Preliminary Site Assessment
NC DOT Property - Parcel 7C

Charlotte, Mecklenburg County
North Carolina

H&H Job No. ROW-504
State Project P-3800
WBS Element #32213
March 13, 2015

hart hickman

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Charlotte, Mecklenburg County, North Carolina
H&H Project ROW-504

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1.0 Introduction and Background

Hart & Hickman, PC (H&H) has prepared this Preliminary Site Assessment (PSA) report documenting assessment activities performed at the North Carolina Department of Transportation (NC DOT) property (Parcel 7C) located at 508 W. 4th Street in Charlotte, Mecklenburg County, North Carolina. This assessment was conducted on behalf of the NC DOT in accordance with H&H's November 21, 2014 proposal.

NC DOT requested that H&H collect samples to evaluate the presence or absence of impacted soil and groundwater on the subject property. This property may be used by NC DOT to facilitate a trade for a separate parcel related to the construction of the Charlotte Multimodal Rail Station (State Project P-3800). Parcel 7C is currently occupied by a parking lot. A site location map is included as Figure 1, and a site map is presented as Figure 2. NC DOT's plan sheet depicting the parcels in this area is included in Appendix A.

H&H reviewed environmental documents for the subject property that were provided by NC DOT. Based on the Limited Phase I Environmental Site Assessment (ESA) Report dated September 2000 prepared by Arcadis Geraghty & Miller, the property was occupied by a manufacturer that may have used unknown chemicals in the past. Additional city directory research by H&H indicated that the property was also previously occupied by an optometrist, offices, a physician, and a residence. Pertinent information from the Phase I ESA is included in Appendix B.

The PSA activities recently conducted by H&H on Parcel 7C are discussed below.

2.0 Geophysical Survey and Soil Assessment

2.1 Geophysical Survey

Prior to advancing soil borings, H&H reviewed the results of a geophysical survey performed at the site by GEL Geophysics, LLC (GEL) in January 2015. GEL utilized electromagnetic (EM) induction technology and ground penetrating radar (GPR) to identify potential geophysical anomalies and potential USTs at the site. The EM/GPR results did not indicate the presence of USTs on the property. Anomalies identified on the property were attributed to known surface metallic objects that were not characteristic signatures of possible USTs. GEL's report, including a site map depicting the results of the EM and GPR survey is provided in Appendix C. Please note that GEL's report covers multiple parcels.

2.2 Soil Sampling

On January 24, 2015, H&H and our subcontracted drilling firm installed 4 soil borings (7C-1 through 7C-4) by hand auger and direct push technology (DPT). Prior to conducting soil borings, underground utilities were marked by the NC 811 public utility locator and by GEL for private underground utilities. Borings were also cleared to a five foot depth by hand auger. H&H utilized Geologic Exploration, Inc. of Statesville, North Carolina to advance the soil borings. The soil borings were advanced to depths of 15 feet below ground surface (ft bgs). To facilitate the selection of soil samples for laboratory analysis, soil from each boring was screened continuously for the presence of volatile organic compounds (VOCs) with an organic vapor analyzer (OVA). Additionally, H&H observed the soil for visual and olfactory indications of impacts. There were no significant indications of impacts based on field screening of the soil borings advanced at the site.

Because there were no significant impacts based on field screening, soil samples were collected at shallow depths of 0 to 2 ft bgs. Soil boring logs are included in Appendix D. GPS coordinate data for the soil borings are summarized in Table 1. Soil boring locations are shown on Figure 2.

H&H submitted a total of four soil samples from borings 7C-1 through 7C-4 for laboratory analysis. The soil samples were placed into laboratory supplied sample containers using nitrile

glove-covered hands. The containers were then labeled as to content, analyses requested, sample date and time, and sampler's name. The samples were placed in an iced cooler upon collection and were subsequently submitted to the laboratory under standard chain-of-custody protocol. Laboratory analytical data sheets and chain-of-custody documentation are provided in Appendix E.

Soil samples were submitted for analysis of total petroleum hydrocarbons (TPH) as gasoline-range organics (GRO) and diesel-range organics (DRO) using UVF technology and for VOCs by EPA Method 8260. Soil samples analyzed for TPH using UVF technology were shipped to QROS for analysis and the soil samples analyzed for VOCs were shipped to Pace Analytical Services, Inc. Soil sample depths and analytical results are summarized in Table 2. The analytical results are discussed below.

2.3 Soil Analytical Results

Detected TPH concentrations were compared to NC Department of Environment and Natural Resources (DENR) Action Levels. Concentrations of TPH DRO (up to 96.18 mg/kg) were detected. TPH-DRO exceeded the DENR Action Level of 10 mg/kg in one of the four samples analyzed. Concentrations of TPH DRO below the DENR Action Level were detected in three of the four samples analyzed. TPH GRO and VOCs were not detected. TPH data are depicted on Figure 2.

Based on the above soil sample results, H&H estimates the following amounts of impacted soil are present Parcel 7C:

- H&H estimates there are roughly 150 cubic yards (225 tons) of soil impacted with TPH DRO above the DENR Action Level between the surface and 4 ft near soil boring 7C-1.
- There are roughly 50 cubic yards (75 tons) of soil impacted with TPH DRO below the DENR Action Level between the surface and 2 ft near soil boring 7C-2 and 150 cubic yards (225 tons) between the surface and 2 ft near soil borings 7C-3 and 7C-4.

The estimated depth of impacted soils is based on field screening and laboratory results. However, field screening and lab results did not provide information that defines the impacted soil interval or extent in most locations. Therefore, impacts may or may not extend beyond the depths and amounts indicated above. Although the TPH DRO impacts are below the Action Level near borings 7C-2, 7C-3, and 7C-4, these soils should also be managed as impacted if they are disturbed or excavated by site work. The approximate areas of impacted soil are shown on Figure 2.

3.0 Groundwater Assessment

3.1 Temporary Monitoring Well Sampling

To evaluate the potential for groundwater impacts, one temporary monitoring well (TW-7C) was installed near the center of the property between soil borings 7C-1 and 7C-2. The temporary monitoring well location is shown on Figure 2.

Prior to the well installation, a Subsurface Investigation Permit (SIP) was obtained for the temporary well as required by Mecklenburg County. The well was installed by Geologic Exploration using the DPT drilling rig. The temporary monitoring well was installed with a one-inch diameter PVC riser with 10 feet of 0.010-inch slotted screen to a depth of 35 ft bgs. The annulus around the well screen was filled with sand to approximately two ft above the well screen. The annulus around the well casing above the sand was filled with approximately two ft of hydrated bentonite. The temporary well boring log is included in Appendix D. The SIP is included in Appendix F.

Upon completion of the monitoring well installation, H&H developed the well using a bailer to remove sediment from the well to the extent practical. Once development was complete and the water table equilibrated, H&H measured depth to water using an electronic meter. The static depth to water in TW-7C was approximately 24ft bgs.

The well was purged until field measurements including pH, specific conductivity, and temperature stabilized. A groundwater sample was then collected using nitrile glove-covered

hands and placed into laboratory-supplied sample containers for analysis of VOCs using EPA Method 8260. The containers were then labeled as to content, analyses requested, sample date and time, and sampler's name. The sample was placed in an iced cooler upon collection and submitted to Pace Analytical Services, Inc. under standard chain-of-custody protocol. Analytical results are summarized in Table 3. Laboratory analytical data sheets for the groundwater sample and chain-of-custody documentation are provided in Appendix E.

After completion of groundwater sampling activities, temporary monitoring well TW-7C was properly abandoned in accordance with DENR regulations by Geologic Exploration. The well abandonment record was provided to Mecklenburg County to close out the SIP. The well abandonment record is included in Appendix F.

3.2 Groundwater Analytical Results

PCE (0.0013 mg/L) was detected in the groundwater sample collected from temporary monitoring well TW-7C above the 15A NCAC 2L.0202 Groundwater Quality Standard (2L Standard) (0.0007 mg/L). A concentration of trichloroethene (TCE) was also detected in TW-7C below the 2L standard. No other target constituents were detected in the groundwater sample collected from TW-7C.

The depth to groundwater is in the range of 24 ft in this area of the property. Therefore, encountering the water table during construction is unlikely. However, if the water table will be encountered during construction activities the presence of groundwater impacts should be considered.

4.0 Summary and Regulatory Considerations

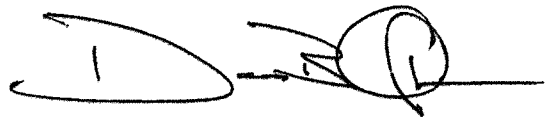
H&H has reviewed the historical documents for Parcel 7C. This property was previously occupied by a manufacturer, optometrist, offices, a physician, and a residence. Based on the EM/GPR survey, no potential USTs were identified on Parcel 7C. Impacted soil was identified on Parcel 7C during PSA activities. The primary contaminant is TPH DRO. Based on rough estimates of the extent of impacted soil, approximately 350 cubic yards (525 tons) of impacted soil appear to be

present. Impacted soil that is disturbed or removed during future construction activities should be properly managed.

Analytical results of a groundwater sample collected by H&H indicate that groundwater is impacted with PCE above the 2L Standard beneath Parcel 7C. The depth to groundwater is 24 ft below grade. Therefore, encountering the water table during construction is unlikely. However, if the water table will be encountered during construction activities the presence of groundwater impacts should be considered.

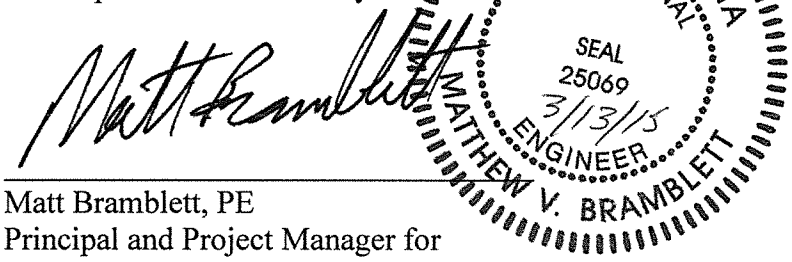
5.0 Signature Page

This report was prepared by:



David Graham
Senior Project Geologist for
Hart and Hickman, PC

This report was reviewed by:



Matt Bramblett, PE
Principal and Project Manager for
Hart and Hickman, PC

Table 1
Soil Boring GPS Coordinate Data
NC DOT Parcel 7C
Charlotte, Mecklenburg County, North Carolina
H&H Job No. ROW-504

Sample ID	Latitude	Longitude
7C-1	35.230426	-80.848092
7C-2	35.230494	-80.848037
7C-3	35.230406	-80.847950
7C-4	35.230462	-80.847851
TW-7C	35.230372	-80.848060

Notes:
GPS coordinate data points collected using a Trimble GeoExplorer 6000 series unit with external satellite for increased accuracy.

Table 2
Soil Analytical Results
NC DOT Parcel 7C
Charlotte, Mecklenburg County, North Carolina
H&H Job No. ROW-504

Sample ID	7C-1	7C-2	7C-3	7C-4	Regulatory Standard	
Sample Depth (ft)	0-2	0-2	0-2	0-2		
Sample Date	1/24/2015	1/24/2015	1/24/2015	1/24/2015		
VOCs (8260) (mg/kg)	BRL	BRL	BRL	BRL	**IHSB SRG[1] (mg/kg)** --	**IHSB POG[2] (mg/kg)** --
TPH-DRO/GRO (8015) (mg/kg)					**NCDENR Action Level (mg/kg)**	
Diesel-Range Organics (DRO)	**96.18**	8.2	5.84	5.17	10	
Gasoline-Range Organics (GRO)	<1.4	<0.7	<0.8	<1.2	10	

Notes:
1. NC DENR Inactive Hazardous Sites Branch (IHSB) Residential Health-Based Soil Remediation Goals (SRGs) - September 2014
2. NC DENR IHSB Protection of Groundwater (POG) Soil Remediation Goals - September 2014
EPA Method follows parameter in parenthesis;
BRL=Below laboratory reporting limit; VOCs=volatile organic compounds
TPH=total petroleum hydrocarbons;
Bold indicates above potential target level.

Table 3
Groundwater Analytical Results
NC DOT Parcel 7C
Charlotte, Mecklenburg County, North Carolina
H&H Job No. ROW-504

Sample ID	TW-7C	Screening Criteria
Sample Date	1/25/2015	NC DENR 2L Standard [1]
Units	mg/L	mg/L
VOCs (8260)		
Tetrachloroethene	**0.0013**	0.0007
Trichloroethene	0.0011	0.003

Notes:

1. NC DENR 15A NCAC 2L .0202 Groundwater Quality Standards - April 2013

Only compounds detected in at least one sample shown above

EPA Method follows parameter in parenthesis

VOCs=volatile organic compounds

Bold indicates above target level.

N

APPROXIMATE

0 2000 4000

SCALE IN FEET

U.S.G.S. QUADRANGLE MAP

CHARLOTTE, NC 2013

QUADRANGLE
7.5 MINUTE SERIES (TOPOGRAPHIC)

TITLE	**SITE LOCATION MAP**
PROJECT	NC DOT PARCEL 7C 508 W. 4TH STREET CHARLOTTE, MECKLENBURG COUNTY, NC

hart hickman
SMARTER ENVIRONMENTAL SOLUTIONS
2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007 (p) 704-586-0373 (f)

DATE:	2-10-15	REVISION NO:	0
JOB NO:	ROW-504	FIGURE:	1

POST & CABLE

POST & CABLE

NOW OR FORMERLY
DEPARTMENT OF TRANSPORTATION
073-151-12
11369-011
NA
NA
512 W. 4TH ST.

SOIL PARKING AREA

7C

7C-1 (0-2')
[96.18]
(<1.4)

TW-7C

7C-2 (0-2')
[8.2]
(<0.7)

SIGN

POST & CABLE

NOW OR FORMERLY
DEPARTMENT OF TRANSPORTATION
073-151-15
11369-011
NA
NA
508 W. 4TH ST.

7C-3 (0-2')
[5.84]
(<0.8)

7C-4 (0-2')
[5.17]
(<1.2)

NOW OR FORMERLY
DEPARTMENT OF TRANSPORTATION
073-151-21
11369-001
NA
NA
517 W. TRADE ST.
GRAVEL PARKING LOT

POST & CABLE

NOW OR FORMERLY
DEPARTMENT OF TRANSPORTATION
073-151-14
11369-013
NA
NA
508 W. 4TH ST.

NOW OR FORMERLY
DEPARTMENT OF TRANSPORTATION
073-151-20
11369-001
NA
NA
511 W. TRADE ST.

G CURB STOPS

PKG CURB STOPS

PKG CURB STOPS

CB

BROKEN CONC

BST PARKING

PKG C

PKG

LEGEND

- SITE PROPERTY BOUNDARY
- PARCEL BOUNDARY
- 7C NCDOT PARCEL NUMBER
- SOIL BORING
- TEMPORARY MONITORING WELL

[96.18] DIESEL-RANGE TPH (mg/kg)

(<1.4) GASOLINE-RANGE TPH (mg/kg)

AREA OF DRO IMPACTED SOIL ABOVE DENR ACTION LEVEL

AREA OF DRO IMPACTED SOIL BELOW DENR ACTION LEVEL

NOTE:

BOLD INDICATES ABOVE DENR ACTION LEVEL

N

APPROXIMATE
0 20 40
SCALE IN FEET

TITLE
SITE MAP AND TPH SOIL ANALYTICAL RESULTS

PROJECT
NCDOT PARCEL 7C
508 W. 4TH STREET
CHARLOTTE, MECKLENBURG COUNTY, NC

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SMARTER ENVIRONMENTAL SOLUTIONS
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Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)
License # C-1269 / #C-245 Geology

DATE: 03-04-15 | REVISION NO. 0

JOB NO. ROW-504 | FIGURE NO. 2

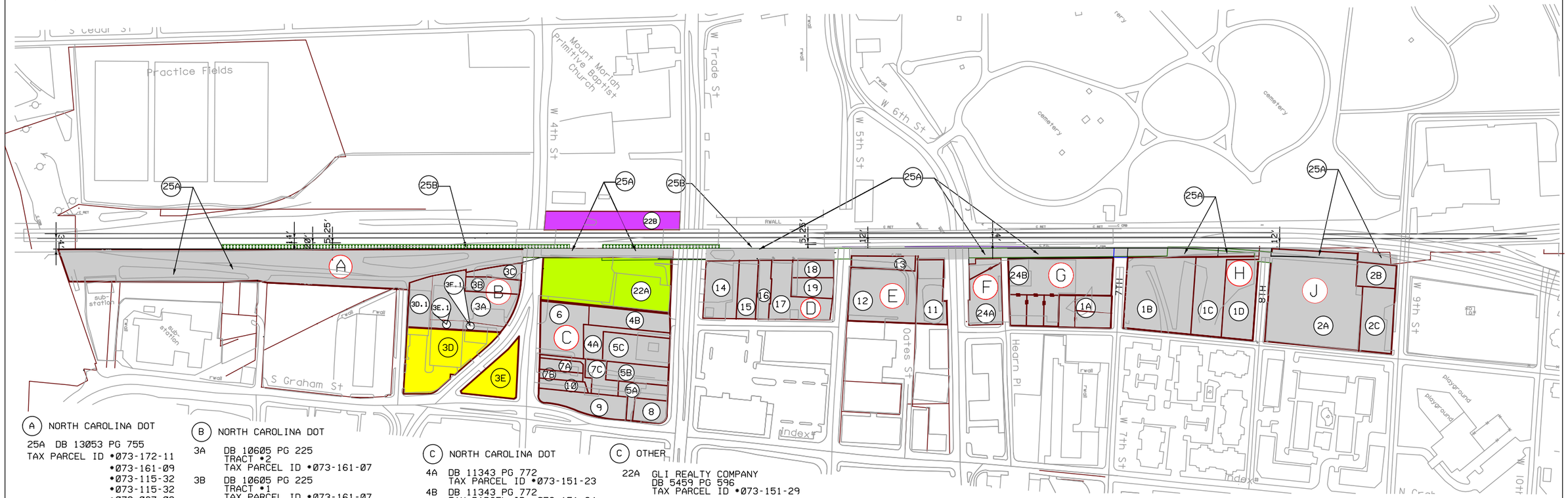
S:\AAA-Master Projects\NC DOT Right-of-Way -ROW\ROW-500s\ROW-504 P-3800 Charlotte Rail Station\Figures\row-504 site maps.dwg, 7C (2), 3/13/2015 10:18:46 AM,

Appendix A

NC DOT Preliminary Plan

NCDOT OWNED ACREAGE		COUNTY OWNED ACREAGE		APPROX TOTAL ACREAGE ON MAP
A - 3.75	F - 0.47	3D - 0.74	3E - 0.38	20.61
B - 1.50	G - 1.80	GREYHOUND OWNED ACREAGE		
C - 2.88	H - 2.14	22A - 1.34		
D - 1.56	J - 2.35	CITY OWNED ACREAGE		
E - 1.29		22B - 0.46		
APPROX TOTAL NCDOT ACREAGE - 17.7				

THIS MAP IS PREPARED USING MECKLENBURG COUNTY MAPPING DATA AND MAY NOT REFLECT THE MOST UP-TO-DATE OWNERSHIP AND BOUNDARY INFORMATION. PARCEL AND RIGHT-OF-WAY BOUNDARIES ARE APPROXIMATE.



(A) NORTH CAROLINA DOT

25A DB 13053 PG 755
TAX PARCEL ID *073-172-11
*073-161-09
*073-115-32
*073-115-32
*078-067-02
*078-061-05
*078-076-02

25B DB 13053 PG 770

(B) NORTH CAROLINA DOT

3A DB 10605 PG 225
TRACT *2
TAX PARCEL ID *073-161-07

3B DB 10605 PG 225
TRACT *1
TAX PARCEL ID *073-161-07

3C DB 10605 PG 225
TRACT *3
TAX PARCEL ID *073-161-07

3D.1* DB 23210 PG 693
TAX PARCEL ID *073-161-10

3E.1* DB 23210 PG 693
TAX PARCEL ID *073-161-10

3F.1* DB 23210 PG 693
TAX PARCEL ID *073-161-10

(B) MECKLENBURG COUNTY

3D DB 12297 PG 274
TAX PARCEL ID *073-161-01
DB 12297 PG 274
TAX PARCEL ID *073-161-03
DB 12280 PG 012
TAX PARCEL ID *073-161-06

3E DB 12368 PG 870
TAX PARCEL ID *073-162-02

* FORMERLY PART OF THE IDENTIFIED TAX PARCEL.

(C) NORTH CAROLINA DOT

4A DB 11343 PG 772
TAX PARCEL ID *073-151-23

4B DB 11343 PG 772
TAX PARCEL ID *073-151-24

5A DB 11369 PG 001
TAX PARCEL ID *073-151-20

5B DB 11369 PG 001
TAX PARCEL ID *073-151-21

5C DB 11369 PG 001
TAX PARCEL ID *073-151-22

6 DB 11369 PG 003
TAX PARCEL ID *073-151-10

7A DB 11369 PG 011
TAX PARCEL ID *073-151-12

7B DB 11369 PG 011
TAX PARCEL ID *073-151-13

7C DB 11369 PG 011
TAX PARCEL ID *073-151-15

8 DB 11350 PG 050 * PG 060
TAX PARCEL ID *073-151-19

9 DB 11320 PG 422
TAX PARCEL ID *073-151-16

10 DB 11369 PG 013
TAX PARCEL ID *073-151-14

(C) OTHER

22A GLI REALTY COMPANY
DB 5459 PG 596
TAX PARCEL ID *073-151-29

22B CITY OF CHARLOTTE
DB 24319 PG 421
TAX PARCEL ID *073-151-33

(D) NORTH CAROLINA DOT

14 DB 13723 PG 174
TAX PARCEL ID *078-056-01

15 DB 13723 PG 184
TAX PARCEL ID *078-056-02

16 DB 13713 PG 486
TAX PARCEL ID *078-056-08

17 DB 13713 PG 490
TAX PARCEL ID *078-056-03

18 DB 14797 PG 69
TAX PARCEL ID *078-056-07

19 DB 13723 PG 187
TAX PARCEL ID *078-056-06

(E) NORTH CAROLINA DOT

11 DB 11301 PG 660
TAX PARCEL ID *078-051-01

12 DB 12897 PG 15
TAX PARCEL ID *078-052-06

13 DB 13047 PG355-358
TAX PARCEL ID * 078-052-05

(F) NORTH CAROLINA DOT

24A DB 16290 PG 947
TAX PARCEL ID *078-067-01

(G) NORTH CAROLINA DOT

1A DB 10053 PG 110
TAX PARCEL ID *078-066-02

24B DB 16292 PG 944
TAX PARCEL ID *078-066-01

(H) NORTH CAROLINA DOT

1B DB 10053 PG 110
TAX PARCEL ID *078-061-04

1C DB 10053 PG 110
TAX PARCEL ID *078-061-02

1D DB 10053 PG 110
TAX PARCEL ID *078-061-03

(J) NORTH CAROLINA DOT

2A DB 10053 PG 114
TRACT I
TAX PARCEL ID *078-076-01

2B DB 10053 PG 114
TRACT II
TAX PARCEL ID *078-076-01

2C DB 10053 PG 114
TRACT III
TAX PARCEL ID *078-076-01

LEGEND

- NCDOT PROPERTY
- NCDOT PLATFORM EASEMENT
- CATS PROPERTY
- COUNTY PROPERTY
- FUTURE PROPERTY

150 300 450

CHARLOTTE GATEWAY STATION AREA PROPERTY MAP

EXHIBIT A

FILE: K:\49468.4001\PROPERTYMAPS\CHARLOTTEGATEWAYSTATIONAREA_7-13-12_EXHIBITA.DGN
DATE: 16-JULY-2012 10:40

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	TRACED	SCALE
T HOWARD	I = 150'	
DRAWN	CHECKED	APPROVED
T HOWARD	T POLLACK	

PREPARED BY
Gannett Fleming
GANNETT FLEMING, INC.
301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644
PHONE: 704-375-8438 FAX: 704-332-9361

CLIENT: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RAIL DIVISION

PROJECT: CHARLOTTE RAILROAD IMPROVEMENT & SAFETY PROGRAM (CRISP)

JOB NO.	SHEET NO.
49468.4000	
DATE	DRAWING NO.
July 16, 2012	

Appendix B

Historical Documents

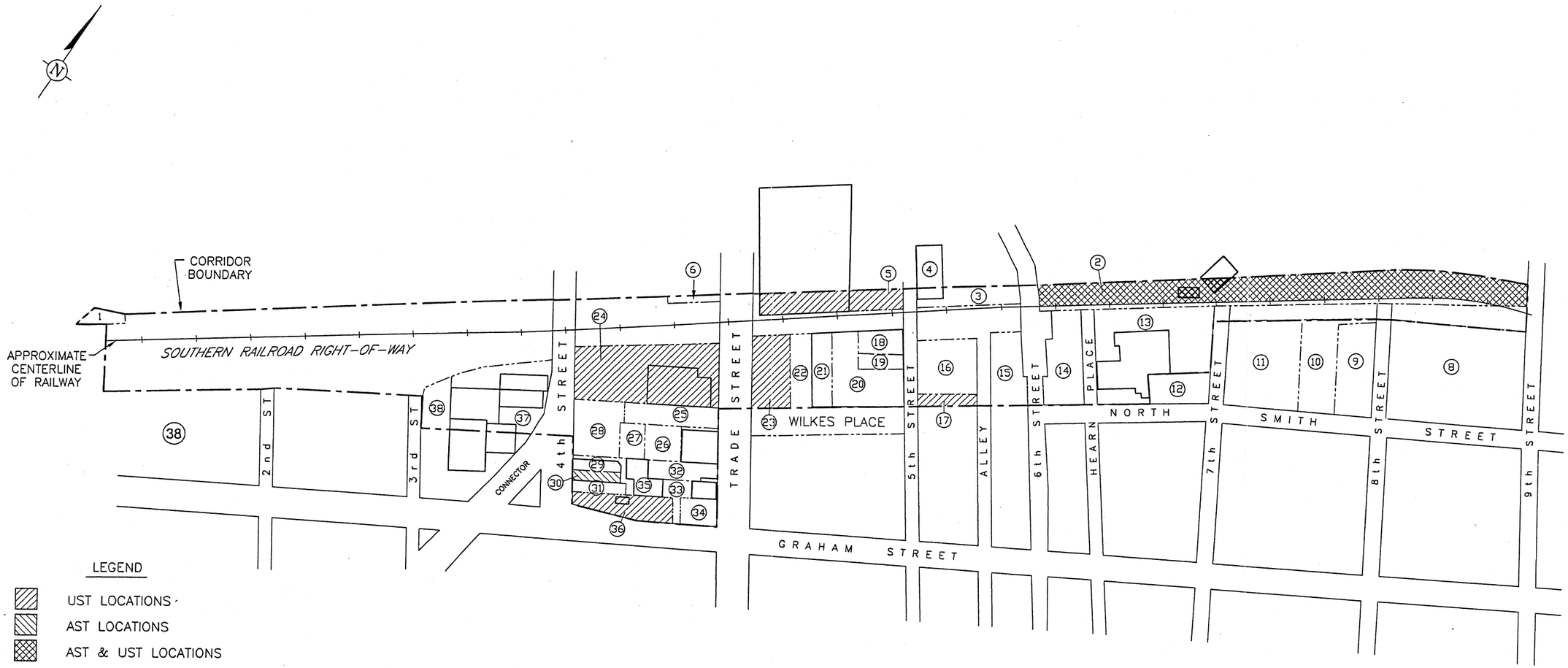
Table 5-1. Properties and Recognized Environmental Conditions, along proposed AMTRAK Railroad Corridor, North Carolina Department of Transportation State Project Number 9.9080178 (AMTRAK), Charlotte, Mecklenburg County, North Carolina.

NCDOT Acquisition Number	Tax Lot ID	Property Owner	Site Address	Petroleum Storage Tanks			Current Site Land Use	Historical Site Land Use of Potential Environmental Concern	Identified Environmental Concerns and Potential Liabilities	Recommend Preliminary Site Assessment
				AST	UST	LUST				
1	073-171-03	Southern Region Industrial Realty Co. Norfolk Southern	604 W. 1st Street				Wooded land	None identified.	None identified.	No.
2	078-131-04	City of Charlotte	W. 6th Street	X		X	Elmwood Cemetery, AST, embalming fluids, lawn care (fertilizers, pesticides)	Elmwood Cemetary, USTs and ASTs, embalming fluids, lawn care (e.g. fertilizers and pes	Yes, petroleum impacted soil and groundwater	No, previous investigations and report document petroleum release.
3	078-121-02	City of Charlotte	725 W. 6th Street				Commercial warehouse storage.	None identified.	None identified.	No.
4	078-121-01	Sinkoe Faith F et al.	700 W 5th Street				Dixie Warehouse Building and associated parking.	None	None identified.	No.
5	078-122-10	Builders Disbursement Services, Inc.	700 W Trade Street		X		Six story office building under construction.	Former Chesapeake Paper Stock Company.	Yes, potential for impacted media related to UST operations.	Yes.
6	073-151-09	Atlanta & Charlotte Airline RWY Co.	713 W. Trade Street				Former Norfolk Southern Office Building. Vacant lot except for a mobile trailer and construction equipment, and parked cars.	Review of 1900 Sanborn maps revealed an oil house on Property #6 and a large junk yard and coal storage bunker on property currently owned by the railroad near 2nd Street.	Yes, related to junk yard waste and coal storage bunker.	Yes.
13	078-066-01	Macclements John et al	301 N. Smith Street				Carolina Rim and Wheel, Inc., distributor of automotive parts, NFPA placard health classification 2.	Automotive service reportedly has been conducted in the past on Property #13. Review of 1929 Sanborn maps revealed an engine room on the property.	Yes, potential for impacted media related to automobile servicing.	Yes, potential for release of petroleum hydrocarbons.
14	078-067-01	Carolina Rim & Wheel Co.	W. 6th Street				Carolina Rim and Wheel, Inc., grass and gravel parking.	Review of 1950 Sanborn maps revealed a coal yard on Property #14.	None identified.	No.
15	078-051-01	Nations Bank N. A. Carolinas	521 W. 6th Street				Four story office building in the final stages of construction and wooded land.	None identified on the portion of the property to be aquired.	None identified.	No, not on the portion of the property to be aquired.
16	078-052-01	Speizman Brothers Partners Robert S. Speizman	532 W. 5th Street				Paid Parking, asphalt lot.	Review of 1890 Sanborn maps revealed a large coal shed, a machine shop, and an engine room on Property #16, the Mecklenberg Iron Works (MIW), which included a large coal storage bunker.	Yes, potential for impacted media related to coal storage and machine shops (metals, petroleum hydrocarbons, solvents).	Yes.
17	078-052-02	Speizman Brothers Partners Robert S. Speizman	516 W. 5th Street		X		Speizman Building, partially vacant warehouse and parking lot, household debris and staining on outside walls.	Household debris and staining on the outside walls of the building were observed on Property #17.	Yes, potential for impacted media related to UST operations.	Yes.
18	078-056-07	Hart Cynthia & Pyon Yong	611 W. 5th Street				Witzens Art Gallery, three story building.	Review of 1890 Sanborn maps revealed the Mecklenburg Iron Works (MIW), which included two machine shops on Property #18; Review of 1929 Sanborn maps revealed a large tire warehouse. Review of the 1934 City Directory revealed tire and rubber companies.	Yes, potential for impacted media related to machine shops (metals, petroleum hydrocarbons, solvents)	Yes.
19	078-056-06	Lowery Robert Jefferson Jr. & Timothy P Blong IV	607 W. 5th Street				Daily Double Sports Bar, thee story building.	Review of 1890 Sanborn maps revealed the Mecklenburg Iron Works (MIW), which included a large coal storage bunker, and two machine shops on Properties #18 through #23. Review of 1929 Sanborn maps revealed a large tire warehouse; Review of the 1934 City Directory revealed a tire and rubber company on the property.	Yes, potential for impacted media related to machine shops (metals, petroleum hydrocarbons, solvents)	Yes.
20	078-056-03	Holmes John W & Martha B.	601 W. 5th Street				Business Records Storage, Inc., three story building.	Review of 1890 Sanborn maps revealed the Mecklenburg Iron Works (MIW), which included a large coal storage bunker, and two machine shops on Properties #18 through #23. Review of 1900 Sanborn maps revealed an iron storage building. Review of 1929 Sanborn maps revealed a large tire warehouse. Review of the 1946 City Directory revealed a welding company and a radiator-repair shop on the property. Review of 1963 Sanborn maps revealed an auto-painting shop on the property.	Yes, potential for impacted media related to coal storage and machine shops, radiator shop (metals, petroleum hydrocarbons, solvents)	Yes.
21	078-056-08	Holmes John W & Martha B.	115 W. Smith Street				Business Records Storage, Inc. Addition, two story building.	Review of 1890 Sanborn maps revealed the Mecklenburg Iron Works (MIW), which included a large coal storage bunker, and two machine shops on Properties #18 through #23; Review of 1900 Sanborn maps revealed an oil house on Property #21; Review of 1950 Sanborn relevealed a gasoline service station on Properties #21 through #23, however, the three associated USTs appear on Property #23.	Yes, potential for impacted media related to coal storage, machine shops (metals, petroleum hydrocarbons, solvents), and former gas station.	Yes.
22	078-056-02	Shull Carol Hart	109 Wilkes Place				Paid Parking, asphalt lot.	Review of 1890 Sanborn maps revealed the Mecklenburg Iron Works (MIW), which included a large coal storage bunker, and two machine shops on Properties #18 through #23. Review of 1950 Sanborn relevealed a gasoline service station on the Properties #21 through #23, however, the three associated USTs appear on Property #23.	Yes, potential for impacted media related to coal storage, machine shops (metals, petroleum hydrocarbons, solvents), and former gas station.	Yes.
23	078-056-01	Malphurs David D	600 W. Trade Street				Paid Parking, asphalt lot.	Review of 1890 Sanborn maps revealed the Mecklenburg Iron Works (MIW), which included a large coal storage bunker, and two machine shops on Properties #18 through #23. Review of 1950 Sanborn relevealed a gasoline service station on the Properties #21 through #23, the three associated USTs appear on Property #23.	Yes, potential for impacted media related to coal storage, machine shops (metals, petroleum hydrocarbons, solvents), and former gas station.	Yes.

Table 5-1. Properties and Recognized Environmental Conditions, along proposed AMTRAK Railroad Corridor, North Carolina Department of Transportation State Project Number 9.9080178 (AMTRAK), Charlotte, Mecklenburg County, North Carolina.

NCDOT Acquisition Number	Tax Lot ID	Property Owner	Site Address	Petroleum Storage Tanks			Current Site Land Use	Historical Site Land Use of Potential Environmental Concern	Identified Environmental Concerns and Potential Liabilities	Recommend Preliminary Site Assessment
				AST	UST	LUST				
24	073-151-29	Greyhound Lines Inc. (by Merger)	601 W. Trade Street		X	X	Greyhound Bus Terminal, visible oil staining on pavement, USTs, SUMP.	Greyhound Bus Terminal, USTs, SUMP.	Yes, petroleum impacted soil and groundwater	No, release is documented and investigations/redediation are ongoing.
25	073-151-24	Marsh Estates Homes, Inc.	537 W. Trade Street				Paid Parking, asphalt lot.	None.	None identified.	No.
26	073-151-22	Nixon Tom & Laura K.	525 W. Trade Street				Travelers hotel, Presto Grill, vacant space, three story building, Kitchen grease containers not maintained well.	None.	None identified.	No.
27	073-151-23	Marsh Estates Homes, Inc	533 W. Trade Street				Paid Parking, asphalt lot.	None.	None identified.	No.
28	073-151-10	Mayfield Linda Leigh H	518 W. 4th Street				Paid Parking, asphalt lot.	None.	None identified.	No.
29	073-151-12	Collias Gus (Estate) % Wachovia B&T (trustee)	512 W. 4th Street				Former Colonial Yarn Products building, vacant one story building.	None.	None identified.	No.
30	073-151-13	Collias Gus (Estate) % Wachovia B&T (trustee)	510 W. 4th Street	X			Former Heritage Printers Building, single story building, leaky AST	Review of 1911 Sanborn maps revealed a brass-works facility on Property #30; Review of the 1946 City Directory a printing shop on the property.	Yes, potential for impacted media related to the brass-works facility (metals and solvents), and the print shop (ink and industrial cleaners)	Yes, previous investigations and report document petroleum release from an AST. However, extent of release was not defined and other potential issuses were not addressed.
31	073-151-14	Collias Family Limited Liability Co.	508 W, 4th Street				Gravel access road.	None.	None identified.	No.
32	073-151-21	Nixon Tom & Laura K.	517 W. Trade Street				Gravel Parking lot.	None.	None identified.	No.
33	073-151-20	Nixon Tom & Laura K.	511 W. Trade Street				Former Dirty Laundry Cleaners Building, vacant one story building. Household debris outside.	Household debris and staining at Property #33, may have operated as a dry cleaner.	Cleaning operations.	Yes, potential for release of dry chlorinate solvents, if used as a dry cleaner.
34	073-151-19	Theos Helen K. & Sophia L	503 W. Trade Street				Paid Parking, asphalt lot.	None.	None identified.	No.
Parcel 7C 35	073-151-15	Collias Gus	508 W. 4th Street				Manufacturing building, appeared vacant. Presence of a National Fire Protection Association (NFPA) indicator sign (health ranking of two and a fire ranking of three) was observed on the southwestern side of the building.	None.	Unknown manufacturing with indication of the use of chemicals.	Yes.
36	073-151-16	Service Distributing Co. Inc.	180 S. Graham Street			X	Former Servco service station, one story building, gas/diesel pumps removed, monitor wells present.	Servo Gas Station, USTs, dispenser lines, pumps.	Yes, petroleum impacted soil and groundwater	No, release is documented and investigations/redediation are ongoing.
37	073-161-07	Hargett Zeb E & Betsy H	531 W. 4th Street				Charlotte Florist Supply Company warehouse, split level one two story, appeared vacant of used for storage.	Review of 1900 Sanborn maps revealed an engine room on Property #37; Review of 1929 Sanborn maps revealed an auto repair and painting facility on Properties #3; Review of the 1934 City Directory revealed an iron-works facility on Property #37.	Yes, potential for impacted media related to automobile servicing and painting.	Yes, potential for release of petroleum hydrocarbons.
38	073-161-01	Alexander Rick L & Doris D.	536 W. 3rd Street				Image Plus, Inc. located on property 38, performs ink processes and custom color printing for slides.	Review of 1911 Sanborn maps revealed a machine shop on Property #38; Review of 1929 Sanborn maps revealed an auto repair and painting facility on Properties #38.	Yes, potential for impacted media related to automobile servicing and painting.	Yes.

AST Above Ground Storage Tank
UST Underground Storage Tank
LUST Leaky Underground Storage Tank



ARCADIS GERAGHTY & MILLER of North Carolina, Inc.
2301 Rexwoods Drive
Suite 102 RALEIGH, NC 27607
Tel: 919/782-5511 Fax: 919/782-5905

PRJT MANAGER: R. ELLIS	CHECKED BY: H. BRADY	DRAFTER: A. NORTON	PROJECT NUMBER: NC000657.0001
NOTES: PROPERTIES 8, 9, 10, 11, AND 12 WERE NOT COVERED IN THIS REPORT.		DRAWING: AMTRAK-STS	NORTH CAROLINA DEPT. OF TRANSPORTATION STATE PROJECT NUMBER 9.9080178 (AMTRAK) CHARLOTTE, NORTH CAROLINA
SOURCE: MECKLENBERG COUNTY TAX RECORDS.		DATE: 28SEPT00	

UST & AST LOCATIONS DOWNTOWN CHARLOTTE PROPOSED AMTRAK STATION CORRIDOR

FIGURE: 5-1

Appendix C

GEL Geophysics, LLC Geophysical Survey Report

GEL Geophysics LLC
a member of The GEL Group INC

PO Box 1015
Bluffton, SC 29910
P 843.473.4409 F 843.769.7397
www.gelgeophysics.com

February 25, 2015

Mr. David Graham
Hart & Hickman, PC
2923 South Tryon Street, Suite 100
Charlotte, NC 28203

Re: Report for Geophysical Survey to Identify Underground Utilities and Potential Underground Storage Tanks
11 DOT Parcels-400 W. Trade Street
Charlotte, North Carolina

Dear Mr. Graham,

GEL Geophysics, LLC appreciates the opportunity to provide Hart & Hickman with this report of our geophysical investigation for the referenced project. This investigation was designed to determine the potential presence of underground storage tanks (USTs) at the site and underground utilities that would obstruct drilling activities at the site. The geophysical field investigation was successfully performed on January 17 through January 18, 2015.

1.0 Summary of Results

Multiple subsurface anomalies were identified in the geophysical data. Figure 1 depicts the approximate location and size of the anomalies as well as the known metallic surface objects present at the time of the investigation. The actual location of 7 GPR anomalies and 6 TDEM anomalies were identified in the field with marking paint. Three anomalies were denoted as a "Possible USTs" while the remaining anomalies were not characteristic of USTs. The anomalies not denoted as USTs in post processed data in Figure 1 are consistent with known metallic surface objects, underground utilities or cultural interference. Although geophysical methods provide a high level of assurance for the location of subsurface objects, the possibility exists that not all features can or will be identified. Therefore, due caution should be used when performing any subsurface excavation, and GEL Geophysics, LLC will not be liable for any damages that may occur. Descriptions of the technologies employed during this geophysical investigation are provided below.

2.0 Overview of Geophysical Investigation

The geophysical evaluation included the deployment of radio-frequency electromagnetic (EM), ground penetrating radar (GPR) and time-domain electromagnetic (TDEM) technologies to the site. These technologies were used in concert with one another in order to identify the presence of potential underground utilities and USTs at the site. A brief description of each technology is presented in the following paragraphs.

Radio-Frequency Electromagnetic

Radio-Frequency Electromagnetic (EM) utility locating equipment consists of a transmitter and a dual-function receiver. The receiver can be operated in a “passive” mode or in an “active” mode. The two modes of operation provide various levels of detection capabilities depending on the specific target or application.

The EM system is operated in the “active” mode by either inducting or conducting a signal into the underground utility to be traced. A transmitter is placed over and in line with a suspected buried utility. The transmitter induces a signal, which propagates along the buried utility. As the receiver is moved back and forth

across the suspected path of the utility, the trace signal induces a signal into the receivers coil sensor. A visual and audio response indicates when the receiver is directly over the buried utility.

Another means of detecting in the "active" mode utilizes a method to "conduct" a signal within the buried utility. To accomplish this, a cable from the transmitter is clamped onto an exposed section of the buried utility and a signal propagates along the buried line. This technique minimizes any interference caused by parasitic emissions from adjacent cables in congested areas. When the system is utilized in the "passive" mode, the receiver is responding to a 60 Hertz cycle current energized by underground utilities.

Interference can and may occur when buried utilities intersect or are adjacent to each other. This effect referred to as "bleed-off" may provide a false response to the identification of the tracked utility. "Bleed-off" is caused by utilities that may be energized in the "active" or "passive" mode.

Ground Penetrating Radar Methodology

A RAMAC digital radar control system configured with a 250 Megahertz (MHz) antenna array was used in this investigation. GPR is an electromagnetic geophysical method that detects interfaces between subsurface materials with differing dielectric constants. The GPR system consists of an antenna which houses the transmitter and receiver, a digital control unit which both generates and digitally records the GPR data, and a color video monitor to view data as it is collected in the field.

The transmitter radiates repetitive short-duration electromagnetic waves (at radar frequencies) into the earth from an antenna moving across the ground surface. These radar waves are reflected back to the receiver from the interface of materials with different dielectric constants. The intensity of the reflected signal is a function of the contrast in the dielectric constant between the materials, the conductivity of the material through which the wave is traveling, and the frequency of the signal.

Subsurface features that commonly cause such reflections are: 1) natural geologic conditions, such as changes in sediment composition, bedding, and cementation horizons and voids; or 2) unnatural changes to the subsurface such as disturbed soils, soil backfill, buried debris, tanks, pipelines, and utilities. The digital control unit processes the signal from the receiver and produces a continuous cross-section of the subsurface interface reflection events.

GPR data profiles were collected along transects covering the entire rights of ways. Depth of investigation of the GPR signal is highly site-specific and is limited by signal attenuation (absorption) in the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities such as clays, brackish groundwater, or groundwater with a high dissolved solid content from natural or manmade sources. Signal attenuation is lowest in relatively low conductivity materials such as dry sand or rock. Depth of investigation is also dependent on the antenna's transmitting frequency. Depth of investigation generally increases as transmitting frequency decreases; however, the ability to resolve smaller subsurface features is diminished as frequency is decreased. The average depth of penetration at this site was approximately 2-4 feet below the surface.

The GPR antenna used at this site is internally shielded from aboveground interference sources. Accordingly, the GPR response is not affected by overhead power lines, metallic buildings, or nearby objects.

Time Domain Electromagnetic Methodology

TDEM methods measure the electrical conductivity of subsurface materials. The conductivity is determined by inducing (from a transmitter) a time or frequency-varying magnetic field and measuring (with a receiver) the

amplitude and phase shift of an induced secondary magnetic field. The secondary magnetic field is created by subsurface conductive materials behaving as an inductor as the primary magnetic field is passed through them.

The Geonics EM-61 system used in this investigation operates within these principles. However, the EM-61 TDEM system can discriminate between moderately conductive earth materials and very conductive metallic targets. The EM-61 consists of a portable coincident loop time domain transmitter and receiver with a 1.0-meter by 0.5-meter coil system. The EM-61 generates 150 pulses per second and measures the response from the ground after transmission or between pulses. The secondary EM responses from metallic targets are of longer duration than those created by conductive earth materials. By recording the later time EM arrivals, only the response from metallic targets is measured, rather than the field generated by the earth material.

3.0 Field Procedures and Results

The geophysical field investigation was successfully performed on January 17 through January 18, 2015 at the 11 DOT parcels located in the immediate vicinity of 400 W. Trade Street in Charlotte, NC. Interpretation of the GPR data was conducted in the field and any potential anomalies were marked in the field. GPR data processing typically included band pass filtering, background removal, horizontal smoothing, and gain adjustments. TDEM was also used to scan the project site. Any electromagnetic anomalies detected during field activities that were indicative of buried metallic objects were also marked in the field.

Multiple subsurface anomalies were identified in the geophysical data on Figure 1. Figure 1 depicts the approximate location and size of the anomalies as well as the known metallic surface objects present at the time of the investigation. The UST level of confidence rating system developed by NCDOT in May 2009 (“Known UST,” “Probable UST,” “Possible UST,” or “No Confidence”) was used in the interpretation and presentation of this report. The results by parcel are as follows:

DOT Parcel 4A (0.21 acres)- Two geophysical anomalies were detected during the investigation of Parcel 4A as depicted in Figure 1. Neither anomaly was indicative of a "Possible UST" or "Probable" UST.

DOT Parcel 4B (0.3 acres)- Three geophysical anomalies were detected during the investigation of Parcel 4B as depicted in Figure 1. One anomaly was indicated as being a "Possible UST" as indicated on Figure 1.

DOT Parcel 5A (0.19 acres)- There were no subsurface geophysical anomalies detected within Parcel 5A during this investigation. The anomalies represented in the data shown on Figure 1 are indicative of known metallic surface features.

DOT Parcel 5B (0.24 acres)- Multiple geophysical anomalies exist in Parcel 5B as indicated on Figure 1. Two of the anomalies are representative of "Possible USTs" as noted on the Figure. The additional anomalies present within this parcel are interpreted as either buried debris, cultural interference or known metallic surface features.

DOT Parcel 5C (0.38 acres)- There were no geophysical anomalies within Parcel 5C that were representative of a "Possible UST," "Probable UST" or "Known UST." All responses are interpreted to be cultural interference or known metallic surface features present at the time of the investigation.

DOT Parcel 6 (0.51 acres)- One geophysical anomaly was indicated within Parcel 6 on Figure 1. This anomaly was not representative of a "Possible UST," "Probable UST" or "Known UST." Additional responses are visible in Figure 1, but are representative of cultural interference or known metallic surface features.

DOT Parcel 7A (0.11 acres)- Two geophysical anomalies were identified within Parcel 7A on Figure 1. Both anomalies are interpreted to be associated with buried metallic debris based on visual evidence of a debris field on the surface. Additional responses are visible within this parcel but are representative of cultural interference or known metallic surface features.

problem solved

DOT Parcel 7B (0.08 acres)- There were no geophysical anomalies within Parcel 7B that were representative of a "Possible UST," "Probable UST" or "Known UST." All responses are interpreted to be cultural interference or known metallic surface features present at the time of the investigation.

DOT Parcel 7C (0.16 acres)- There were no geophysical anomalies within Parcel 7C that were representative of a "Possible UST," "Probable UST" or "Known UST." All responses are interpreted to be cultural interference or known metallic surface features present at the time of the investigation.

DOT Parcel 8 (0.17 acres)- Multiple geophysical anomalies exist within Parcel 8 as shown on Figure 1. All of the anomalies are representative of either known metallic surface features, suspected underground utilities, or cultural interference.

DOT Parcel 10 (0.11 acres)- Two geophysical anomalies were identified within Parcel 10 on Figure 1. Neither anomaly was indicative of a "Possible UST," "Probable UST" or "Known UST." These anomalies are interpreted as buried debris based on visual evidence on the surface.

Additional TDEM responses were present in the data, but correlated to surface metallic debris and/or above ground metal structures and are not considered to be representative of “Potential USTs.”

The locations of underground utilities were designated using EM and GPR equipment, and their locations were marked with paint on the land surface, and additionally shown in Figure 1.

Locations of data points were obtained using a Trimble R6 GPS antenna, which obtained sub-meter accuracy using corrections provided by the North Carolina RTN network.

4.0 Closing

GEL Geophysics appreciates the opportunity to assist Hart & Hickman with this project. If you have any questions or need further information regarding the project, please do not hesitate to call me at (843) 697-1571.

Yours very truly,

William S. Dovell
Project Manager

enclosures
fc: hahi00115_rpt.doc

Site Photos

Photo 1: Parcels 5B, 5C, and 4B looking northwest from Parcel 5A.

Photo 2: Looking northwest from Parcel 7C.

Photo 3: Looking southeast towards Parcel 5A and Parcel 8.

Photo 4: Looking northwest from Parcel 7C.

Photo 5: Looking northeast across Parcel 5C and 5B.

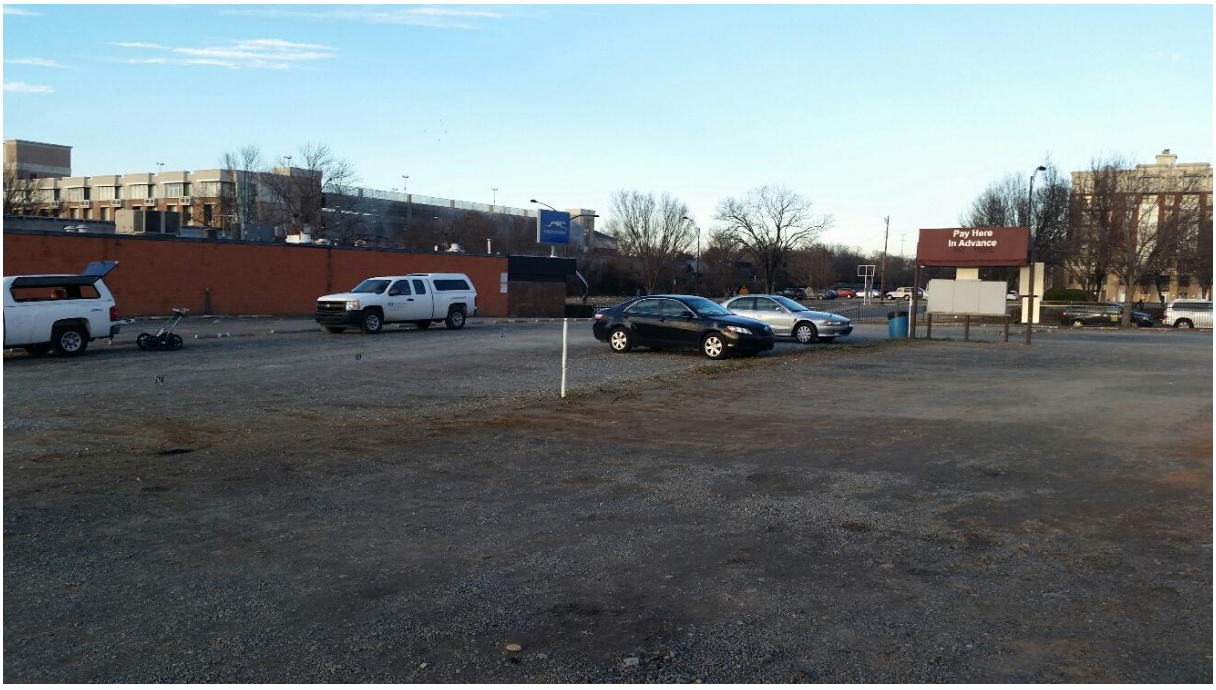


Photo 6: Looking north across Parcels 4A, 4B and 5C.

Photo 7: Looking south towards Parcel 10.

Photo 8: Looking west across Parcel 6.

Photo 9: Showing GPR anomaly and "Possible UST" (upper left) in Parcel 4B.

Photo 10: Showing GPR anomaly and monitoring well in Parcel 6.

Photo 11: Showing GPR anomaly in Parcel 10.

Photo 12: Showing "Possible UST" in Parcel 4B.

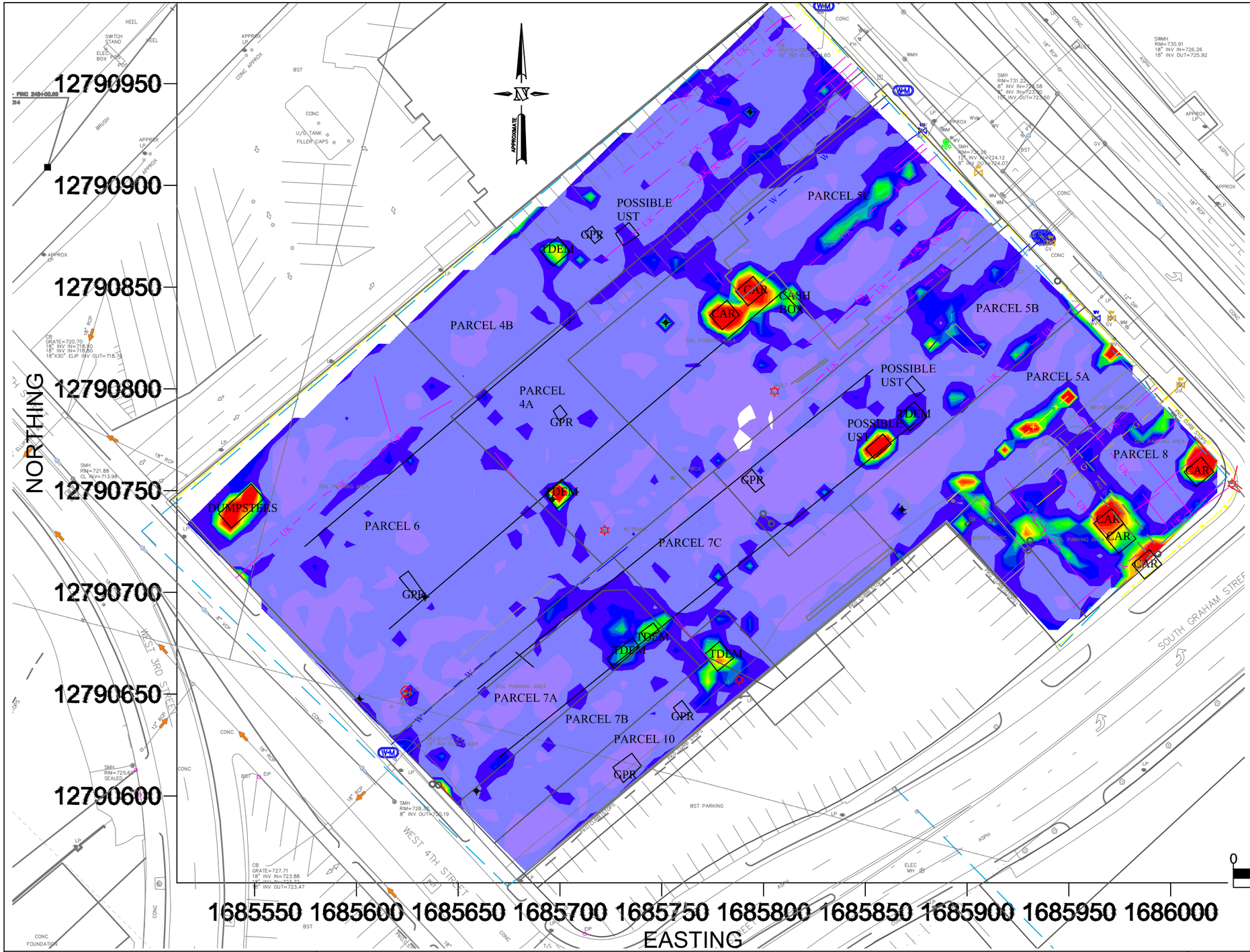
Photo 13: Looking west from Parcel 5A.

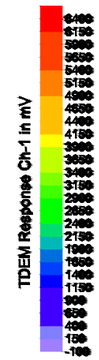
Photo 14: Showing TDEM anomaly in Parcel 5B.

Photo 15: Looking southeast from Parcel 5C.

Photo 16: Showing "Possible UST" in Parcel 5B.

Photo 17: Showing GPR anomaly in Parcel 5B.





LEGEND

- UK — APPROXIMATE LOCATION OF SUSPECTED UNDERGROUND UNKNOWN UTILITY LINE
- W — APPROXIMATE LOCATION OF SUSPECTED UNDERGROUND WATER LINE
- SD — APPROXIMATE LOCATION OF SUSPECTED STORMWATER DRAIN LINE
- G — APPROXIMATE LOCATION OF SUSPECTED UNDERGROUND GAS LINE
- E — APPROXIMATE LOCATION OF SUSPECTED UNDERGROUND ELECTRICAL POWER LINE
- X — CHAIN LINK FENCE
- END OF DESIGNATION OR UNKNOWN DESIGNATION
- POWER POLE
- METALLIC SURFACE FEATURE
- STORM DRAIN MANHOLE
- STORM DRAIN DROP INLET
- WATER VALVE
- WATER METER
- GAS VALVE
- GAS METER
- MONITORING WELL

NOTES

1) UNDERGROUND FEATURES WERE LOCATED USING VISUAL EVIDENCE, GROUND PENETRATING RADAR (GPR), RADIO-FREQUENCY ELECTROMAGNETIC (EM) AND TIME DOMAIN ELECTROMAGNETIC (TDEM) METHODS. OTHER BURIED UTILITIES AND STRUCTURES MAY EXIST BUT WERE NOT DETECTED DUE TO LIMITATIONS OF THE GEOPHYSICAL METHODS, SITE ACCESS, AND/OR HIGH TARGET CONGESTION. THEREFORE, DUE CAUTION SHOULD BE USED WHEN PERFORMING SUBSURFACE EXCAVATION ACTIVITIES WHERE POTENTIAL CONFLICTS EXIST. GEL GEOPHYSICS, LLC. IS NOT RESPONSIBLE FOR DAMAGES THAT MAY OCCUR. IDENTIFYING THE LOCATION OF SOME UTILITIES AND STRUCTURES MAY ONLY BE POSSIBLE WITH VACUUM OR OTHER EXCAVATION METHODS.
2) FIELD SURVEY CONDUCTED ON 1/17/15-1/18/15.
3) DATA FROM GEONICS, LTD. EM-61 MKII AND MALA GEOSCIENCE GROUND PENETRATING RADAR.
4) GEL GEOPHYSICS, LLC. IS NOT RESPONSIBLE FOR ACCURACY OF BASE MAP PROVIDED BY HART & HICKMAN.

GRAPHIC SCALE

0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

GEL GEOPHYSICS, LLC
a Member of THE GEL GROUP, INC.
P.O. BOX 30712 CHARLESTON, SC 29417
2040 SAVAGE ROAD 29407
(843) 769-7379 FAX (843) 769-7397
WWW.GELGEOPHYSICS.COM

PROJECT: HAHI00115

UST INVESTIGATION OF
11 PARCELS W.TRADE ST AND S. GRAHAM ST
CHARLOTTE, NORTH CAROLINA
NCDOT RAIL PSA PROJECT

DATE: FEBRUARY 25, 2015

RESULTS OF GEOPHYSICAL INVESTIGATION

DRAWN BY: WSD APPRV. BY: EJB

FIGURE
1

Appendix D

Soil Boring Logs and Temporary Well Boring Log

hart hickman
SMARTER ENVIRONMENTAL SOLUTIONS

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough Street
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

BORING NUMBER 7C-1

PROJECT: NC DOT Project P-3800 - Parcel 7C
JOB NUMBER: ROW-504
LOCATION: Charlotte, NC

DEPTH (ft)	RECOVERY (%)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	OVA (ppm) BKG.	OVA (ppm) SAMP.	LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
0							Gravel and asphalt pieces		0
				0	0.4		Moist, stiff, tan-orange sandy SILT, no odor		
				0	0.3				
							Moist, stiff, tan-orange sandy SILT, no odor		
5				0	0.5				5
							Moist, stiff, tan-orange and white sandy SILT, no odor		
				0	0.4				
							Moist, stiff, tan-orange, white, and pink sandy SILT, no odor		
				0	0.4				
10							Dry, loose, red silty SAND, no odor		10
				0	0.5				
							No recovery		
							Dry, loose, light red silty SAND, no odor		
				0	0.5				
15							Bottom of borehole at 15.0 feet.		15

DRILLING CONTRACTOR: Geologic Exploration
DRILL RIG/ METHOD: 7822 DT / DPT/Hand Auger
SAMPLING METHOD: DPT Sleeves
LOGGED BY: BRK/JCW
DRAWN BY: BRK

BORING STARTED: 1/24/15
BORING COMPLETED: 1/24/15
TOTAL DEPTH: 15 ft.
TOP OF CASING ELEV:
DEPTH TO WATER:

Remarks:

Soil sample collected from 0-2 ft bgs for laboratory analysis.

WELL LOG - HART HICKMAN.GDT - 3/4/15 15:23 - S:\AAA-MASTER GINT PROJECTS\ROW-504\PARCEL 7C.GPJ

hart hickman
SMARTER ENVIRONMENTAL SOLUTIONS

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough Street
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

BORING NUMBER 7C-2

PROJECT: NC DOT Project P-3800 - Parcel 7C
JOB NUMBER: ROW-504
LOCATION: Charlotte, NC

DEPTH (ft)	RECOVERY (%)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	OVA (ppm) BKG.	OVA (ppm) SAMP.	LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
0							Gravel and asphalt pieces		0
				0	0.6		Dry, loose, tan-orange silty SAND with gravel, no odor		
				0	0.5		Dry, stiff, tan-orange silty SAND with gravel, no odor		
5				0	0.6		Dry, stiff, tan-orange silty SAND with gravel, Mn nodules, no odor		5
				0	0.5				
							No recovery		
10									10
				0	0.1		Dry, stiff, red-orange silty SAND with gravel, Mn nodules, no odor		
15							Bottom of borehole at 15.0 feet.		15

DRILLING CONTRACTOR: Geologic Exploration
DRILL RIG/ METHOD: 7822 DT / DPT/Hand Auger
SAMPLING METHOD: DPT Sleeves
LOGGED BY: BRK/JCW
DRAWN BY: BRK

BORING STARTED: 1/24/15
BORING COMPLETED: 1/24/15
TOTAL DEPTH: 15 ft.
TOP OF CASING ELEV:
DEPTH TO WATER:

Remarks:

Soil sample collected from 0-2 ft bgs for laboratory analysis.

WELL LOG - HART HICKMAN.GDT - 3/4/15 15:23 - S:\AAA-MASTER GINT PROJECTS\ROW-504\PARCEL 7C.GPJ

hart hickman
SMARTER ENVIRONMENTAL SOLUTIONS

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough Street
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

BORING NUMBER 7C-3

PROJECT: NC DOT Project P-3800 - Parcel 7C
JOB NUMBER: ROW-504
LOCATION: Charlotte, NC

DEPTH (ft)	RECOVERY (%)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	OVA (ppm) BKG.	OVA (ppm) SAMP.	LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
0							Gravel and asphalt pieces		0
				0	5.3		Moist, medium, orange-red sandy SILT, no odor		
				0	5.2		Moist, medium, orange-red sandy SILT, Mn nodules, no odor		
5				0	4.3				5
				0	4.1		Moist, medium stiff, light brown sandy SILT, Mn nodules, no odor		
				0	4.8				
10									10
				0	2.5				
				0	0.1		Moist, stiff, black, orange-red, and yellow sandy SILT, no odor		
15							Bottom of borehole at 15.0 feet.		15

DRILLING CONTRACTOR: Geologic Exploration
DRILL RIG/ METHOD: 7822 DT / DPT/Hand Auger
SAMPLING METHOD: DPT Sleeves
LOGGED BY: BRK/JCW
DRAWN BY: BRK

BORING STARTED: 1/24/15
BORING COMPLETED: 1/24/15
TOTAL DEPTH: 15 ft.
TOP OF CASING ELEV:
DEPTH TO WATER:

Remarks:

Soil sample collected from 0-2 ft bgs for laboratory analysis.

WELL LOG - HART HICKMAN.GDT - 3/4/15 15:23 - S:\AAA-MASTER GINT PROJECTS\ROW-504\PARCEL 7C.GPJ

hart hickman
SMARTER ENVIRONMENTAL SOLUTIONS

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough Street
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

BORING NUMBER 7C-4

PROJECT: NC DOT Project P-3800 - Parcel 7C
JOB NUMBER: ROW-504
LOCATION: Charlotte, NC

DEPTH (ft)	RECOVERY (%)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	OVA (ppm) BKG.	OVA (ppm) SAMP.	LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
0							Gravel and asphalt pieces		0
				0	5.5		Moist, stiff, red SILT, no odor		
							Moist, medium, red silty SAND, no odor		
				0	5.2		Moist, medium, red silty SAND, some gravel, no odor		
5				0	5.2				5
				0	7.4		Moist, medium, red silty SAND, some gravel, Mn nodules, no odor		
				0	5.4				
10							Moist, medium, tan silty SAND, Mn nodules, no odor		10
				0	6.6				
				0	6.1				
				0	0.3				
15							Bottom of borehole at 15.0 feet.		15

DRILLING CONTRACTOR: Geologic Exploration
DRILL RIG/ METHOD: 7822 DT / DPT/Hand Auger
SAMPLING METHOD: DPT Sleeves
LOGGED BY: BRK/JCW
DRAWN BY: BRK

BORING STARTED: 1/24/15
BORING COMPLETED: 1/24/15
TOTAL DEPTH: 15 ft.
TOP OF CASING ELEV:
DEPTH TO WATER:

Remarks:

Soil sample collected from 0-2 ft bgs for laboratory analysis.

WELL LOG - HART HICKMAN.GDT - 3/4/15 15:23 - S:\AAA-MASTER GINT PROJECTS\ROW-504\PARCEL 7C.GPJ

hart hickman
SMARTER ENVIRONMENTAL SOLUTIONS

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

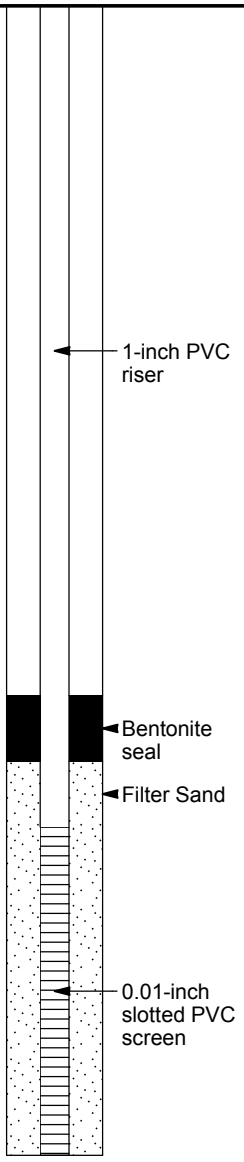
3334 Hillsborough Street
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

BORING NUMBER TW-7C

PROJECT: NC DOT Project P-3800 - Parcel 7C
JOB NUMBER: ROW-504
LOCATION: Charlotte, NC

DEPTH (ft)	RECOVERY (%)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	OVA (ppm) BKG.	OVA (ppm) SAMP.	LITHOLOGY	MATERIAL DESCRIPTION
0							gravel and asphalt pieces
							Dry, loose, tan-orange, silty SAND with gravel, no odor
							Dry stiff, orange silty CLAY, no odor
15							Dry stiff, orange CLAY, no odor
35							Bottom of borehole at 35.0 feet.

WELL DIAGRAM



DEPTH (ft): 0, 5, 10, 15, 20, 25, 30, 35

DRILLING CONTRACTOR: Geologic Exploration
DRILL RIG/ METHOD: 7822DT / DPT/Hand Auger
SAMPLING METHOD:
LOGGED BY: BRK/JCW
DRAWN BY: JCW

BORING STARTED: 1/25/15
BORING COMPLETED: 1/25/15
TOTAL DEPTH: 35 ft.
TOP OF CASING ELEV:
DEPTH TO WATER:

Remarks:

WELL LOG - HART HICKMAN.GDT - 3/4/15 15:23 - S:\AAA-MASTER GINT PROJECTS\ROW-504\PARCEL 7C.GPJ

Appendix E

Laboratory Analytical Reports

QED

AQROS

Hydrocarbon Analysis Results

Client: HART HICKMAN
Address:

Samples taken Saturday, January 24, 2015
Samples extracted Saturday, January 24, 2015
Samples analysed Tuesday, January 28, 2014

Contact: DAVID GRAHAM

Operator RACHEL MENOHER

Project: ROW-504

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	7C-1 (0-2)	28.9	<1.4	<1.4	96.18	96.18	71.75	3.17	<0.029	59	31.9	9.1	V.Deg.PHC (FCM) 86.1%
s	7C-2 (0-2)	14.6	<0.7	<0.7	8.2	8.2	7.48	0.36	<0.015	48.8	36.6	14.5	V.Deg.PHC (FCM) 83.2%
s	7C-3 (0-2)	16.7	<0.8	<0.8	5.84	5.84	5.34	0.26	<0.017	47.9	35.4	16.7	V.Deg.PHC (FCM) 79.4%
s	7C-4 (0-2)	24.8	<1.2	<1.2	5.17	5.17	4.16	0.2	<0.025	62	26.6	11.3	V.Deg.PHC (FCM) 94.6%
w	TRIP BLANK	1.0	<0.1	<0.1	<0.01	<0.1	<0.01	<0	<0.001	0	0	0	Pet.Hyd not Detected

Initial Calibrator QC check OK

Final FCM QC Check OK 98.8%

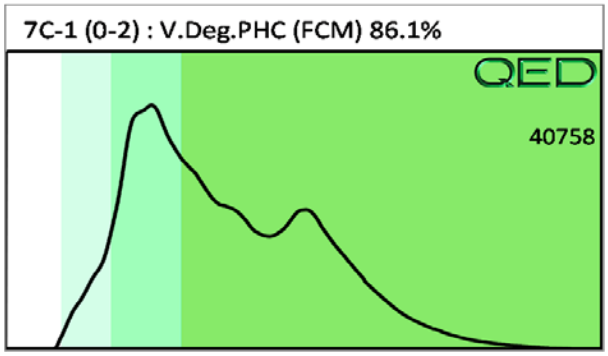
Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content

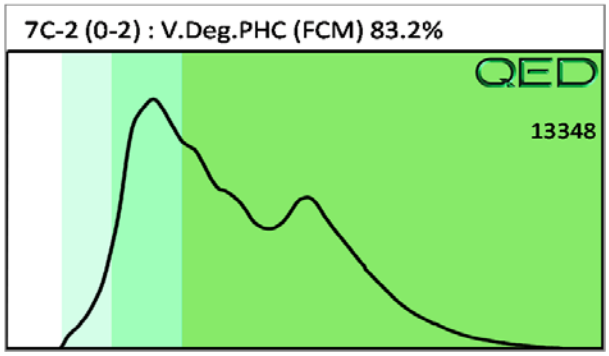
Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library

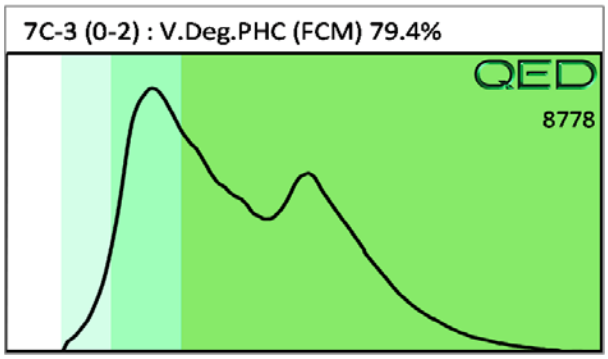
(SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present

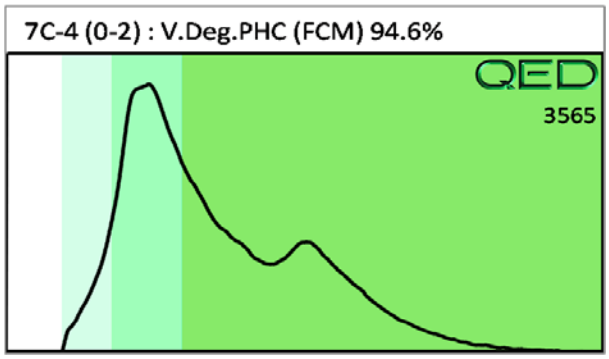
QED Hydrocarbon Fingerprints

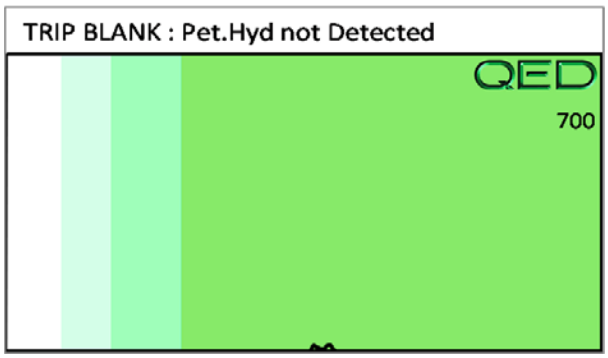
Project: ROW-504 ##################











Chain of Custody Record and Analytical Request Form

Sample ID	Sample Collection			TAT Requested	
QED UVF	Date	Time	Initials	24 Hour	48 Hour
7C-1 (0-2)	1/24/15	1655	JCW	STANDARD TAT	
7C-2 (0-2)	1/24/15	1650			
7C-3 (0-2)	1/24/15	1645			
7C-4 (0-2)	1/24/15	1700			

Client: HART + HICKMAN

Contact: David Graham

Phone: 704 5860007

Email: dgraham@hearthickman.com

Project Reference: ROW - 504

Each Sample will be analyzed for total

BTEX, GRO, DRO, TPH, and PAH

Each Sample will generate a fingerprint representative of the petroleum product within the sample. Electronic Data will be submitted to the email above.

Relinquished by	Date/time	Accepted by	Date/time
JCWeaver	1/26/15 1350	RL	12/27 1600
Relinquished by	Date/time	Accepted by	Date/time
Relinquished by	Date/time	Accepted by	Date/time

SHIP TO: QROS

420 Raleigh Street Suite E

Wilmington, NC 28412

Rachel Menoher-
rachelm@grosllc.com

910-520-2902

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

February 04, 2015

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

RE: Project: ROW-504 32213
Pace Project No.: 92234861

Dear Chemical Engineer:
Enclosed are the analytical results for sample(s) received by the laboratory on January 26, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

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

Sincerely,

Kevin Godwin
kevin.godwin@pacelabs.com
Project Manager

Enclosures

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

CERTIFICATIONS

Project: ROW-504 32213
Pace Project No.: 92234861

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
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
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: ROW-504 32213
Pace Project No.: 92234861

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92234861001	**7C-1 (0-2)**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	EJK	1	PASI-C
92234861002	**7C-2 (0-2)**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	EJK	1	PASI-C
92234861003	**7C-3 (0-2)**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	EJK	1	PASI-C
92234861004	**7C-4 (0-2)**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	EJK	1	PASI-C
92234861005	**TW-7C**	EPA 8260	GAW	63	PASI-C

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

ANALYTICAL RESULTS

Project: ROW-504 32213
Pace Project No.: 92234861

Sample: 7C-1 (0-2) **Lab ID: 92234861001** Collected: 01/24/15 16:55 Received: 01/26/15 08:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	125	1		01/27/15 16:24	67-64-1	
Benzene	ND	ug/kg	6.3	1		01/27/15 16:24	71-43-2	
Bromobenzene	ND	ug/kg	6.3	1		01/27/15 16:24	108-86-1	
Bromochloromethane	ND	ug/kg	6.3	1		01/27/15 16:24	74-97-5	
Bromodichloromethane	ND	ug/kg	6.3	1		01/27/15 16:24	75-27-4	
Bromoform	ND	ug/kg	6.3	1		01/27/15 16:24	75-25-2	
Bromomethane	ND	ug/kg	12.5	1		01/27/15 16:24	74-83-9	
2-Butanone (MEK)	ND	ug/kg	125	1		01/27/15 16:24	78-93-3	
n-Butylbenzene	ND	ug/kg	6.3	1		01/27/15 16:24	104-51-8	
sec-Butylbenzene	ND	ug/kg	6.3	1		01/27/15 16:24	135-98-8	
tert-Butylbenzene	ND	ug/kg	6.3	1		01/27/15 16:24	98-06-6	
Carbon tetrachloride	ND	ug/kg	6.3	1		01/27/15 16:24	56-23-5	
Chlorobenzene	ND	ug/kg	6.3	1		01/27/15 16:24	108-90-7	
Chloroethane	ND	ug/kg	12.5	1		01/27/15 16:24	75-00-3	
Chloroform	ND	ug/kg	6.3	1		01/27/15 16:24	67-66-3	
Chloromethane	ND	ug/kg	12.5	1		01/27/15 16:24	74-87-3	
2-Chlorotoluene	ND	ug/kg	6.3	1		01/27/15 16:24	95-49-8	
4-Chlorotoluene	ND	ug/kg	6.3	1		01/27/15 16:24	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	6.3	1		01/27/15 16:24	96-12-8	
Dibromochloromethane	ND	ug/kg	6.3	1		01/27/15 16:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	6.3	1		01/27/15 16:24	106-93-4	
Dibromomethane	ND	ug/kg	6.3	1		01/27/15 16:24	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	6.3	1		01/27/15 16:24	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	6.3	1		01/27/15 16:24	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	6.3	1		01/27/15 16:24	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	12.5	1		01/27/15 16:24	75-71-8	
1,1-Dichloroethane	ND	ug/kg	6.3	1		01/27/15 16:24	75-34-3	
1,2-Dichloroethane	ND	ug/kg	6.3	1		01/27/15 16:24	107-06-2	
1,1-Dichloroethene	ND	ug/kg	6.3	1		01/27/15 16:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	6.3	1		01/27/15 16:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	6.3	1		01/27/15 16:24	156-60-5	
1,2-Dichloropropane	ND	ug/kg	6.3	1		01/27/15 16:24	78-87-5	
1,3-Dichloropropane	ND	ug/kg	6.3	1		01/27/15 16:24	142-28-9	
2,2-Dichloropropane	ND	ug/kg	6.3	1		01/27/15 16:24	594-20-7	
1,1-Dichloropropene	ND	ug/kg	6.3	1		01/27/15 16:24	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	6.3	1		01/27/15 16:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	6.3	1		01/27/15 16:24	10061-02-6	
Diisopropyl ether	ND	ug/kg	6.3	1		01/27/15 16:24	108-20-3	
Ethylbenzene	ND	ug/kg	6.3	1		01/27/15 16:24	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	6.3	1		01/27/15 16:24	87-68-3	
2-Hexanone	ND	ug/kg	62.6	1		01/27/15 16:24	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	6.3	1		01/27/15 16:24	98-82-8	
p-Isopropyltoluene	ND	ug/kg	6.3	1		01/27/15 16:24	99-87-6	
Methylene Chloride	ND	ug/kg	25.0	1		01/27/15 16:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	62.6	1		01/27/15 16:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	6.3	1		01/27/15 16:24	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: ROW-504 32213
Pace Project No.: 92234861

Sample: 7C-1 (0-2) **Lab ID: 92234861001** Collected: 01/24/15 16:55 Received: 01/26/15 08:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	6.3	1		01/27/15 16:24	91-20-3	
n-Propylbenzene	ND	ug/kg	6.3	1		01/27/15 16:24	103-65-1	
Styrene	ND	ug/kg	6.3	1		01/27/15 16:24	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	6.3	1		01/27/15 16:24	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	6.3	1		01/27/15 16:24	79-34-5	
Tetrachloroethene	ND	ug/kg	6.3	1		01/27/15 16:24	127-18-4	
Toluene	ND	ug/kg	6.3	1		01/27/15 16:24	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	6.3	1		01/27/15 16:24	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	6.3	1		01/27/15 16:24	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	6.3	1		01/27/15 16:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	6.3	1		01/27/15 16:24	79-00-5	
Trichloroethene	ND	ug/kg	6.3	1		01/27/15 16:24	79-01-6	
Trichlorofluoromethane	ND	ug/kg	6.3	1		01/27/15 16:24	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	6.3	1		01/27/15 16:24	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	6.3	1		01/27/15 16:24	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	6.3	1		01/27/15 16:24	108-67-8	
Vinyl acetate	ND	ug/kg	62.6	1		01/27/15 16:24	108-05-4	
Vinyl chloride	ND	ug/kg	12.5	1		01/27/15 16:24	75-01-4	
Xylene (Total)	ND	ug/kg	12.5	1		01/27/15 16:24	1330-20-7	
m&p-Xylene	ND	ug/kg	12.5	1		01/27/15 16:24	179601-23-1	
o-Xylene	ND	ug/kg	6.3	1		01/27/15 16:24	95-47-6	
Surrogates								
Toluene-d8 (S)	101	%	70-130	1		01/27/15 16:24	2037-26-5	1g
4-Bromofluorobenzene (S)	73	%	70-130	1		01/27/15 16:24	460-00-4	
1,2-Dichloroethane-d4 (S)	121	%	70-132	1		01/27/15 16:24	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**19.9**	%	0.10	1		01/30/15 15:18		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: ROW-504 32213
Pace Project No.: 92234861

Sample: 7C-2 (0-2) **Lab ID: 92234861002** Collected: 01/24/15 16:50 Received: 01/26/15 08:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	122	1		01/27/15 16:43	67-64-1	
Benzene	ND	ug/kg	6.1	1		01/27/15 16:43	71-43-2	
Bromobenzene	ND	ug/kg	6.1	1		01/27/15 16:43	108-86-1	
Bromochloromethane	ND	ug/kg	6.1	1		01/27/15 16:43	74-97-5	
Bromodichloromethane	ND	ug/kg	6.1	1		01/27/15 16:43	75-27-4	
Bromoform	ND	ug/kg	6.1	1		01/27/15 16:43	75-25-2	
Bromomethane	ND	ug/kg	12.2	1		01/27/15 16:43	74-83-9	
2-Butanone (MEK)	ND	ug/kg	122	1		01/27/15 16:43	78-93-3	
n-Butylbenzene	ND	ug/kg	6.1	1		01/27/15 16:43	104-51-8	
sec-Butylbenzene	ND	ug/kg	6.1	1		01/27/15 16:43	135-98-8	
tert-Butylbenzene	ND	ug/kg	6.1	1		01/27/15 16:43	98-06-6	
Carbon tetrachloride	ND	ug/kg	6.1	1		01/27/15 16:43	56-23-5	
Chlorobenzene	ND	ug/kg	6.1	1		01/27/15 16:43	108-90-7	
Chloroethane	ND	ug/kg	12.2	1		01/27/15 16:43	75-00-3	
Chloroform	ND	ug/kg	6.1	1		01/27/15 16:43	67-66-3	
Chloromethane	ND	ug/kg	12.2	1		01/27/15 16:43	74-87-3	
2-Chlorotoluene	ND	ug/kg	6.1	1		01/27/15 16:43	95-49-8	
4-Chlorotoluene	ND	ug/kg	6.1	1		01/27/15 16:43	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	6.1	1		01/27/15 16:43	96-12-8	
Dibromochloromethane	ND	ug/kg	6.1	1		01/27/15 16:43	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	6.1	1		01/27/15 16:43	106-93-4	
Dibromomethane	ND	ug/kg	6.1	1		01/27/15 16:43	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	6.1	1		01/27/15 16:43	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	6.1	1		01/27/15 16:43	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	6.1	1		01/27/15 16:43	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	12.2	1		01/27/15 16:43	75-71-8	
1,1-Dichloroethane	ND	ug/kg	6.1	1		01/27/15 16:43	75-34-3	
1,2-Dichloroethane	ND	ug/kg	6.1	1		01/27/15 16:43	107-06-2	
1,1-Dichloroethene	ND	ug/kg	6.1	1		01/27/15 16:43	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	6.1	1		01/27/15 16:43	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	6.1	1		01/27/15 16:43	156-60-5	
1,2-Dichloropropane	ND	ug/kg	6.1	1		01/27/15 16:43	78-87-5	
1,3-Dichloropropane	ND	ug/kg	6.1	1		01/27/15 16:43	142-28-9	
2,2-Dichloropropane	ND	ug/kg	6.1	1		01/27/15 16:43	594-20-7	
1,1-Dichloropropene	ND	ug/kg	6.1	1		01/27/15 16:43	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	6.1	1		01/27/15 16:43	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	6.1	1		01/27/15 16:43	10061-02-6	
Diisopropyl ether	ND	ug/kg	6.1	1		01/27/15 16:43	108-20-3	
Ethylbenzene	ND	ug/kg	6.1	1		01/27/15 16:43	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	6.1	1		01/27/15 16:43	87-68-3	
2-Hexanone	ND	ug/kg	60.9	1		01/27/15 16:43	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	6.1	1		01/27/15 16:43	98-82-8	
p-Isopropyltoluene	ND	ug/kg	6.1	1		01/27/15 16:43	99-87-6	
Methylene Chloride	ND	ug/kg	24.4	1		01/27/15 16:43	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	60.9	1		01/27/15 16:43	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	6.1	1		01/27/15 16:43	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: ROW-504 32213
Pace Project No.: 92234861

Sample: 7C-2 (0-2) **Lab ID: 92234861002** Collected: 01/24/15 16:50 Received: 01/26/15 08:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	6.1	1		01/27/15 16:43	91-20-3	
n-Propylbenzene	ND	ug/kg	6.1	1		01/27/15 16:43	103-65-1	
Styrene	ND	ug/kg	6.1	1		01/27/15 16:43	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	6.1	1		01/27/15 16:43	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	6.1	1		01/27/15 16:43	79-34-5	
Tetrachloroethene	ND	ug/kg	6.1	1		01/27/15 16:43	127-18-4	
Toluene	ND	ug/kg	6.1	1		01/27/15 16:43	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	6.1	1		01/27/15 16:43	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	6.1	1		01/27/15 16:43	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	6.1	1		01/27/15 16:43	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	6.1	1		01/27/15 16:43	79-00-5	
Trichloroethene	ND	ug/kg	6.1	1		01/27/15 16:43	79-01-6	
Trichlorofluoromethane	ND	ug/kg	6.1	1		01/27/15 16:43	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	6.1	1		01/27/15 16:43	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	6.1	1		01/27/15 16:43	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	6.1	1		01/27/15 16:43	108-67-8	
Vinyl acetate	ND	ug/kg	60.9	1		01/27/15 16:43	108-05-4	
Vinyl chloride	ND	ug/kg	12.2	1		01/27/15 16:43	75-01-4	
Xylene (Total)	ND	ug/kg	12.2	1		01/27/15 16:43	1330-20-7	
m&p-Xylene	ND	ug/kg	12.2	1		01/27/15 16:43	179601-23-1	
o-Xylene	ND	ug/kg	6.1	1		01/27/15 16:43	95-47-6	
Surrogates								
Toluene-d8 (S)	105	%	70-130	1		01/27/15 16:43	2037-26-5	
4-Bromofluorobenzene (S)	88	%	70-130	1		01/27/15 16:43	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	70-132	1		01/27/15 16:43	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**26.9**	%	0.10	1		01/30/15 15:18		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: ROW-504 32213
Pace Project No.: 92234861

Sample: 7C-3 (0-2) **Lab ID: 92234861003** Collected: 01/24/15 16:45 Received: 01/26/15 08:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	114	1		01/27/15 17:03	67-64-1	
Benzene	ND	ug/kg	5.7	1		01/27/15 17:03	71-43-2	
Bromobenzene	ND	ug/kg	5.7	1		01/27/15 17:03	108-86-1	
Bromochloromethane	ND	ug/kg	5.7	1		01/27/15 17:03	74-97-5	
Bromodichloromethane	ND	ug/kg	5.7	1		01/27/15 17:03	75-27-4	
Bromoform	ND	ug/kg	5.7	1		01/27/15 17:03	75-25-2	
Bromomethane	ND	ug/kg	11.4	1		01/27/15 17:03	74-83-9	
2-Butanone (MEK)	ND	ug/kg	114	1		01/27/15 17:03	78-93-3	
n-Butylbenzene	ND	ug/kg	5.7	1		01/27/15 17:03	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.7	1		01/27/15 17:03	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.7	1		01/27/15 17:03	98-06-6	
Carbon tetrachloride	ND	ug/kg	5.7	1		01/27/15 17:03	56-23-5	
Chlorobenzene	ND	ug/kg	5.7	1		01/27/15 17:03	108-90-7	
Chloroethane	ND	ug/kg	11.4	1		01/27/15 17:03	75-00-3	
Chloroform	ND	ug/kg	5.7	1		01/27/15 17:03	67-66-3	
Chloromethane	ND	ug/kg	11.4	1		01/27/15 17:03	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.7	1		01/27/15 17:03	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.7	1		01/27/15 17:03	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.7	1		01/27/15 17:03	96-12-8	
Dibromochloromethane	ND	ug/kg	5.7	1		01/27/15 17:03	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.7	1		01/27/15 17:03	106-93-4	
Dibromomethane	ND	ug/kg	5.7	1		01/27/15 17:03	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.7	1		01/27/15 17:03	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.7	1		01/27/15 17:03	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.7	1		01/27/15 17:03	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	11.4	1		01/27/15 17:03	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.7	1		01/27/15 17:03	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.7	1		01/27/15 17:03	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.7	1		01/27/15 17:03	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.7	1		01/27/15 17:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.7	1		01/27/15 17:03	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.7	1		01/27/15 17:03	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.7	1		01/27/15 17:03	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.7	1		01/27/15 17:03	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.7	1		01/27/15 17:03	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.7	1		01/27/15 17:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.7	1		01/27/15 17:03	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.7	1		01/27/15 17:03	108-20-3	
Ethylbenzene	ND	ug/kg	5.7	1		01/27/15 17:03	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.7	1		01/27/15 17:03	87-68-3	
2-Hexanone	ND	ug/kg	57.2	1		01/27/15 17:03	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.7	1		01/27/15 17:03	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.7	1		01/27/15 17:03	99-87-6	
Methylene Chloride	ND	ug/kg	22.9	1		01/27/15 17:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	57.2	1		01/27/15 17:03	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.7	1		01/27/15 17:03	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: ROW-504 32213
Pace Project No.: 92234861

Sample: 7C-3 (0-2) **Lab ID: 92234861003** Collected: 01/24/15 16:45 Received: 01/26/15 08:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	5.7	1		01/27/15 17:03	91-20-3	
n-Propylbenzene	ND	ug/kg	5.7	1		01/27/15 17:03	103-65-1	
Styrene	ND	ug/kg	5.7	1		01/27/15 17:03	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.7	1		01/27/15 17:03	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.7	1		01/27/15 17:03	79-34-5	
Tetrachloroethene	ND	ug/kg	5.7	1		01/27/15 17:03	127-18-4	
Toluene	ND	ug/kg	5.7	1		01/27/15 17:03	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.7	1		01/27/15 17:03	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.7	1		01/27/15 17:03	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.7	1		01/27/15 17:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.7	1		01/27/15 17:03	79-00-5	
Trichloroethene	ND	ug/kg	5.7	1		01/27/15 17:03	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.7	1		01/27/15 17:03	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.7	1		01/27/15 17:03	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.7	1		01/27/15 17:03	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.7	1		01/27/15 17:03	108-67-8	
Vinyl acetate	ND	ug/kg	57.2	1		01/27/15 17:03	108-05-4	
Vinyl chloride	ND	ug/kg	11.4	1		01/27/15 17:03	75-01-4	
Xylene (Total)	ND	ug/kg	11.4	1		01/27/15 17:03	1330-20-7	
m&p-Xylene	ND	ug/kg	11.4	1		01/27/15 17:03	179601-23-1	
o-Xylene	ND	ug/kg	5.7	1		01/27/15 17:03	95-47-6	
Surrogates								
Toluene-d8 (S)	104	%	70-130	1		01/27/15 17:03	2037-26-5	
4-Bromofluorobenzene (S)	87	%	70-130	1		01/27/15 17:03	460-00-4	
1,2-Dichloroethane-d4 (S)	118	%	70-132	1		01/27/15 17:03	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**19.3**	%	0.10	1		01/30/15 15:19		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: ROW-504 32213
Pace Project No.: 92234861

Sample: 7C-4 (0-2) **Lab ID: 92234861004** Collected: 01/24/15 17:00 Received: 01/26/15 08:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	93.9	1		01/27/15 17:23	67-64-1	
Benzene	ND	ug/kg	4.7	1		01/27/15 17:23	71-43-2	
Bromobenzene	ND	ug/kg	4.7	1		01/27/15 17:23	108-86-1	
Bromochloromethane	ND	ug/kg	4.7	1		01/27/15 17:23	74-97-5	
Bromodichloromethane	ND	ug/kg	4.7	1		01/27/15 17:23	75-27-4	
Bromoform	ND	ug/kg	4.7	1		01/27/15 17:23	75-25-2	
Bromomethane	ND	ug/kg	9.4	1		01/27/15 17:23	74-83-9	
2-Butanone (MEK)	ND	ug/kg	93.9	1		01/27/15 17:23	78-93-3	
n-Butylbenzene	ND	ug/kg	4.7	1		01/27/15 17:23	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.7	1		01/27/15 17:23	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.7	1		01/27/15 17:23	98-06-6	
Carbon tetrachloride	ND	ug/kg	4.7	1		01/27/15 17:23	56-23-5	
Chlorobenzene	ND	ug/kg	4.7	1		01/27/15 17:23	108-90-7	
Chloroethane	ND	ug/kg	9.4	1		01/27/15 17:23	75-00-3	
Chloroform	ND	ug/kg	4.7	1		01/27/15 17:23	67-66-3	
Chloromethane	ND	ug/kg	9.4	1		01/27/15 17:23	74-87-3	
2-Chlorotoluene	ND	ug/kg	4.7	1		01/27/15 17:23	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.7	1		01/27/15 17:23	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.7	1		01/27/15 17:23	96-12-8	
Dibromochloromethane	ND	ug/kg	4.7	1		01/27/15 17:23	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.7	1		01/27/15 17:23	106-93-4	
Dibromomethane	ND	ug/kg	4.7	1		01/27/15 17:23	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.7	1		01/27/15 17:23	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.7	1		01/27/15 17:23	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.7	1		01/27/15 17:23	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	9.4	1		01/27/15 17:23	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.7	1		01/27/15 17:23	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.7	1		01/27/15 17:23	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.7	1		01/27/15 17:23	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.7	1		01/27/15 17:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.7	1		01/27/15 17:23	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.7	1		01/27/15 17:23	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.7	1		01/27/15 17:23	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.7	1		01/27/15 17:23	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.7	1		01/27/15 17:23	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.7	1		01/27/15 17:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.7	1		01/27/15 17:23	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.7	1		01/27/15 17:23	108-20-3	
Ethylbenzene	ND	ug/kg	4.7	1		01/27/15 17:23	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	4.7	1		01/27/15 17:23	87-68-3	
2-Hexanone	ND	ug/kg	46.9	1		01/27/15 17:23	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.7	1		01/27/15 17:23	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.7	1		01/27/15 17:23	99-87-6	
Methylene Chloride	ND	ug/kg	18.8	1		01/27/15 17:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	46.9	1		01/27/15 17:23	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.7	1		01/27/15 17:23	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: ROW-504 32213
Pace Project No.: 92234861

Sample: 7C-4 (0-2) **Lab ID: 92234861004** Collected: 01/24/15 17:00 Received: 01/26/15 08:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	4.7	1		01/27/15 17:23	91-20-3	
n-Propylbenzene	ND	ug/kg	4.7	1		01/27/15 17:23	103-65-1	
Styrene	ND	ug/kg	4.7	1		01/27/15 17:23	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.7	1		01/27/15 17:23	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.7	1		01/27/15 17:23	79-34-5	
Tetrachloroethene	ND	ug/kg	4.7	1		01/27/15 17:23	127-18-4	
Toluene	ND	ug/kg	4.7	1		01/27/15 17:23	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.7	1		01/27/15 17:23	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.7	1		01/27/15 17:23	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.7	1		01/27/15 17:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.7	1		01/27/15 17:23	79-00-5	
Trichloroethene	ND	ug/kg	4.7	1		01/27/15 17:23	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.7	1		01/27/15 17:23	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.7	1		01/27/15 17:23	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.7	1		01/27/15 17:23	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.7	1		01/27/15 17:23	108-67-8	
Vinyl acetate	ND	ug/kg	46.9	1		01/27/15 17:23	108-05-4	
Vinyl chloride	ND	ug/kg	9.4	1		01/27/15 17:23	75-01-4	
Xylene (Total)	ND	ug/kg	9.4	1		01/27/15 17:23	1330-20-7	
m&p-Xylene	ND	ug/kg	9.4	1		01/27/15 17:23	179601-23-1	
o-Xylene	ND	ug/kg	4.7	1		01/27/15 17:23	95-47-6	
Surrogates								
Toluene-d8 (S)	103	%	70-130	1		01/27/15 17:23	2037-26-5	
4-Bromofluorobenzene (S)	83	%	70-130	1		01/27/15 17:23	460-00-4	
1,2-Dichloroethane-d4 (S)	119	%	70-132	1		01/27/15 17:23	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**17.6**	%	0.10	1		01/30/15 15:19		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: ROW-504 32213
Pace Project No.: 92234861

Sample: TW-7C **Lab ID: 92234861005** Collected: 01/25/15 10:50 Received: 01/26/15 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1		02/04/15 00:28	67-64-1	
Benzene	ND	ug/L	1.0	1		02/04/15 00:28	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		02/04/15 00:28	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		02/04/15 00:28	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		02/04/15 00:28	75-27-4	
Bromoform	ND	ug/L	1.0	1		02/04/15 00:28	75-25-2	
Bromomethane	ND	ug/L	2.0	1		02/04/15 00:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		02/04/15 00:28	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		02/04/15 00:28	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		02/04/15 00:28	108-90-7	
Chloroethane	ND	ug/L	1.0	1		02/04/15 00:28	75-00-3	
Chloroform	ND	ug/L	1.0	1		02/04/15 00:28	67-66-3	
Chloromethane	ND	ug/L	1.0	1		02/04/15 00:28	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		02/04/15 00:28	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		02/04/15 00:28	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		02/04/15 00:28	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		02/04/15 00:28	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		02/04/15 00:28	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		02/04/15 00:28	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		02/04/15 00:28	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		02/04/15 00:28	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		02/04/15 00:28	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		02/04/15 00:28	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		02/04/15 00:28	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		02/04/15 00:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		02/04/15 00:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		02/04/15 00:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		02/04/15 00:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		02/04/15 00:28	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		02/04/15 00:28	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		02/04/15 00:28	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		02/04/15 00:28	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		02/04/15 00:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		02/04/15 00:28	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		02/04/15 00:28	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		02/04/15 00:28	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		02/04/15 00:28	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		02/04/15 00:28	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		02/04/15 00:28	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		02/04/15 00:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		02/04/15 00:28	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		02/04/15 00:28	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		02/04/15 00:28	91-20-3	
Styrene	ND	ug/L	1.0	1		02/04/15 00:28	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		02/04/15 00:28	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		02/04/15 00:28	79-34-5	
Tetrachloroethene	**1.3**	ug/L	1.0	1		02/04/15 00:28	127-18-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: ROW-504 32213
Pace Project No.: 92234861

Sample: TW-7C **Lab ID: 92234861005** Collected: 01/25/15 10:50 Received: 01/26/15 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260							
Toluene	ND	ug/L	1.0	1		02/04/15 00:28	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		02/04/15 00:28	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		02/04/15 00:28	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		02/04/15 00:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		02/04/15 00:28	79-00-5	
Trichloroethene	**1.1**	ug/L	1.0	1		02/04/15 00:28	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		02/04/15 00:28	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		02/04/15 00:28	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		02/04/15 00:28	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		02/04/15 00:28	75-01-4	
Xylene (Total)	ND	ug/L	2.0	1		02/04/15 00:28	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		02/04/15 00:28	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		02/04/15 00:28	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	87	%	70-130	1		02/04/15 00:28	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-130	1		02/04/15 00:28	17060-07-0	
Toluene-d8 (S)	97	%	70-130	1		02/04/15 00:28	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

QC Batch: MSV/30222 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92234861005

METHOD BLANK: 1383462 Matrix: Water
Associated Lab Samples: 92234861005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	02/03/15 22:14	
1,1,1-Trichloroethane	ug/L	ND	1.0	02/03/15 22:14	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	02/03/15 22:14	
1,1,2-Trichloroethane	ug/L	ND	1.0	02/03/15 22:14	
1,1-Dichloroethane	ug/L	ND	1.0	02/03/15 22:14	
1,1-Dichloroethene	ug/L	ND	1.0	02/03/15 22:14	
1,1-Dichloropropene	ug/L	ND	1.0	02/03/15 22:14	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	02/03/15 22:14	
1,2,3-Trichloropropane	ug/L	ND	1.0	02/03/15 22:14	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	02/03/15 22:14	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	02/03/15 22:14	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	02/03/15 22:14	
1,2-Dichlorobenzene	ug/L	ND	1.0	02/03/15 22:14	
1,2-Dichloroethane	ug/L	ND	1.0	02/03/15 22:14	
1,2-Dichloropropane	ug/L	ND	1.0	02/03/15 22:14	
1,3-Dichlorobenzene	ug/L	ND	1.0	02/03/15 22:14	
1,3-Dichloropropane	ug/L	ND	1.0	02/03/15 22:14	
1,4-Dichlorobenzene	ug/L	ND	1.0	02/03/15 22:14	
2,2-Dichloropropane	ug/L	ND	1.0	02/03/15 22:14	
2-Butanone (MEK)	ug/L	ND	5.0	02/03/15 22:14	
2-Chlorotoluene	ug/L	ND	1.0	02/03/15 22:14	
2-Hexanone	ug/L	ND	5.0	02/03/15 22:14	
4-Chlorotoluene	ug/L	ND	1.0	02/03/15 22:14	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	02/03/15 22:14	
Acetone	ug/L	ND	25.0	02/03/15 22:14	
Benzene	ug/L	ND	1.0	02/03/15 22:14	
Bromobenzene	ug/L	ND	1.0	02/03/15 22:14	
Bromochloromethane	ug/L	ND	1.0	02/03/15 22:14	
Bromodichloromethane	ug/L	ND	1.0	02/03/15 22:14	
Bromoform	ug/L	ND	1.0	02/03/15 22:14	
Bromomethane	ug/L	ND	2.0	02/03/15 22:14	
Carbon tetrachloride	ug/L	ND	1.0	02/03/15 22:14	
Chlorobenzene	ug/L	ND	1.0	02/03/15 22:14	
Chloroethane	ug/L	ND	1.0	02/03/15 22:14	
Chloroform	ug/L	ND	1.0	02/03/15 22:14	
Chloromethane	ug/L	ND	1.0	02/03/15 22:14	
cis-1,2-Dichloroethene	ug/L	ND	1.0	02/03/15 22:14	
cis-1,3-Dichloropropene	ug/L	ND	1.0	02/03/15 22:14	
Dibromochloromethane	ug/L	ND	1.0	02/03/15 22:14	
Dibromomethane	ug/L	ND	1.0	02/03/15 22:14	
Dichlorodifluoromethane	ug/L	ND	1.0	02/03/15 22:14	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

METHOD BLANK: 1383462 Matrix: Water
Associated Lab Samples: 92234861005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	02/03/15 22:14	
Ethylbenzene	ug/L	ND	1.0	02/03/15 22:14	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	02/03/15 22:14	
m&p-Xylene	ug/L	ND	2.0	02/03/15 22:14	
Methyl-tert-butyl ether	ug/L	ND	1.0	02/03/15 22:14	
Methylene Chloride	ug/L	ND	2.0	02/03/15 22:14	
Naphthalene	ug/L	ND	1.0	02/03/15 22:14	
o-Xylene	ug/L	ND	1.0	02/03/15 22:14	
p-Isopropyltoluene	ug/L	ND	1.0	02/03/15 22:14	
Styrene	ug/L	ND	1.0	02/03/15 22:14	
Tetrachloroethene	ug/L	ND	1.0	02/03/15 22:14	
Toluene	ug/L	ND	1.0	02/03/15 22:14	
trans-1,2-Dichloroethene	ug/L	ND	1.0	02/03/15 22:14	
trans-1,3-Dichloropropene	ug/L	ND	1.0	02/03/15 22:14	
Trichloroethene	ug/L	ND	1.0	02/03/15 22:14	
Trichlorofluoromethane	ug/L	ND	1.0	02/03/15 22:14	
Vinyl acetate	ug/L	ND	2.0	02/03/15 22:14	
Vinyl chloride	ug/L	ND	1.0	02/03/15 22:14	
Xylene (Total)	ug/L	ND	2.0	02/03/15 22:14	
1,2-Dichloroethane-d4 (S)	%	98	70-130	02/03/15 22:14	
4-Bromofluorobenzene (S)	%	98	70-130	02/03/15 22:14	
Toluene-d8 (S)	%	97	70-130	02/03/15 22:14	

LABORATORY CONTROL SAMPLE: 1383463

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	53.1	106	70-130	
1,1,1-Trichloroethane	ug/L	50	51.2	102	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	54.1	108	70-130	
1,1,2-Trichloroethane	ug/L	50	53.3	107	70-130	
1,1-Dichloroethane	ug/L	50	53.0	106	70-130	
1,1-Dichloroethene	ug/L	50	51.2	102	70-132	
1,1-Dichloropropene	ug/L	50	56.5	113	70-130	
1,2,3-Trichlorobenzene	ug/L	50	56.5	113	70-135	
1,2,3-Trichloropropane	ug/L	50	54.0	108	70-130	
1,2,4-Trichlorobenzene	ug/L	50	57.1	114	70-134	
1,2-Dibromo-3-chloropropane	ug/L	50	58.0	116	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	55.4	111	70-130	
1,2-Dichlorobenzene	ug/L	50	54.5	109	70-130	
1,2-Dichloroethane	ug/L	50	50.8	102	70-130	
1,2-Dichloropropane	ug/L	50	54.1	108	70-130	
1,3-Dichlorobenzene	ug/L	50	52.1	104	70-130	
1,3-Dichloropropane	ug/L	50	54.9	110	70-130	
1,4-Dichlorobenzene	ug/L	50	52.0	104	70-130	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

LABORATORY CONTROL SAMPLE: 1383463

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	48.4	97	58-145	
2-Butanone (MEK)	ug/L	100	110	110	70-145	
2-Chlorotoluene	ug/L	50	47.0	94	70-130	
2-Hexanone	ug/L	100	110	110	70-144	
4-Chlorotoluene	ug/L	50	51.3	103	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	108	108	70-140	
Acetone	ug/L	100	97.4	97	50-175	
Benzene	ug/L	50	55.1	110	70-130	
Bromobenzene	ug/L	50	53.0	106	70-130	
Bromochloromethane	ug/L	50	52.9	106	70-130	
Bromodichloromethane	ug/L	50	46.7	93	70-130	
Bromoform	ug/L	50	52.0	104	70-130	
Bromomethane	ug/L	50	51.4	103	54-130	
Carbon tetrachloride	ug/L	50	51.8	104	70-132	
Chlorobenzene	ug/L	50	52.1	104	70-130	
Chloroethane	ug/L	50	56.8	114	64-134	
Chloroform	ug/L	50	48.4	97	70-130	
Chloromethane	ug/L	50	54.5	109	64-130	
cis-1,2-Dichloroethene	ug/L	50	55.5	111	70-131	
cis-1,3-Dichloropropene	ug/L	50	54.7	109	70-130	
Dibromochloromethane	ug/L	50	50.7	101	70-130	
Dibromomethane	ug/L	50	52.9	106	70-131	
Dichlorodifluoromethane	ug/L	50	55.4	111	56-130	
Diisopropyl ether	ug/L	50	51.5	103	70-130	
Ethylbenzene	ug/L	50	51.8	104	70-130	
Hexachloro-1,3-butadiene	ug/L	50	53.0	106	70-130	
m&p-Xylene	ug/L	100	103	103	70-130	
Methyl-tert-butyl ether	ug/L	50	53.3	107	70-130	
Methylene Chloride	ug/L	50	53.7	107	63-130	
Naphthalene	ug/L	50	60.2	120	70-138	
o-Xylene	ug/L	50	51.7	103	70-130	
p-Isopropyltoluene	ug/L	50	52.9	106	70-130	
Styrene	ug/L	50	55.7	111	70-130	
Tetrachloroethene	ug/L	50	50.2	100	70-130	
Toluene	ug/L	50	54.0	108	70-130	
trans-1,2-Dichloroethene	ug/L	50	53.6	107	70-130	
trans-1,3-Dichloropropene	ug/L	50	54.2	108	70-132	
Trichloroethene	ug/L	50	51.2	102	70-130	
Trichlorofluoromethane	ug/L	50	52.1	104	62-133	
Vinyl acetate	ug/L	100	106	106	66-157	
Vinyl chloride	ug/L	50	60.3	121	50-150	
Xylene (Total)	ug/L	150	155	103	70-130	
1,2-Dichloroethane-d4 (S)	%			101	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Toluene-d8 (S)	%			100	70-130	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

MATRIX SPIKE SAMPLE: 1383466

Parameter	Units	92234861005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	21.7	108	70-130	
1,1,1-Trichloroethane	ug/L	ND	20	22.8	114	70-130	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	21.8	109	70-130	
1,1,2-Trichloroethane	ug/L	ND	20	21.6	108	70-130	
1,1-Dichloroethane	ug/L	ND	20	24.4	122	70-130	
1,1-Dichloroethene	ug/L	ND	20	23.3	117	70-166	
1,1-Dichloropropene	ug/L	ND	20	25.9	129	70-130	
1,2,3-Trichlorobenzene	ug/L	ND	20	18.4	92	70-130	
1,2,3-Trichloropropane	ug/L	ND	20	20.9	105	70-130	
1,2,4-Trichlorobenzene	ug/L	ND	20	20.0	100	70-130	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20.0	100	70-130	
1,2-Dibromoethane (EDB)	ug/L	ND	20	22.3	112	70-130	
1,2-Dichlorobenzene	ug/L	ND	20	22.0	110	70-130	
1,2-Dichloroethane	ug/L	ND	20	22.9	110	70-130	
1,2-Dichloropropane	ug/L	ND	20	23.6	118	70-130	
1,3-Dichlorobenzene	ug/L	ND	20	21.9	110	70-130	
1,3-Dichloropropane	ug/L	ND	20	23.1	116	70-130	
1,4-Dichlorobenzene	ug/L	ND	20	21.9	109	70-130	
2,2-Dichloropropane	ug/L	ND	20	19.6	98	70-130	
2-Butanone (MEK)	ug/L	ND	40	46.2	116	70-130	
2-Chlorotoluene	ug/L	ND	20	20.8	104	70-130	
2-Hexanone	ug/L	ND	40	45.8	115	70-130	
4-Chlorotoluene	ug/L	ND	20	23.0	115	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	46.0	115	70-130	
Acetone	ug/L	ND	40	47.9	116	70-130	
Benzene	ug/L	ND	20	26.0	125	70-148	
Bromobenzene	ug/L	ND	20	23.0	115	70-130	
Bromochloromethane	ug/L	ND	20	22.5	113	70-130	
Bromodichloromethane	ug/L	ND	20	19.5	98	70-130	
Bromoform	ug/L	ND	20	17.6	88	70-130	
Bromomethane	ug/L	ND	20	16.9	85	70-130	
Carbon tetrachloride	ug/L	ND	20	22.7	114	70-130	
Chlorobenzene	ug/L	ND	20	22.1	110	70-146	
Chloroethane	ug/L	ND	20	28.0	140	70-130	M0
Chloroform	ug/L	ND	20	21.8	109	70-130	
Chloromethane	ug/L	ND	20	26.8	134	70-130	M0
cis-1,2-Dichloroethene	ug/L	ND	20	24.4	122	70-130	
cis-1,3-Dichloropropene	ug/L	ND	20	21.4	107	70-130	
Dibromochloromethane	ug/L	ND	20	18.8	94	70-130	
Dibromomethane	ug/L	ND	20	19.6	98	70-130	
Dichlorodifluoromethane	ug/L	ND	20	23.9	119	70-130	
Diisopropyl ether	ug/L	ND	20	24.8	123	70-130	
Ethylbenzene	ug/L	ND	20	23.1	115	70-130	
Hexachloro-1,3-butadiene	ug/L	ND	20	23.6	118	70-130	
m&p-Xylene	ug/L	ND	40	46.7	116	70-130	
Methyl-tert-butyl ether	ug/L	ND	20	22.2	110	70-130	
Methylene Chloride	ug/L	ND	20	26.7	133	70-130	M0

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

MATRIX SPIKE SAMPLE: 1383466

Parameter	Units	92234861005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/L	ND	20	21.4	106	70-130	
o-Xylene	ug/L	ND	20	22.2	110	70-130	
p-Isopropyltoluene	ug/L	ND	20	22.1	110	70-130	
Styrene	ug/L	ND	20	22.7	113	70-130	
Tetrachloroethene	ug/L	1.3	20	22.4	106	70-130	
Toluene	ug/L	ND	20	23.5	117	70-155	
trans-1,2-Dichloroethene	ug/L	ND	20	24.3	122	70-130	
trans-1,3-Dichloropropene	ug/L	ND	20	21.6	108	70-130	
Trichloroethene	ug/L	1.1	20	22.7	108	69-151	
Trichlorofluoromethane	ug/L	ND	20	26.0	130	70-130	
Vinyl acetate	ug/L	ND	40	38.8	97	70-130	
Vinyl chloride	ug/L	ND	20	26.5	132	70-130	M0
1,2-Dichloroethane-d4 (S)	%				104	70-130	
4-Bromofluorobenzene (S)	%				91	70-130	
Toluene-d8 (S)	%				101	70-130	

SAMPLE DUPLICATE: 1383465

Parameter	Units	92235771004 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		
1,1,1-Trichloroethane	ug/L	ND	ND		
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		
1,1,2-Trichloroethane	ug/L	ND	ND		
1,1-Dichloroethane	ug/L	ND	ND		
1,1-Dichloroethene	ug/L	ND	ND		
1,1-Dichloropropene	ug/L	ND	ND		
1,2,3-Trichlorobenzene	ug/L	ND	ND		
1,2,3-Trichloropropane	ug/L	ND	ND		
1,2,4-Trichlorobenzene	ug/L	ND	ND		
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		
1,2-Dibromoethane (EDB)	ug/L	ND	ND		
1,2-Dichlorobenzene	ug/L	ND	ND		
1,2-Dichloroethane	ug/L	ND	ND		
1,2-Dichloropropane	ug/L	ND	ND		
1,3-Dichlorobenzene	ug/L	ND	ND		
1,3-Dichloropropane	ug/L	ND	ND		
1,4-Dichlorobenzene	ug/L	ND	ND		
2,2-Dichloropropane	ug/L	ND	ND		
2-Butanone (MEK)	ug/L	ND	ND		
2-Chlorotoluene	ug/L	ND	ND		
2-Hexanone	ug/L	ND	ND		
4-Chlorotoluene	ug/L	ND	ND		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		
Acetone	ug/L	ND	ND		
Benzene	ug/L	ND	ND		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(704)875-9092

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

SAMPLE DUPLICATE: 1383465

Parameter	Units	92235771004 Result	Dup Result	RPD	Qualifiers
Bromobenzene	ug/L	ND	ND		
Bromochloromethane	ug/L	ND	ND		
Bromodichloromethane	ug/L	ND	ND		
Bromoform	ug/L	ND	ND		
Bromomethane	ug/L	ND	ND		
Carbon tetrachloride	ug/L	ND	ND		
Chlorobenzene	ug/L	ND	ND		
Chloroethane	ug/L	ND	ND		
Chloroform	ug/L	ND	ND		
Chloromethane	ug/L	ND	ND		
cis-1,2-Dichloroethene	ug/L	ND	ND		
cis-1,3-Dichloropropene	ug/L	ND	ND		
Dibromochloromethane	ug/L	ND	ND		
Dibromomethane	ug/L	ND	ND		
Dichlorodifluoromethane	ug/L	ND	ND		
Diisopropyl ether	ug/L	ND	ND		
Ethylbenzene	ug/L	ND	ND		
Hexachloro-1,3-butadiene	ug/L	ND	ND		
m&p-Xylene	ug/L	ND	ND		
Methyl-tert-butyl ether	ug/L	ND	ND		
Methylene Chloride	ug/L	ND	ND		
Naphthalene	ug/L	ND	ND		
o-Xylene	ug/L	ND	ND		
p-Isopropyltoluene	ug/L	ND	ND		
Styrene	ug/L	ND	ND		
Tetrachloroethene	ug/L	ND	ND		
Toluene	ug/L	ND	ND		
trans-1,2-Dichloroethene	ug/L	ND	ND		
trans-1,3-Dichloropropene	ug/L	ND	ND		
Trichloroethene	ug/L	ND	ND		
Trichlorofluoromethane	ug/L	ND	ND		
Vinyl acetate	ug/L	ND	ND		
Vinyl chloride	ug/L	ND	ND		
Xylene (Total)	ug/L	ND	ND		
1,2-Dichloroethane-d4 (S)	%	102	99	4	
4-Bromofluorobenzene (S)	%	89	88	1	
Toluene-d8 (S)	%	97	98	0	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

QC Batch: MSV/30140 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92234861001, 92234861002, 92234861003, 92234861004

METHOD BLANK: 1378439 Matrix: Solid
Associated Lab Samples: 92234861001, 92234861002, 92234861003, 92234861004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	4.5	01/27/15 12:26	
1,1,1-Trichloroethane	ug/kg	ND	4.5	01/27/15 12:26	
1,1,2,2-Tetrachloroethane	ug/kg	ND	4.5	01/27/15 12:26	
1,1,2-Trichloroethane	ug/kg	ND	4.5	01/27/15 12:26	
1,1-Dichloroethane	ug/kg	ND	4.5	01/27/15 12:26	
1,1-Dichloroethene	ug/kg	ND	4.5	01/27/15 12:26	
1,1-Dichloropropene	ug/kg	ND	4.5	01/27/15 12:26	
1,2,3-Trichlorobenzene	ug/kg	ND	4.5	01/27/15 12:26	
1,2,3-Trichloropropane	ug/kg	ND	4.5	01/27/15 12:26	
1,2,4-Trichlorobenzene	ug/kg	ND	4.5	01/27/15 12:26	
1,2,4-Trimethylbenzene	ug/kg	ND	4.5	01/27/15 12:26	
1,2-Dibromo-3-chloropropane	ug/kg	ND	4.5	01/27/15 12:26	
1,2-Dibromoethane (EDB)	ug/kg	ND	4.5	01/27/15 12:26	
1,2-Dichlorobenzene	ug/kg	ND	4.5	01/27/15 12:26	
1,2-Dichloroethane	ug/kg	ND	4.5	01/27/15 12:26	
1,2-Dichloropropane	ug/kg	ND	4.5	01/27/15 12:26	
1,3,5-Trimethylbenzene	ug/kg	ND	4.5	01/27/15 12:26	
1,3-Dichlorobenzene	ug/kg	ND	4.5	01/27/15 12:26	
1,3-Dichloropropane	ug/kg	ND	4.5	01/27/15 12:26	
1,4-Dichlorobenzene	ug/kg	ND	4.5	01/27/15 12:26	
2,2-Dichloropropane	ug/kg	ND	4.5	01/27/15 12:26	
2-Butanone (MEK)	ug/kg	ND	90.9	01/27/15 12:26	
2-Chlorotoluene	ug/kg	ND	4.5	01/27/15 12:26	
2-Hexanone	ug/kg	ND	45.5	01/27/15 12:26	
4-Chlorotoluene	ug/kg	ND	4.5	01/27/15 12:26	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	45.5	01/27/15 12:26	
Acetone	ug/kg	ND	90.9	01/27/15 12:26	
Benzene	ug/kg	ND	4.5	01/27/15 12:26	
Bromobenzene	ug/kg	ND	4.5	01/27/15 12:26	
Bromochloromethane	ug/kg	ND	4.5	01/27/15 12:26	
Bromodichloromethane	ug/kg	ND	4.5	01/27/15 12:26	
Bromoform	ug/kg	ND	4.5	01/27/15 12:26	
Bromomethane	ug/kg	ND	9.1	01/27/15 12:26	
Carbon tetrachloride	ug/kg	ND	4.5	01/27/15 12:26	
Chlorobenzene	ug/kg	ND	4.5	01/27/15 12:26	
Chloroethane	ug/kg	ND	9.1	01/27/15 12:26	
Chloroform	ug/kg	ND	4.5	01/27/15 12:26	
Chloromethane	ug/kg	ND	9.1	01/27/15 12:26	
cis-1,2-Dichloroethene	ug/kg	ND	4.5	01/27/15 12:26	
cis-1,3-Dichloropropene	ug/kg	ND	4.5	01/27/15 12:26	
Dibromochloromethane	ug/kg	ND	4.5	01/27/15 12:26	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

METHOD BLANK: 1378439 Matrix: Solid
Associated Lab Samples: 92234861001, 92234861002, 92234861003, 92234861004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/kg	ND	4.5	01/27/15 12:26	
Dichlorodifluoromethane	ug/kg	ND	9.1	01/27/15 12:26	
Diisopropyl ether	ug/kg	ND	4.5	01/27/15 12:26	
Ethylbenzene	ug/kg	ND	4.5	01/27/15 12:26	
Hexachloro-1,3-butadiene	ug/kg	ND	4.5	01/27/15 12:26	
Isopropylbenzene (Cumene)	ug/kg	ND	4.5	01/27/15 12:26	
m&p-Xylene	ug/kg	ND	9.1	01/27/15 12:26	
Methyl-tert-butyl ether	ug/kg	ND	4.5	01/27/15 12:26	
Methylene Chloride	ug/kg	ND	18.2	01/27/15 12:26	
n-Butylbenzene	ug/kg	ND	4.5	01/27/15 12:26	
n-Propylbenzene	ug/kg	ND	4.5	01/27/15 12:26	
Naphthalene	ug/kg	ND	4.5	01/27/15 12:26	
o-Xylene	ug/kg	ND	4.5	01/27/15 12:26	
p-Isopropyltoluene	ug/kg	ND	4.5	01/27/15 12:26	
sec-Butylbenzene	ug/kg	ND	4.5	01/27/15 12:26	
Styrene	ug/kg	ND	4.5	01/27/15 12:26	
tert-Butylbenzene	ug/kg	ND	4.5	01/27/15 12:26	
Tetrachloroethene	ug/kg	ND	4.5	01/27/15 12:26	
Toluene	ug/kg	ND	4.5	01/27/15 12:26	
trans-1,2-Dichloroethene	ug/kg	ND	4.5	01/27/15 12:26	
trans-1,3-Dichloropropene	ug/kg	ND	4.5	01/27/15 12:26	
Trichloroethene	ug/kg	ND	4.5	01/27/15 12:26	
Trichlorofluoromethane	ug/kg	ND	4.5	01/27/15 12:26	
Vinyl acetate	ug/kg	ND	45.5	01/27/15 12:26	
Vinyl chloride	ug/kg	ND	9.1	01/27/15 12:26	
Xylene (Total)	ug/kg	ND	9.1	01/27/15 12:26	
1,2-Dichloroethane-d4 (S)	%	109	70-132	01/27/15 12:26	
4-Bromofluorobenzene (S)	%	93	70-130	01/27/15 12:26	
Toluene-d8 (S)	%	101	70-130	01/27/15 12:26	

LABORATORY CONTROL SAMPLE: 1378440

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	46.2	49.3	107	74-137	
1,1,1-Trichloroethane	ug/kg	46.2	47.0	102	67-140	
1,1,2,2-Tetrachloroethane	ug/kg	46.2	46.1	100	72-141	
1,1,2-Trichloroethane	ug/kg	46.2	49.5	107	78-138	
1,1-Dichloroethane	ug/kg	46.2	45.5	98	69-134	
1,1-Dichloroethene	ug/kg	46.2	43.0	93	67-138	
1,1-Dichloropropene	ug/kg	46.2	50.3	109	69-139	
1,2,3-Trichlorobenzene	ug/kg	46.2	55.5	120	70-146	
1,2,3-Trichloropropane	ug/kg	46.2	48.3	105	69-144	
1,2,4-Trichlorobenzene	ug/kg	46.2	56.1	121	68-148	
1,2,4-Trimethylbenzene	ug/kg	46.2	52.7	114	74-137	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

LABORATORY CONTROL SAMPLE: 1378440

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromo-3-chloropropane	ug/kg	46.2	53.0	115	65-140	
1,2-Dibromoethane (EDB)	ug/kg	46.2	50.2	109	77-135	
1,2-Dichlorobenzene	ug/kg	46.2	52.2	113	77-141	
1,2-Dichloroethane	ug/kg	46.2	46.3	100	65-137	
1,2-Dichloropropane	ug/kg	46.2	47.4	103	72-136	
1,3,5-Trimethylbenzene	ug/kg	46.2	52.7	114	76-133	
1,3-Dichlorobenzene	ug/kg	46.2	51.6	112	74-138	
1,3-Dichloropropane	ug/kg	46.2	49.1	106	71-139	
1,4-Dichlorobenzene	ug/kg	46.2	52.1	113	76-138	
2,2-Dichloropropane	ug/kg	46.2	46.5	101	68-137	
2-Butanone (MEK)	ug/kg	92.4	91.4J	99	58-147	
2-Chlorotoluene	ug/kg	46.2	55.9	121	73-139	
2-Hexanone	ug/kg	92.4	95.5	103	62-145	
4-Chlorotoluene	ug/kg	46.2	51.8	112	76-141	
4-Methyl-2-pentanone (MIBK)	ug/kg	92.4	103	112	64-149	
Acetone	ug/kg	92.4	92.5	100	53-153	
Benzene	ug/kg	46.2	50.4	109	73-135	
Bromobenzene	ug/kg	46.2	48.3	105	75-133	
Bromochloromethane	ug/kg	46.2	47.7	103	73-134	
Bromodichloromethane	ug/kg	46.2	43.8	95	71-135	
Bromoform	ug/kg	46.2	49.4	107	66-141	
Bromomethane	ug/kg	46.2	49.3	107	53-160	
Carbon tetrachloride	ug/kg	46.2	50.7	110	60-145	
Chlorobenzene	ug/kg	46.2	49.4	107	78-130	
Chloroethane	ug/kg	46.2	54.8	119	64-149	
Chloroform	ug/kg	46.2	43.7	95	70-134	
Chloromethane	ug/kg	46.2	46.2	100	52-150	
cis-1,2-Dichloroethene	ug/kg	46.2	47.8	104	70-133	
cis-1,3-Dichloropropene	ug/kg	46.2	49.1	106	68-134	
Dibromochloromethane	ug/kg	46.2	46.7	101	71-138	
Dibromomethane	ug/kg	46.2	46.9	101	74-130	
Dichlorodifluoromethane	ug/kg	46.2	47.0	102	40-160	
Diisopropyl ether	ug/kg	46.2	44.0	95	69-141	
Ethylbenzene	ug/kg	46.2	50.9	110	75-133	
Hexachloro-1,3-butadiene	ug/kg	46.2	54.3	117	68-143	
Isopropylbenzene (Cumene)	ug/kg	46.2	52.5	114	76-143	
m&p-Xylene	ug/kg	92.4	102	110	75-136	
Methyl-tert-butyl ether	ug/kg	46.2	43.1	93	68-144	
Methylene Chloride	ug/kg	46.2	47.7	103	45-154	
n-Butylbenzene	ug/kg	46.2	52.4	113	72-137	
n-Propylbenzene	ug/kg	46.2	50.9	110	76-136	
Naphthalene	ug/kg	46.2	58.3	126	68-151	
o-Xylene	ug/kg	46.2	50.5	109	76-141	
p-Isopropyltoluene	ug/kg	46.2	52.5	114	76-140	
sec-Butylbenzene	ug/kg	46.2	51.4	111	79-139	
Styrene	ug/kg	46.2	51.9	112	79-137	
tert-Butylbenzene	ug/kg	46.2	47.5	103	74-143	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

LABORATORY CONTROL SAMPLE: 1378440

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	46.2	44.0	95	71-138	
Toluene	ug/kg	46.2	49.3	107	74-131	
trans-1,2-Dichloroethene	ug/kg	46.2	45.2	98	67-135	
trans-1,3-Dichloropropene	ug/kg	46.2	49.3	107	65-146	
Trichloroethene	ug/kg	46.2	52.6	114	67-135	F3
Trichlorofluoromethane	ug/kg	46.2	47.5	103	59-144	
Vinyl acetate	ug/kg	92.4	56.7	61	40-160	F3
Vinyl chloride	ug/kg	46.2	43.9	95	56-141	
Xylene (Total)	ug/kg	139	152	110	76-137	
1,2-Dichloroethane-d4 (S)	%			93	70-132	
4-Bromofluorobenzene (S)	%			104	70-130	
Toluene-d8 (S)	%			97	70-130	

MATRIX SPIKE SAMPLE: 1380112

Parameter	Units	92234865001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	23.9	23.3	98	70-130	
1,1,1-Trichloroethane	ug/kg	ND	23.9	29.6	124	70-130	
1,1,2,2-Tetrachloroethane	ug/kg	ND	23.9	21.7	91	70-130	
1,1,2-Trichloroethane	ug/kg	ND	23.9	22.6	95	70-130	
1,1-Dichloroethane	ug/kg	ND	23.9	28.2	118	70-130	
1,1-Dichloroethene	ug/kg	ND	23.9	29.0	122	49-180	
1,1-Dichloropropene	ug/kg	ND	23.9	31.3	131	70-130	M1
1,2,3-Trichlorobenzene	ug/kg	ND	23.9	24.7	104	70-130	
1,2,3-Trichloropropane	ug/kg	ND	23.9	24.4	102	70-130	
1,2,4-Trichlorobenzene	ug/kg	ND	23.9	23.8	100	70-130	
1,2,4-Trimethylbenzene	ug/kg	ND	23.9	25.5	107	70-130	
1,2-Dibromo-3-chloropropane	ug/kg	ND	23.9	25.0	105	70-130	
1,2-Dibromoethane (EDB)	ug/kg	ND	23.9	24.3	102	70-130	
1,2-Dichlorobenzene	ug/kg	ND	23.9	24.7	103	70-130	
1,2-Dichloroethane	ug/kg	ND	23.9	27.2	114	70-130	
1,2-Dichloropropane	ug/kg	ND	23.9	22.8	96	70-130	
1,3,5-Trimethylbenzene	ug/kg	ND	23.9	25.6	107	70-130	
1,3-Dichlorobenzene	ug/kg	ND	23.9	23.6	99	70-130	
1,3-Dichloropropane	ug/kg	ND	23.9	24.3	102	70-130	
1,4-Dichlorobenzene	ug/kg	ND	23.9	24.2	101	70-130	
2,2-Dichloropropane	ug/kg	ND	23.9	29.1	122	70-130	
2-Butanone (MEK)	ug/kg	ND	47.8	52.8J	111	70-130	
2-Chlorotoluene	ug/kg	ND	23.9	26.8	113	70-130	
2-Hexanone	ug/kg	ND	47.8	41.6J	87	70-130	
4-Chlorotoluene	ug/kg	ND	23.9	24.6	103	70-130	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	47.8	44.6J	93	70-130	
Acetone	ug/kg	ND	47.8	47.9J	100	70-130	
Benzene	ug/kg	ND	23.9	24.8	104	50-166	
Bromobenzene	ug/kg	ND	23.9	24.7	104	70-130	

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REPORT OF LABORATORY ANALYSIS

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(704)875-9092

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

MATRIX SPIKE SAMPLE: 1380112

Parameter	Units	92234865001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromochloromethane	ug/kg	ND	23.9	28.5	120	70-130	
Bromodichloromethane	ug/kg	ND	23.9	19.9	84	70-130	
Bromoform	ug/kg	ND	23.9	20.9	87	70-130	
Bromomethane	ug/kg	ND	23.9	40.7	171	70-130	M1
Carbon tetrachloride	ug/kg	ND	23.9	25.0	105	70-130	
Chlorobenzene	ug/kg	ND	23.9	23.8	100	43-169	
Chloroethane	ug/kg	ND	23.9	35.2	147	70-130	M1
Chloroform	ug/kg	ND	23.9	26.5	111	70-130	
Chloromethane	ug/kg	ND	23.9	33.5	140	70-130	M1
cis-1,2-Dichloroethene	ug/kg	ND	23.9	29.3	123	70-130	
cis-1,3-Dichloropropene	ug/kg	ND	23.9	22.0	92	70-130	
Dibromochloromethane	ug/kg	ND	23.9	22.1	93	70-130	
Dibromomethane	ug/kg	ND	23.9	22.0	92	70-130	
Dichlorodifluoromethane	ug/kg	ND	23.9	30.3	127	70-130	
Diisopropyl ether	ug/kg	ND	23.9	26.0	109	70-130	
Ethylbenzene	ug/kg	ND	23.9	25.5	107	70-130	
Hexachloro-1,3-butadiene	ug/kg	ND	23.9	24.6	103	70-130	
Isopropylbenzene (Cumene)	ug/kg	ND	23.9	25.2	106	70-130	
m&p-Xylene	ug/kg	ND	47.8	50.9	107	70-130	
Methyl-tert-butyl ether	ug/kg	ND	23.9	27.1	114	70-130	
Methylene Chloride	ug/kg	ND	23.9	30.4	117	70-130	
n-Butylbenzene	ug/kg	ND	23.9	26.5	111	70-130	
n-Propylbenzene	ug/kg	ND	23.9	24.8	104	70-130	
Naphthalene	ug/kg	ND	23.9	24.5	103	70-130	
o-Xylene	ug/kg	ND	23.9	23.5	98	70-130	
p-Isopropyltoluene	ug/kg	ND	23.9	26.0	109	70-130	
sec-Butylbenzene	ug/kg	ND	23.9	25.3	106	70-130	
Styrene	ug/kg	ND	23.9	23.7	99	70-130	
tert-Butylbenzene	ug/kg	ND	23.9	23.8	100	70-130	
Tetrachloroethene	ug/kg	ND	23.9	22.5	94	70-130	
Toluene	ug/kg	ND	23.9	23.6	99	52-163	
trans-1,2-Dichloroethene	ug/kg	ND	23.9	28.4	119	70-130	
trans-1,3-Dichloropropene	ug/kg	ND	23.9	22.6	95	70-130	
Trichloroethene	ug/kg	ND	23.9	23.6	99	49-167	
Trichlorofluoromethane	ug/kg	ND	23.9	34.9	146	70-130	M1
Vinyl acetate	ug/kg	ND	47.8	42.2J	88	70-130	
Vinyl chloride	ug/kg	ND	23.9	30.7	129	70-130	
1,2-Dichloroethane-d4 (S)	%				126	70-132	
4-Bromofluorobenzene (S)	%				100	70-130	
Toluene-d8 (S)	%				99	70-130	

SAMPLE DUPLICATE: 1380111

Parameter	Units	92234861002 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		

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

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

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

SAMPLE DUPLICATE: 1380111

Parameter	Units	92234861002 Result	Dup Result	RPD	Qualifiers
1,1,1-Trichloroethane	ug/kg	ND	ND		
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		
1,1,2-Trichloroethane	ug/kg	ND	ND		
1,1-Dichloroethane	ug/kg	ND	ND		
1,1-Dichloroethene	ug/kg	ND	ND		
1,1-Dichloropropene	ug/kg	ND	ND		
1,2,3-Trichlorobenzene	ug/kg	ND	ND		
1,2,3-Trichloropropane	ug/kg	ND	ND		
1,2,4-Trichlorobenzene	ug/kg	ND	ND		
1,2,4-Trimethylbenzene	ug/kg	ND	ND		
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		
1,2-Dichlorobenzene	ug/kg	ND	ND		
1,2-Dichloroethane	ug/kg	ND	ND		
1,2-Dichloropropane	ug/kg	ND	ND		
1,3,5-Trimethylbenzene	ug/kg	ND	ND		
1,3-Dichlorobenzene	ug/kg	ND	ND		
1,3-Dichloropropane	ug/kg	ND	ND		
1,4-Dichlorobenzene	ug/kg	ND	ND		
2,2-Dichloropropane	ug/kg	ND	ND		
2-Butanone (MEK)	ug/kg	ND	ND		
2-Chlorotoluene	ug/kg	ND	ND		
2-Hexanone	ug/kg	ND	ND		
4-Chlorotoluene	ug/kg	ND	ND		
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		
Acetone	ug/kg	ND	ND		
Benzene	ug/kg	ND	ND		
Bromobenzene	ug/kg	ND	ND		
Bromochloromethane	ug/kg	ND	ND		
Bromodichloromethane	ug/kg	ND	ND		
Bromoform	ug/kg	ND	ND		
Bromomethane	ug/kg	ND	ND		
Carbon tetrachloride	ug/kg	ND	ND		
Chlorobenzene	ug/kg	ND	ND		
Chloroethane	ug/kg	ND	ND		
Chloroform	ug/kg	ND	ND		
Chloromethane	ug/kg	ND	ND		
cis-1,2-Dichloroethene	ug/kg	ND	ND		
cis-1,3-Dichloropropene	ug/kg	ND	ND		
Dibromochloromethane	ug/kg	ND	ND		
Dibromomethane	ug/kg	ND	ND		
Dichlorodifluoromethane	ug/kg	ND	ND		
Diisopropyl ether	ug/kg	ND	ND		
Ethylbenzene	ug/kg	ND	ND		
Hexachloro-1,3-butadiene	ug/kg	ND	ND		
Isopropylbenzene (Cumene)	ug/kg	ND	ND		
m&p-Xylene	ug/kg	ND	ND		

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

SAMPLE DUPLICATE: 1380111

Parameter	Units	92234861002 Result	Dup Result	RPD	Qualifiers
Methyl-tert-butyl ether	ug/kg	ND	ND		
Methylene Chloride	ug/kg	ND	ND		
n-Butylbenzene	ug/kg	ND	ND		
n-Propylbenzene	ug/kg	ND	ND		
Naphthalene	ug/kg	ND	ND		
o-Xylene	ug/kg	ND	ND		
p-Isopropyltoluene	ug/kg	ND	ND		
sec-Butylbenzene	ug/kg	ND	ND		
Styrene	ug/kg	ND	ND		
tert-Butylbenzene	ug/kg	ND	ND		
Tetrachloroethene	ug/kg	ND	ND		
Toluene	ug/kg	ND	ND		
trans-1,2-Dichloroethene	ug/kg	ND	ND		
trans-1,3-Dichloropropene	ug/kg	ND	ND		
Trichloroethene	ug/kg	ND	ND		
Trichlorofluoromethane	ug/kg	ND	ND		
Vinyl acetate	ug/kg	ND	ND		
Vinyl chloride	ug/kg	ND	ND		
Xylene (Total)	ug/kg	ND	ND		
1,2-Dichloroethane-d4 (S)	%	115	109	6	
4-Bromofluorobenzene (S)	%	88	97	9	
Toluene-d8 (S)	%	105	100	5	1g

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

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

QUALITY CONTROL DATA

Project: ROW-504 32213
Pace Project No.: 92234861

QC Batch: PMST/7477 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92234861001, 92234861002, 92234861003, 92234861004

SAMPLE DUPLICATE: 1381050

Parameter	Units	92234861001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	19.9	20.6	3	

SAMPLE DUPLICATE: 1381051

Parameter	Units	92235461003 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	15.4	15.1	2	

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

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

QUALIFIERS

Project: ROW-504 32213
Pace Project No.: 92234861

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

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 (8270 listed analyte) decomposes to Azobenzene.

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.

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

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.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

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.
F3	The recovery of the second source standard used to verify the initial calibration curve for this analyte is outside the laboratory's control limits. The result is estimated.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ROW-504 32213
Pace Project No.: 92234861

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92234861005	**TW-7C**	EPA 8260	MSV/30222		
92234861001	**7C-1 (0-2)**	EPA 8260	MSV/30140		
92234861002	**7C-2 (0-2)**	EPA 8260	MSV/30140		
92234861003	**7C-3 (0-2)**	EPA 8260	MSV/30140		
92234861004	**7C-4 (0-2)**	EPA 8260	MSV/30140		
92234861001	**7C-1 (0-2)**	ASTM D2974-87	PMST/7477		
92234861002	**7C-2 (0-2)**	ASTM D2974-87	PMST/7477		
92234861003	**7C-3 (0-2)**	ASTM D2974-87	PMST/7477		
92234861004	**7C-4 (0-2)**	ASTM D2974-87	PMST/7477		

Pace Analytical®	Sample Condition Upon Receipt (SCUR)	Page 1 of 2
	Document Number: F-CHR-CS-003-rev.15	Issuing Authority: Pace Huntersville Quality Office

Client Name: Hart & Hickmann

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ (Client) ☐ Commercial ☐ Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Optional
Proj. Due Date:
Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ (Bubble Bags) ☐ None ☐ Other_____

Thermometer Used: IR Gun T1401 Type of Ice: (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor T1401 No Correction

Corrected Cooler Temp.: 3.1 °C Biological Tissue is Frozen: Yes No (N/A)

Date and Initials of person examining contents: PS 1/26/15

Temp should be above freezing to 6°C Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☐Yes ☑No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes ☐No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix:_____		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review: JG Date: 1/26/15

SRF Review: JG Date: 1/27/15

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)

WO#: 92234861

92234861

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

1885090

Section A Required Client Information:

Company:	HART HICKMAN
Address:	2923 S. Tryon St.
	CLT, NC 28203
Email To:	dgraham@harthickman.com
Phone: 7045860000	Fax:
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	David Graham
Copy To:	
Purchase Order No.:	
Project Name:	ROW-504
Project Number:	

Section C Invoice Information:

Attention:	
Company Name:	(H H)
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: 8260	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TC-1 (0-2)	SL	G			11/24/15	1655		7	3			2				2		X		92234861 001
2	TC-2 (0-2)	"	"			"	1650		"	"			"				"		X		002
3	TC-3 (0-2)	"	"			"	1645		"	"			"				"		X		003
4	TC-4 (0-2)	"	"			"	1700		"	"			"				"		X		004
5	TW-7C	WT	"			11/25/15	1050		3				3						X		005
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
				P-Lam / PACE	11/24/15	800

SAMPLE CONDITIONS			
Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
3.1	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: JC WEAVER

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11/25/15

*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.

Appendix F

Subsurface Investigation Permit and Well Abandonment Record

Mecklenburg County Health Department
Groundwater & Wastewater Services
700 N. Tryon St., Suite 211
Charlotte, NC 28202
Phone: (704) 336-5103
Fax: (704) 336-6894
http://groundwater.charmeck.org

Bill To: **Agent**

Permit Issuance Date: 12/30/2014

Permit Number: 70002211

SUBSURFACE INVESTIGATION PERMIT

I. Well Owner Information

Name: NC DOT
Attn: Gordon Box
Phone #: 919-707-6859
Address 1: 1020 Birch Ridge Dr.
Address 2: _____
City: Raleigh State: NC Zip: 27610

II. Agent Information *(if applicable)*

Name: Hart & Hickman
Attn: David Graham
Phone #: 704-586-0007
Address 1: 2923 S. Tryon St, Suite 100
Address 2: _____
City: Charlotte State: NC Zip: 28203

III. Site Information

Site Name; Parking Lot NC DOT Parcel 7C
Parcel ID Number: 07315115
Address: 508 W 4TH ST
City: CHARLOTTE State: NC Zip: 28202

General Conditions of This Permit:

- This permit shall be VALID for a period not to exceed twelve (12) months from the date of issuance.
- This permit is VALID for the site specified above and must be on-site during the course of the investigation and made available to a Department representative upon request.
- A North Carolina Certified Well Contrator must perform any well contractor activities associated with this permit.
- All wells shall be constructed and abandoned to the standards of Chapter VI, Section V and Section VI of the Mecklenburg County Groundwater Well Regulations.
- All temporary wells, including those installed using Direct Push Technology, must be abandoned to the standards of Chapter VI, Section VI of the Mecklenburg County Groundwater Well Regulations.
- Registration information for all wells must be submitted to the Department within thirty (30) days of well completion. If water samples are collected, it is recommended that the well NOT be registered until the analytical results are received.

WELL ABANDONMENT RECORD

This form can be used for single or multiple wells

1. Well Contractor Information:

KENNY SARGENT

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

A - 4226

NC Well Contractor Certification Number

GEOLOGIC EXPLORATION, INC

Company Name

2. Well Construction Permit #: _____

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

3. Well use (check well use):

Water Supply Well:	
☐Agricultural	☐Municipal/Public
☐Geothermal (Heating/Cooling Supply)	☐Residential Water Supply (single)
☐Industrial/Commercial	☐Residential Water Supply (shared)
☐Irrigation	
Non-Water Supply Well:	
☑Monitoring	☐Recovery
Injection Well:	
☐Aquifer Recharge	☐Groundwater Remediation
☐Aquifer Storage and Recovery	☐Salinity Barrier
☐Aquifer Test	☐Stormwater Drainage
☐Experimental Technology	☐Subsidence Control
☐Geothermal (Closed Loop)	☐Tracer
☐Geothermal (Heating/Cooling Return)	☐Other (explain under 7g)

4. Date well(s) abandoned: 01/25/15

5a. Well location:

ROW - 504

Facility/Owner Name

Facility ID# (if applicable)

508 WEST 4TH STREET CHARLOTTE 28202

Physical Address, City, and Zip

MECKLENBURG

County

Parcel Identification No. (PIN)

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

35° 13' 49.78" N 80° 50' 51.68" W

CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED

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

6a. Well ID#: TW-7C

6b. Total well depth: 35.0 (ft.)

6c. Borehole diameter: 2.0 (in.)

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

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

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

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

For Internal Use ONLY:

WELL ABANDONMENT DETAILS

7a. Number of wells being abandoned: 1

For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

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

FOR WATER SUPPLY WELLS ONLY:

7c. Type of disinfectant used: _____

7d. Amount of disinfectant used: _____

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

☑ Neat Cement Grout	☐ Bentonite Chips or Pellets
☐ Sand Cement Grout	☐ Dry Clay
☐ Concrete Grout	☐ Drill Cuttings
☐ Specialty Grout	☐ Gravel
☐ Bentonite Slurry	☐ Other (explain under 7g)

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

5.75 GALLONS

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

WELL ABANDONED VIA TREMIE PIPE WITH PORTLAND BENTONITE SLURRY

8. Certification:

Signature of Certified Well Contractor or Well Owner

02/25/15

Date

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

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

SUBMITTAL INSTRUCTIONS

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

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

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

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

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