project Number: R3830 - P007 Purchase Order No.: 20183807

Section C Invoice Information: Attention: _____ Company Name: _____ Address: _____ Puro Queue Reference: _____ Puro Project Manager: Regina Escari Puro Profile #: _____

Page: 1 of 1

REGULATORY AGENCY: NPDES GROUND WATER DRINKING WATER UST RCRA OTHER _____

Site Location STATE: NC

ITEM #	Section D Required Client Information	Matrix Codes MATRIX & CODE	Matrix Code (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
					COMPOSITE STRAT	COMPOSITE ENDPOINT			H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other							
1	R3830-P117-SS1-1	Drinking Water	DW	SL6		3/6	1115	1														
2	R3830-P117-SS2-6	Water	WT	1			1130	1														
3	R3830-P117-SS3-5	Waste Water	WW	1			1205	1														
4	R3830-P117-SS4-1	Product	P	1			1215	1														
5	R3830-P117-SS5-6	Soil/Solid	SL	1			1230	1														
6	R3830-P117-SS6-1	Oil	OL	1			1330	1														
7	R3830-P117-SS7-1	Wipe	WP	1			1415	1														
8		Air	AR																			
9		Tissue	TS																			
10		Other	OT																			
11																						
12																						

ADDITIONAL COMMENTS: _____

RELINQUISHED BY / AFFILIATION: Quint Arp DATE: 3/21/18 TIME: 0558

ACCEPTED BY / AFFILIATION: [Signature] DATE: 3/21/18 TIME: 1400

SAMPLER NAME AND SIGNATURE: _____

PRINT Name of SAMPLER: _____

SIGNATURE of SAMPLER: _____

DATE Signed (MM/DD/YY): _____

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

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

April 26, 2018

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

RE: Project: R3038 WBS 38887.1.1
Pace Project No.: 92381910

Dear Chemical Engineer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 23, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Taylor Ezell
taylor.ezell@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Michael Burns, Kleinfelder
Chris Hollinger, Kleinfelder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: R3038 WBS 38887.1.1

Pace Project No.: 92381910

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078

Louisiana/NELAP Certification # LA170028

North Carolina Drinking Water Certification #: 37706

North Carolina Field Services Certification #: 5342

North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001

Florida/NELAP Certification #: E87627

Kentucky UST Certification #: 84

Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: R3038 WBS 38887.1.1

Pace Project No.: 92381910

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92381910001	R-3830-P117-558-1	Solid	04/20/18 08:00	04/23/18 09:58
92381910002	R-3830-P117-559-1	Solid	04/20/18 08:10	04/23/18 09:58

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: R3038 WBS 38887.1.1

Pace Project No.: 92381910

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92381910001	R-3830-P117-558-1	EPA 8015 Modified	NU1	2	PASI-C
		EPA 8015 Modified	CAH	2	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92381910002	R-3830-P117-559-1	EPA 8015 Modified	NU1	2	PASI-C
		EPA 8015 Modified	CAH	2	PASI-C
		ASTM D2974-87	KDF	1	PASI-C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: R3038 WBS 38887.1.1

Pace Project No.: 92381910

Sample: R-3830-P117-558-1 **Lab ID: 92381910001** Collected: 04/20/18 08:00 Received: 04/23/18 09:58 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel		Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Range Organics(C10-C28)	ND	mg/kg	5.3	4.8	1	04/24/18 16:38	04/25/18 15:53		
Surrogates									
n-Pentacosane (S)	77	%	41-119		1	04/24/18 16:38	04/25/18 15:53	629-99-2	
Gasoline Range Organics		Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gas Range Organics (C6-C10)	ND	mg/kg	6.4	6.4	1	04/23/18 19:23	04/24/18 12:44		
Surrogates									
4-Bromofluorobenzene (S)	78	%	70-167		1	04/23/18 19:23	04/24/18 12:44	460-00-4	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	6.0	%	0.10	0.10	1		04/24/18 09:52		

Sample: R-3830-P117-559-1 **Lab ID: 92381910002** Collected: 04/20/18 08:10 Received: 04/23/18 09:58 Matrix: Solid

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

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel		Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Range Organics(C10-C28)	ND	mg/kg	5.3	4.8	1	04/24/18 16:38	04/25/18 16:17		
Surrogates									
n-Pentacosane (S)	70	%	41-119		1	04/24/18 16:38	04/25/18 16:17	629-99-2	
Gasoline Range Organics		Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gas Range Organics (C6-C10)	ND	mg/kg	8.7	8.7	1	04/23/18 19:23	04/24/18 01:09		
Surrogates									
4-Bromofluorobenzene (S)	90	%	70-167		1	04/23/18 19:23	04/24/18 01:09	460-00-4	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	7.2	%	0.10	0.10	1		04/24/18 09:52		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3038 WBS 38887.1.1

Pace Project No.: 92381910

QC Batch: 407535 Analysis Method: EPA 8015 Modified
 QC Batch Method: EPA 5035A/5030B Analysis Description: Gasoline Range Organics
 Associated Lab Samples: 92381910001, 92381910002

METHOD BLANK: 2261283 Matrix: Solid

Associated Lab Samples: 92381910001, 92381910002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Gas Range Organics (C6-C10)	mg/kg	ND	6.0	6.0	04/23/18 19:03	
4-Bromofluorobenzene (S)	%	76	70-167		04/23/18 19:03	

LABORATORY CONTROL SAMPLE: 2261284

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gas Range Organics (C6-C10)	mg/kg	50.1	44.5	89	70-165	
4-Bromofluorobenzene (S)	%			77	70-167	

MATRIX SPIKE SAMPLE: 2261285

Parameter	Units	92381862001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gas Range Organics (C6-C10)	mg/kg	ND	17.8	18.1	100	47-187	
4-Bromofluorobenzene (S)	%				95	70-167	

SAMPLE DUPLICATE: 2261286

Parameter	Units	92381862002 Result	Dup Result	RPD	Max RPD	Qualifiers
Gas Range Organics (C6-C10)	mg/kg	ND	ND		30	
4-Bromofluorobenzene (S)	%	95	96	1		

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R3038 WBS 38887.1.1

Pace Project No.: 92381910

QC Batch: 407717 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 3546 Analysis Description: 8015 Solid GCSV
Associated Lab Samples: 92381910001, 92381910002

METHOD BLANK: 2262319 Matrix: Solid

Associated Lab Samples: 92381910001, 92381910002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Diesel Range Organics(C10-C28)	mg/kg	ND	5.0	4.5	04/25/18 14:34	
n-Pentacosane (S)	%	70	41-119		04/25/18 14:34	

LABORATORY CONTROL SAMPLE: 2262320

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organics(C10-C28)	mg/kg	66.4	47.7	72	49-113	
n-Pentacosane (S)	%			75	41-119	

MATRIX SPIKE SAMPLE: 2262321

Parameter	Units	92381910001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Diesel Range Organics(C10-C28)	mg/kg	ND	72.1	38.9	54	10-146	
n-Pentacosane (S)	%				62	41-119	

SAMPLE DUPLICATE: 2262322

Parameter	Units	92381910002 Result	Dup Result	RPD	Max RPD	Qualifiers
Diesel Range Organics(C10-C28)	mg/kg	ND	ND		30	
n-Pentacosane (S)	%	70	62	11		

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

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QUALITY CONTROL DATA

Project: R3038 WBS 38887.1.1

Pace Project No.: 92381910

QC Batch: 407531

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 92381910001, 92381910002

SAMPLE DUPLICATE: 2261266

Parameter	Units	92381794001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	22.0	21.0	5	25	

SAMPLE DUPLICATE: 2261267

Parameter	Units	92381913003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	13.8	12.6	10	25	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: R3038 WBS 38887.1.1

Pace Project No.: 92381910

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: R3038 WBS 38887.1.1

Pace Project No.: 92381910

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92381910001	R-3830-P117-558-1	EPA 3546	407717	EPA 8015 Modified	407807
92381910002	R-3830-P117-559-1	EPA 3546	407717	EPA 8015 Modified	407807
92381910001	R-3830-P117-558-1	EPA 5035A/5030B	407535	EPA 8015 Modified	407671
92381910002	R-3830-P117-559-1	EPA 5035A/5030B	407535	EPA 8015 Modified	407671
92381910001	R-3830-P117-558-1	ASTM D2974-87	407531		
92381910002	R-3830-P117-559-1	ASTM D2974-87	407531		

REPORT OF LABORATORY ANALYSIS

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Document Name:
Sample Condition Upon Receipt (SCUR)
 Document No.:
F-CAR-CS-033-Rev.06

Document Revised: February 7, 2018
 Page 1 of 2
 Issuing Authority:
 Pace Carolinas Quality Office

Laboratory receiving samples:

Asheville Eden Greenwood Huntersville Raleigh Mechanicsville

Sample Condition Upon Receipt

Client Name:
Keinfeldler

Project #:

WO#: 92381910



Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Custody Seal Present? Yes No Seals Intact? Yes No

Date/Initials Person Examining Contents: UP 4-23-18

Packing Material: Bubble Wrap Bubble Bags None Other

Biological Tissue Frozen?
 Yes No N/A

Thermometer: IR Gun ID: 92T036 Type of Ice: Wet Blue None

Cooler Temp (°C): 4.9 Correction Factor: Add/Subtract (°C) +0.1

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

Cooler Temp Corrected (°C): 5.0

USDA Regulated Soil N/A, water sample

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

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

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

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? Yes No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: _____

Date: 4/24

Project Manager SRF Review: _____

Date: 4/24



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

Project #

WO# : 92381910

PM: PTE

Due Date: 04/26/18

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

CLIENT: 92-Klein RA

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

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9:3-9:7)	AG0U-100 mL Amber Unpreserved Vials (N/A)	V5GU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)		
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

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

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



CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A
 Required Client Information:

Company: Klein Felder
 Address: 3300 Gateway Centre
Morrisville, NC 27560
 Email To: mburns@kleinfelder.com
 Phone: _____ Fax: _____
 Requested Due Date/TAT: _____

Section B
 Required Project Information:

Report To: Mike Burns
 Copy To: Chris Bellinger
 Purchase Order No.: _____
 Project Name: R3830-P117
 Project Number: R3830 WBS 3857.1.1
 Attention: _____
 Company Name: _____
 Address: _____
 Price Quote Reference: _____
 Price Project Manager: Yvonne Ezell
 Price Profile #: _____

Section C
 Invoice Information:

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____
 Site Location STATE: NC

Section D
 Required Client Information

ITEM #	Matrix Codes MATRIX L CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.	
		COMPOSITE START	COMPOSITE END/DATE			H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other					Y
1	R-3830-P117-SS8-1	SL	G	4:20	0800	2	1										B01
2	R-3830-P117-SS9-1	U	G	4:20	0810	2	1										02
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

ADDITIONAL COMMENTS	REINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
<u>Route by 426</u>	<u>Joseph C. Lawrence</u>	<u>4/30</u>	<u>1200</u>	<u>Yvonne Ezell</u>	<u>4/30/18</u>	<u>1200</u>	<u>NY</u>
	<u>Joseph C. Lawrence</u>	<u>4/25/18</u>	<u>1200</u>	<u>Yvonne Ezell</u>	<u>4/25/18</u>	<u>1200</u>	<u>NY</u>

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joseph C. Lawrence
 SIGNATURE of SAMPLER: Joseph C. Lawrence
 DATE Signed (MM/DD/YY): 04/12/18

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

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