Revised Initial Abatement Report & Underground Storage Tank Closure Report

Parcel 186, Former City of Greenville Property

1011 Dickinson Avenue

Greenville, Pitt County, North Carolina

WBS Element: 35781.1.2

State Project No. U-3315

Description: Stantonsburg Road/Tenth Street Connector from Memorial Drive (US 13) to Evans Street

January 22, 2015

Terracon Project No. 70147349

Prepared for:

North Carolina Department of Transportation (NCDOT)

GeoEnvironmental Engineering Unit

Prepared by:

Terracon Consultants, Inc.

Raleigh, North Carolina

Terracon

January 22, 2015

North Carolina Department of Transportation (NCDOT)
GeoEnvironmental Engineering Unit
Century Center Complex
Building B
1020 Birch Ridge Road
Raleigh, North Carolina 27610

Attn: Mr. Gordon Box, L.G., GeoEnvironmental Project Manager

Re: Revised Underground Storage Tank Closure Report
Parcel 186, Former City of Greenville Property
1011 Dickinson Avenue
Greenville, Pitt County, North Carolina
Project No. 70147349

Dear Mr. Box:

As requested by NCDOT, Terracon Consultants, Inc. (Terracon), is pleased to present this report of closure activities for the underground storage tank (UST) at the above referenced project site. The purpose was to provide oversight for the removal and disposal of the UST located at the site, and to complete closure activities in general accordance with the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Waste Management (DWM) "Underground Storage Tank Section Guidelines for Site Checks, Tank Closure, and Initial Response and Abatement" Version 1 dated March 1, 2007, Change 3 effective December 1, 2008 (Guidelines).

Contaminant Control Incorporated (CCI) conducted excavation and disposal services for the removal of the UST located at the site.

We appreciate the opportunity to perform these services. Please contact either of the undersigned at (919) 873-2211 if you have questions regarding the information provided in the report.

Sincerely,
Terracon Consultants, Inc.

Prepared by:

Michael H. Frawley, P.E.
Project Engineer

Reviewed by:

Lori C. Denton, P.E.
Environmental Department Manager

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A. SITE INFORMATION

1. Site Identification
   - Date of Report: January 15, 2015
   - Facility ID/Tank No: None
   - Site Name: Former City of Greenville Property
   - Site Street Address: 1011 Dickinson Avenue
     Greenville, Pitt County, North Carolina
   - Description of Geographical Data Point: Excavation pit, located using USGS TOPO Mapping Software
     - Latitude: 35° 36’ 25.1” N Longitude: - 77° 22’ 48.9” W

2. Information about UST System Contacts:

   - UST Owner: Unknown
   - UST Operator: Unknown
   - Property Owner: North Carolina Department of Transportation (NCDOT)
     1020 Birch Ridge Road
     Raleigh, North Carolina 27610
   - Property Occupant: Property is currently vacant, formerly owned by the City of Greenville.
   - Primary Consultant: Terracon Consultants, Inc.
     2401 Brentwood Road, Ste. 107
     Raleigh, North Carolina 27604
     (919) 873-2211
   - Closure Contractor: Contaminant Control, Inc. (CCI)
     438-C Robeson Street
     Fayetteville, NC 28301
     Tel: 910-484-7000
     Fax: 910-484-4978
     Toll-Free:1-800-815-0085
   - Analytical Laboratory: Pace Analytical
     6701 Conference Drive
     Raleigh, North Carolina 27607
     (919) 834-4984
     NC Certification No. 12710

- Date Discovered: August 18, 2014
- Estimated Quantity of Release: Unknown
- Cause of Release: Unknown
- Source of Release: Unknown
- Size and Contents of UST System: One ~1,000-gallon petroleum UST

3. Certification

I, Michael H. Frawley, a Professional Engineer for Terracon Consultants, Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.

NORTH CAROLINA PROFESSIONAL SEAL 041528 ENGINEER MICHAEL H. FRAWLEY

1-22-15

Michael H. Frawley, P.E.

Terracon Consultants, Inc, is licensed to practice geology and engineering in North Carolina. The certification number of the company or corporation is C-367. This license is provided by the NC Board for Licensing of Geologists. The certification number for the North Carolina Board of Examiners for Engineers and Surveyors is F-0869.

B. Site History and Characterization

1. UST Owner/Operator and Other Responsible Party Information

UST ID Number:	UST-1		Facility ID Number:	Unknown
Name of Owner			Dates of Operation	
Unknown			Unknown	
Street Address				
Unknown				
City	State	Zip	Telephone	
Unknown			Unavailable	
Name of Operator			Dates of Operation	
Unknown			Unknown	

2. UST Information

UST No.	Last Contents	Previous Contents	Capacity (gallons)	Const. Details	Tank dimensions (feet)	Desc. of Piping/ pumps	Date Installed	Status of UST	Release associated with UST system?
UST-1	Unknown Petroleum	Unknown Petroleum	1,000	Single-walled steel	4.5' W X 8.5' L	Unknown	Unknown	Closed by removal on 8/21/14	Yes

3. Non-UST Information

- No ASTs or releases associated with ASTs are known at this facility.

4. Release Information

- During the UST removal, visual and olfactory evidence of a release was observed directly beneath the UST.

5. Site Characteristics

- The site is located at 1011 Dickinson Avenue on the southwest corner of Dickinson Avenue and Tenth Street in Greenville, Pitt County, North Carolina. It is our understanding that the site formerly operated as a filling station during the 1920s.
- The site was relatively flat, paved with concrete associated with a parking/driveway area associated with the southern adjacent former Fleming's gas station and asphalt roadway associated with West 10th Street. Drainage occurs to the southeast.

6. Site History

- Terracon completed a Preliminary Site Assessment (PSA) for the site, referred to as Parcel 186, in 2012/2013 in anticipation of NCDOT's acquisition of the parcel (or portion of the parcel) for construction of a new roadway (Terracon Project No. 70127335). Parcel 186 reportedly operated as a filling station from at least 1923 to at least 1929, according to historical fire insurance maps. Currently, the northern portion of the site consists of a grass-covered median. The southern portion of the site is traversed by West 10th Street. The southernmost portion of the site is apparently a paved parking area for Flemings Gasoline Station (Parcel 185).
- During a geophysical investigation for the PSA, two possible (low confidence) metallic USTs were detected within the driveway/parking area of Flemings Gasoline Station, which was the focus of Terracon's UST closure activities and scope of work. Four additional USTs are/were located southeast of the site along the railroad tracks and associated with the Fleming's Service Station; however, removal of these USTs was not included in Terracon's scope of work. Removal of these USTs is being conducted by others for NCDOT. Terracon's scope of work was focused on closure of the two possible USTs situated along the eastern side of the former Fleming's service station parking lot and drive lanes and within the NCDOT right-of-way.
- The western possible USTs identified during Terracon's PSA activities was determined to be buried construction/demolition debris. On August 20, 2014, exploratory excavation of the possible UST location uncovered a large mass of concrete and metal that matched the size and shape delineated by Ground Penetrating Radar (GPR). No visual or odorous evidence of a release was observed during excavation of the concrete and metal mass. The concrete and metal mass was removed and documented prior to the excavation being extended downward to confirm the absence of a UST. No UST was found at this location (See Photo Log, Exhibit 3). The eastern possible UST was confirmed to be an approximately 1,000-gallon UST and is the subject of this Closure Report.

C. Closure Procedure

1. Preparations for closure

- A Health and Safety Plan (HASP) was prepared prior to tank closure activities. The HASP is included as Appendix C.
- North Carolina 811 was contacted to mark underground utilities.
- Geophysical Survey Investigations performed a ground penetrating radar survey of the site to confirm potential UST location(s) and locate underground utilities.

- Traffic control was performed by NCDOT. The right turn lane of Dickinson Avenue was closed at Cross Street and extended to the intersection of Grande Avenue thereby isolating the western extent of West 10th Street.
- CCI obtained a permit to remove the USTs from the Pitt County Department of Emergency Services. A representative from Pitt County was present at the time of the closure. The signed and approved permit is included as Appendix B.
- Concrete pavement covering the UST was cut and removed by CCI.
- Asphalt pavement covering the northern portion of the UST was cut and removed.
- Overburden soils were removed from the top of the UST.

2. Closure Procedures

- On August 20, 2014, CCI removed residual liquids from the UST and purged the remaining vapors from the tanks with dry ice. Terracon personnel monitored the atmosphere within the tank to determine if vapors remained in the UST.
- Following purging of the UST, CCI began to excavate soil from the sides of the tank. The empty tank was removed from the tank pit and placed adjacent to the excavation pit for further inspection. Terracon observed minor areas of pitting and corrosion; however, the UST remained intact and exhibited limited petroleum odors at the time of the tank removal.
- The empty tank was removed from the pit and loaded onto a flat-bed trailer for off-site disposal. A tracked excavator was used to remove the UST.
- The UST was transported to Cohen & Green Salvage Company located at 445 Glidden Street, Fayetteville, North Carolina for disposal by recycling. The UST disposal certificate is included in Appendix D.

3. Residual Material

- Approximately 100 gallons of liquid was removed from the tank with a vacuum truck prior to removing the UST from the ground. The liquid was transported by CCI to Garco, Inc. in Asheboro, North Carolina for disposal. A copy of the service receipt is included in Appendix D.
- During the excavation, discolored and odorous soils were observed beneath the UST. Based on site observations and field soil screening readings, the area of contamination appeared to be confined to a localized area within the east and north portions of the tank excavation.

4. Soil Excavation Activities/Excavation of Contaminated Soil

    - Approximately 43 tons of petroleum-contaminated soil was excavated and loaded into trucks for transport to Soilworks, Inc. in Selma, North Carolina for disposal/recycling. Copies of the service receipts are included in Appendix D. Field screening confirmed that the potentially impacted soils were removed and segregated from the clean overburden.
    - The dimensions of the excavation were approximately 18.5 feet long x 11 feet wide x 8 feet deep.
    - The depth from the land surface to the top of the tank was approximately 2½ feet and the depth to the base of the tank was approximately 7 feet.
    - Groundwater and bedrock were not encountered during tank removal activities.
    - The excavation was backfilled with clean soil that was imported from Mountain Materials in Greenville, North Carolina. Backfill was placed in 6 to 8 inch lifts and compacted with a tracked back-hoe bucket (CAT 312E). NCDOT personnel were on-site observing the backfill and approved the placement and compaction methods. Kenneth Horn, NCDOT Inspector, decided that density testing of the backfill material was not necessary.
    - Upon completion of backfill activities, the surface pavement was replaced with new concrete.
    - On West 10th Street, where appropriate, asphalt pavement was placed over the newly placed concrete following three days of curing.

D. Site Investigation

1. Field Screening

    - Soil samples from the excavation consisted of orange-brown sandy silt.
    - A MiniRAE 3000 photoionization detector (PID) was used to screen the soils at the site.
    - The MiniRAE 3000 PID was calibrated according to manufacturer's procedures prior to arrival on the site utilizing 100 ppm isobutylene for PID calibration and zero air.
    - Elevated PID readings ranging from 7.4 to 77 parts per million (ppm) were measured in the soils screened from the excavation sidewalls and bottom. Soils exhibiting odors were excavated and segregated for off-site disposal.
    - Field screening results are included in Table 2.

2. Soil Sampling Information

    - Following the UST removal, soil samples were collected from each sidewall of the excavation on August 19 and August 20, 2014. The soil samples were submitted for laboratory analysis of Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by EPA Methods 5030/8015 and 3550/8015.
    - After UST closure activities on August 20, 2014, Terracon collected one soil sample (UST1-B) from the tank excavation pit directly beneath the mid-line location of the former tank. The soil sample was collected at approximately 7 - 8 feet below ground surface (bgs) from soils located within 2 feet of the bottom of the tank. The soil sample was submitted for laboratory analysis of Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by EPA Methods 5030/8015 and 3550/8015.
    - TPH DRO constituents were detected at concentrations of 16.6 milligrams per kilogram (mg/kg) and 461 mg/kg in soil samples UST1-E, collected from the east sidewall of the excavation, and UST1-B, collected from the bottom of the excavation, respectively, exceeding the State Action Level of 10 mg/kg.
    - TPH GRO constituents were detected at a concentration of 162 mg/kg in soil sample UST1-B, exceeding the State Action Level of 10 mg/kg.
    - Based on the TPH DRO and TPH GRO concentrations detected in samples UST1-E and UST1-B, Terracon directed Pace Laboratories to analyze the samples using risk-based methods EPA 8260B, 8270D, and the Massachusetts Department of Environmental Protection (MADEP) VPH and EPH.
    - Pace Laboratories contacted Terracon on September 5, 2014 alerting us that samples UST1-E and UST1-B were past their hold times for analysis by EPA 8270D and MADEP VPH. The samples were within the hold times for analysis by EPA 8260B and MADEP EPH. Terracon subsequently alerted NCDOT of the situation and a decision was made to cancel the analysis via EPA 8270D and MADEP VPH while continuing the EPA 8260B and MADEP EPH analysis .
    - The results of the EPA 8260B and MADEP EPH analyses are presented on Tables 4 and 5.

3. Groundwater Sampling Information

    - Groundwater was not encountered during closure activities.

4. Quality Control Measures Information

    - The soil samples were collected from the excavation sidewalls and beneath the center line of the tank by hand with new nitrile gloves and placed in laboratory

prepared glassware, sealed with custody tape and placed on ice in a cooler which was secured with a custody seal. The sample coolers and completed chain-of-custody forms were relinquished to Pace Analytical of Raleigh, North.

- The soil samples collected on August 19 and 20, 2014 were received by the lab on August 21, 2014 at 4:35 pm.

5. Soil Investigation Results

- After excavation of the impacted soils, confirmation soil samples were collected from the base and each sidewall of the excavation. Laboratory analytical results for soil samples collected after over-excavation activities detected analyzed constituents above NCDENR Action Levels in two (UST1-E and UST1-B) of the five soil samples.
- Laboratory analytical results for soil samples collected during the UST closure activities are listed below:

  - UST1-N: DRO – 6.6 mg/kg; GRO - <5.1 mg/kg;
  - UST1-E: DRO – **16.6 mg/kg**; GRO - <6.8 mg/kg;
  - UST1-S: DRO – <6.4 mg/kg; GRO - <7.2 mg/kg;
  - UST1-W: DRO – <5.9 mg/kg; GRO - <6.0 mg/kg; and,
  - UST1-B: DRO – **461 mg/kg**; GRO - **162 mg/kg.**

- Concentrations for benzene exceeded the Soil-to-Groundwater Maximum Soil Contaminant Concentration (MSCC) in soil sample UST1-E.

- Concentrations for benzene, p-isopropylbenzene, naphthalene, 1,2,4-trimethylbenzene, C9 – C18 aliphatics and C11 – C22 aromatics exceeded their respective Soil-to-Groundwater MSCCs in soil sample UST1-N.

- Summary tables of the soil analytical results are included as Table 3, Table 4, and Table 5. Laboratory analytical reports and chain of custody records are included in Appendix F.

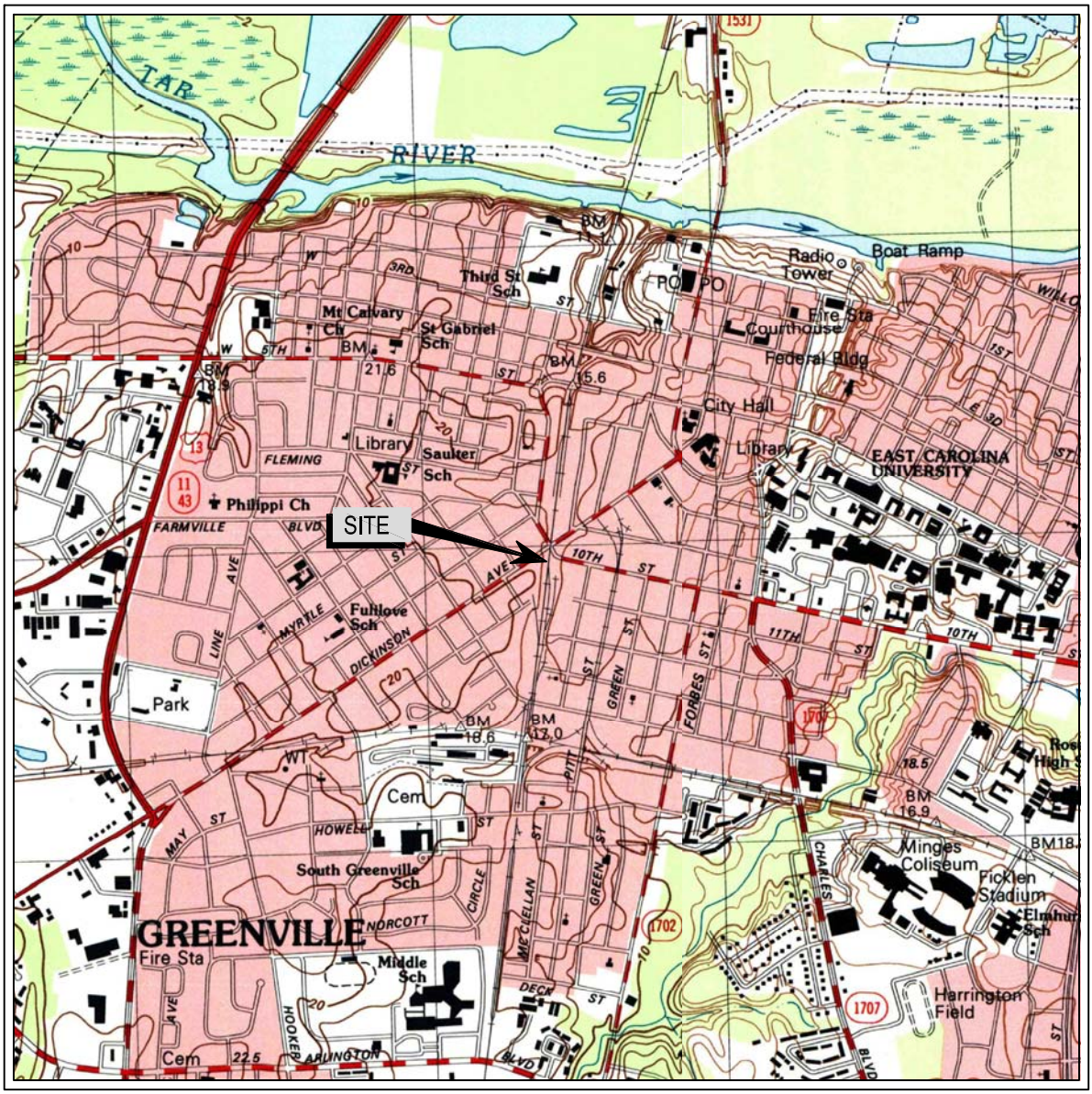
E. Conclusions

- One approximate 1,000-gallon petroleum UST was excavated and removed from the site;

- Laboratory analytical results from soil samples (UST1-E and UST1-B) collected during the UST closure indicated that the TPH DRO and TPH GRO concentrations exceeded the NCDENR Action Levels. Elevated PID readings (readings greater than 20 ppm) were also found in the soils screened from the excavation sidewalls and excavation floor and in the vicinity of soil sample UST1-B;
- Concentrations for numerous petroleum constituents exceeded their respective Soil-to-Groundwater MSCCs in soil samples UST1-E and UST1-B;
- A 24-Hour Release and UST Leak Reporting Form was submitted to the NCDENR UST Section;
- Approximately 43 tons of petroleum-impacted soils were excavated and transported to an off-site disposal facility;
- Free product, groundwater, and/or bedrock were not encountered during tank closure and removal activities; and
- Terracon recommends providing the findings of this assessment to NCDENR and recommends completing a Limited Site Assessment to further evaluate the soil impacts.

FIGURES

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



SCALE 1:24 000

1 .5 0 KILOMETERS 1 2

1000 0 METERS 1000 2000

1 .5 0 1

MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10 000

FEET

CONTOUR INTERVAL 2 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

N

QUADRANGLE

*GREENVILLE SW, NC & GREENVILLE SE, NC

1998

7.5 MINUTE SERIES (TOPOGRAPHIC)

*INDICATES WHICH MAP SITE IS LOCATED ON

Project Mngr:	SJK
Drawn By:	DWD
Checked By:	MHF/MRF
Approved By:	SJK

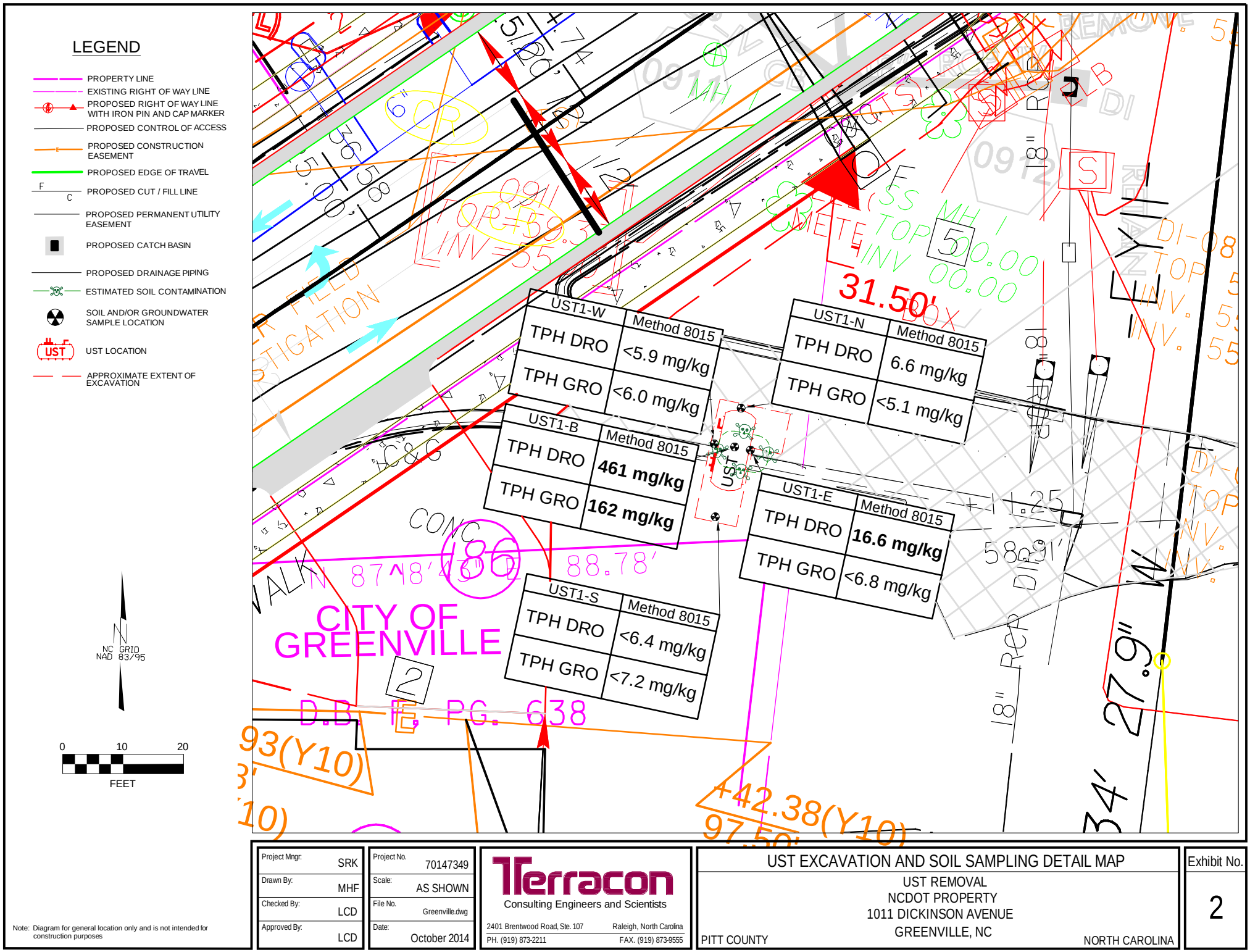
Project No.	70147349
Scale:	AS SHOWN
File No.	UST70147349-1
Date:	AUGUST 2014

Terracon
Consulting Engineers and Scientists
2401 Brentwood Road, Suite 107 Raleigh, NC 27604
(919) 873-2211 (919) 873-9555

TOPOGRAPHIC VICINITY MAP

UST REMOVAL
NCDOT PROPERTY
1011 DICKINSON AVENUE
GREENVILLE, NC

EXHIBIT 1



Note: Diagram for general location only and is not intended for construction purposes

Project Mngr:	SRK
Drawn By:	MHF
Checked By:	LCD
Approved By:	LCD

Project No.	70147349
Scale:	AS SHOWN
File No.	Greenville.dwg
Date:	October 2014

Terracon
Consulting Engineers and Scientists
2401 Brentwood Road, Ste. 107 Raleigh, North Carolina
PH. (919) 873-2211 FAX. (919) 873-9555

UST EXCAVATION AND SOIL SAMPLING DETAIL MAP

UST REMOVAL
NCDOT PROPERTY
1011 DICKINSON AVENUE
GREENVILLE, NC

PITT COUNTY NORTH CAROLINA

Exhibit No. 2

Photographs

Photo #1 View of Parcel 186 Facing Northwest

Photo #2 View of Eastern Potential UST Location

Photo #3 View of Western Potential UST Location

Photo #4 View of remnants of Flemings Gasoline Station

Photo #5 Initial Excavation at Western Potential UST Location

Photo #6 Concrete and Metallic Mass Initially Identified during GPR

Photo #7 Concrete and Metallic Mass at Western Potential UST Location

Photo #8 Excavation Extended Downward to Confirm Absence of UST

Photo #9 Concrete Cut at Eastern Potential UST Location

Photo #10 Initial Excavation and UST Discovery (Eastern Location)

Photo #11 UST Extents Determined

Photo #12 Vacuum Truck used to Empty Tank of Residual Fluids

Photo #13 UST in Preparation for Removal

Photo #14 UST Removed and Loaded onto Trailer for Disposal

Photo #15 Empty Excavation after UST Removal

Photo #16 Excavation Backfilled with Imported Granular Soil

Photo #17 Surface Concrete Replaced

Photo #18 Asphalt Replaced on W 10th St.

TABLES

Table 1
UST Information
Parcel 186, Former City of Greenville Property
1011 Dickinson Avenue
Greenville, Pitt County, North Carolina
Terracon Project No. 70147349

UST No.	Last Contents	Previous Contents	Capacity (gallons)	Const. Details	Tank dimensions (feet)	Desc. of Piping/ pumps	Date Installed	Status of UST	Release associated with UST system?
UST-1	Unknown Petroleum	Unknown Petroleum	1,000	Single-walled steel	4.5' W X 8.5' L	Unknown	Unknown	Closed by removal on 8/21/14	Yes

Table 2
Soil Field Screening Results
Parcel 186, Former City of Greenville Property
1011 Dickinson Avenue
Greenville, Pitt County, North Carolina
Terracon Project No. 70147349

Sample Location	Depth (ft. bgs)	PID Reading (ppm)	Descripton	Comments
UST-1	1.0	77.0	Orange Brown Silty Sand	Began over-excavation, moderate to strong odor beneath pavement
UST-1	2.0	54.1	Orange Brown Silty Sand	Continued over-excavation, moderate petroleum odor
UST-1	3.0	69.6	Orange Brown Silty Sand	Continued over-excavation, moderate to strong petroleum odor
UST-1	4.0	46.3	Orange Brown Silty Sand	Continued over-excavation, moderate petroleum odor
UST-1	5.0	28.2	Orange Brown Silty Sand	Continued over-excavation, low to moderate petroleum odor
UST-1	6.0	7.4	Orange Brown Silty Sand	Continued over-excavation, low petroleum odor
UST-1	7.0	45.7	Orange Brown Silty Sand	Continued over-excavation, moderate petroleum odor
UST1-N*	6.0 - 7.0	53.0	Orange Brown Silty Sand	Collected risk-based sample, moderate to strong petroleum odor
UST1-E*	6.0 - 7.0	39.2	Orange Brown Silty Sand	Collected risk-based sample, moderate to strong petroleum odor
UST1-S*	6.0 - 7.0	47.7	Orange Brown Silty Sand	Collected risk-based sample, moderate to strong petroleum odor
UST1-W*	6.0 - 7.0	62.1	Orange Brown Silty Sand	Collected risk-based sample, moderate to strong petroleum odor
UST1-B*	7.0 - 8.0	76.9	Orange Brown Silty Sand	Collected risk-based sample, moderate to strong petroleum odor

Notes:
ft. bgs = feet below grade surface
ppm = parts per million
** indicates sample submitted for laboratory analysis*

Table 3
Soil Sampling Analytical Results Summary (DRO & GRO)
Parcel 186, Former City of Greenville Property
1011 Dickinson Avenue
Greenville, Pitt County, North Carolina
Terracon Project No. 70147349

Sample ID	Depth	Method 8015/DRO	Method 8015/GRO
	ft bgs	mg/kg	mg/kg
UST1-N	6.0 - 7.0	**6.6**	<5.1
UST1-E	6.0 - 7.0	**16.6**	<6.8
UST1-S	6.0 - 7.0	<6.4	<7.2
UST1-W	6.0 - 7.0	<5.9	<6.0
UST1-B	7.0 - 8.0	**461**	**162**
NCDENR Action Level		10	10

Notes:

ft bgs = feet below ground surface

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

NA = Not Analyzed

Bold indicates above laboratory method detection limits

Bold and Highlight indicates above NCDENR UST Section Action Level

Table 4
Soil Sampling Analytical Results Summary (MADEP EPH)
Parcel 186, Former City of Greenville Property
1011 Dickinson Avenue
Greenville, Pitt County, North Carolina
Terracon Project No. 70147349

			Sample ID	UST1-N	UST1-E		UST1-S	UST1-W	UST1-B	
			Sample Date	8/19/2014	8/19/2014		8/19/2014	8/19/2014	8/20/2014	
			Depth	6.0-7.0 ft bgs	6.0-7.0 ft bgs		6.0-7.0 ft bgs	6.0-7.0 ft bgs	7.0-8.0 ft bgs	
Analytical Method	Hydrocarbon Fraction Ranges	Soil-to-Groundwater MSCCs	Industrial/ Commercial Soil Cleanup Levels (mg/kg)	Laboratory Results Concentration	Laboratory Results Concentration	Qualifier	Laboratory Results Concentration	Laboratory Results Concentration	Laboratory Results Concentration	Qualifier
MADEP EPH	C9-C18 Aliphatics	540	40,000	NA	<13.1 mg/kg	N2	NA	NA	1,120	N2
	C19-C36 Aliphatics	Considered immobile	810,000	NA	<13.1 mg/kg	N2	NA	NA	<610 mg/kg	N2
	C11-C22 Aromatics	31	12,264	NA	<13.1 mg/kg	N2	NA	NA	294	N2

Notes:
MADEP EPH = Massachusetts Department of Environmental Protection Extractable Petroleum Hydrocarbons
NCDENR UST Section MSCCs = NCDENR Maximum Soil Contaminant Concentrations
ft bgs = feet below grade surface
Bold indicates above laboratory method detection limits
Bold and Shaded boxes are above Soil-to-Groundwater MSCCs
N2 = The lab does not hold TNI accreditation for this parameter

Table 5
Summary of Compounds Detected in Soil Samples (EPA 8260)
Parcel 186, Former City of Greenville Property
1011 Dickinson Avenue
Greenville, Pitt County, North Carolina
Terracon Project No. 70147349

Analyte	Soil-to-Groundwater MSCCs (mg/kg)	Industrial/ Commercial Soil Cleanup Levels (mg/kg)	Sample ID: Sample Date: Sample Depth:	UST1-E 08/19/14 6.0-7.0 ft. bgs	UST1-B 08/20/14 7.0-8.0 ft. bgs
Volatile Organic Compounds (EPA Method 8260)					
Acetone	24	360,000		0.138	<6.130
Benzene	0.0056	164.0		0.0302	0.450
n-Butylbenzene	4.3	16,350		<0.0059	0.659
sec-Butylbenzene	3.3	16,350		<0.0059	0.378
Ethylbenzene	4.9	40,000		<0.0059	0.573
Isopropylbenzene	1.7	40,880		<0.0059	0.427
p-Isopropyltoluene	0.12	4,000		<0.0059	3.400
Naphthalene	0.16	8,176		0.0235	3.650
n-Propylbenzene	1.7	16,350		<0.0059	0.700
1,2,4-Trimethylbenzene	8.5	20,440		0.0189	8.510
1,3,5-Trimethylbenzene	8.3	20,440		0.0076	4.800
xylene (Total)	4.6	81,760		<0.0118	4.020
m&p-Xylene	4.6	81,760		<0.0118	2.960
o-Xylene	4.6	81,760		<0.0059	1.060

Notes: 1) Only detected compounds are shown in the table
2) Concentrations are reported in milligrams per kilogram (mg/kg)
3) NCDENR UST Section MSCCs - Maximum Soil Contaminant Concentrations (4/2012)
4) ft bgs - feet below ground surface
5) NS - No Standard
6) Detections highlighted in grey exceed their respective Soil-to-Groundwater MSCCs

APPENDIX A

24-Hour Release and UST Leak Reporting Form (UST-61)
&
Site Investigation Report for Permanent Closure of UST (UST-2)

UST-61 | 24-Hour Release and UST Leak Reporting Form.

For Releases in NC

This form should be completed and submitted to the UST Section's regional office following a known or suspected release from an underground storage tank (UST) system. This form is required to be submitted within 24 hours of discovery of a known or suspected release

(DWM USE ONLY)
Incident # _____ Risk (H,I,L,U)_____
Received On _____ Received By _____
Reported by (*circle one*): Phone, Fax or Report
Region _____

Suspected Contamination? (Y/N) _____
Confirmed GW Contamination? (Y/N) _____
Confirmed Soil Contamination ?(Y/N) _____
Samples Taken?(Y/N) _____
Free Product? (Y/N) _____ If Yes, State Greatest Thickness _____

Facility ID Number _____
Date Leak Discovered _____
Comm/Non-Commercial? _____
Reg/Non-regulated? _____

INCIDENT DESCRIPTION

Incident Name: NCDOT - UST Removal (NCDOT Pit 35781.1.2)

Address: 1011 Dickinson Avenue | County:

City/Town: Greenville | Zip Code: 27834 | Regional Office (*circle one*): Asheville, Mooresville, Fayetteville, Raleigh, Washington, Wilmington, Winston-Salem

Latitude (decimal degrees): Longitude (decimal degrees) :

Obtained by:
- ☐ GPS
- ☐ Topographic map
- ☐ GIS Address matching
- ☒ Other
- ☐ Unknown

Describe location:

Briefly describe suspected or confirmed release: *(including but not limited to: nature of release, date of release, amount of release, amount of free product present and recovery efforts, initial responses conducted, impacts to receptors)*

On August 21, 2014, an approximate 1,000 gallon Gas/Diesel UST was removed from the property. Some staining, odors, and indication of a release was observed at the base of the tank. Some corrosion and pitting of the tank was observed, but was otherwise was in good condition. PID readings were taken along with soil samples. Over excavation took place & risk-based samples were collected.

HOW RELEASE WAS DISCOVERED (Release Code)

(Check one)

- ☐ Release Detection Equipment or Methods
- ☒ During UST Closure/Removal
- ☐ Property Transfer
- ☒ Visual/Odor
- ☐ Water in Tank
- ☐ Water Supply Well Contamination
- ☐ Groundwater Contamination
- ☐ Surface Water Contamination
- ☐ Other (specify) _____

SOURCE OF CONTAMINATION

Source of Release *(Check one to indicate primary source)*
- ☐ Tank
- ☐ Piping
- ☐ Dispenser
- ☐ Submersible Turbine Pump
- ☐ Delivery Problem
- ☐ Other
- ☒ Unknown

Definitions presented on reverse

Cause of Release *(Check one to indicate primary cause)*
- ☐ Spill
- ☐ Overfill
- ☐ Corrosion
- ☐ Physical or Mechanical Damage
- ☐ Install Problem
- ☐ Other
- ☒ Unknown

Definitions presented on reverse

Type of Release *(Check one)*
- ☒ Petroleum
- ☐ Non-Petroleum
- ☐ Both

Location *(Check one)*
- ☒ Facility
- ☐ Residence
- ☐ Other

Product Type Released *(Check one to indicate primary product type released)*
- ☒ Gasoline/ Diesel/ Kerosene
- ☐ Heating Oil
- ☐ Other Petroleum Products
- ☐ Metals
- ☐ Other Inorganics
- ☐ Other Organics
- ☐ Diesel/Veg. Oil Blend
- ☐ Vegetable Oil 100%
- ☐ E10 – E20
- ☐ E21 – E84
- ☐ E85 – E99
- ☐ Ethanol 100%
- ☐ E01 – E09

Ownership
1. Municipal 2. Military 3. Unknown 4. Private 5. Federal 6. County 7. State

Operation Type
1. Public Service 2. Agricultural 3. Residential 4. Education/Relig. 5. Industrial 6. Commercial 7. Mining

IMPACT ON DRINKING WATER SUPPLIES

Water Supply Wells Affected? 1. Yes 2. No 3. Unknown

Number of Water Supply Wells Affected _____

Water Supply Wells Contaminated: (*Include Users Names, Addresses and Phone Numbers. Attach additional sheet if necessary*)

1.
2.
3.

UST SYSTEM OWNER

UST Owner/Company			
North Carolina Department of Transportation.			
Point of Contact		Address	
		1020 Birch Ridge Road	
City	State	Zip Code	Telephone Number
Raleigh	NC	27610	

UST SYSTEM OPERATOR

UST Operator/Company		Address	
same as above			
City	State	Zip Code	Telephone Number

LANDOWNER AT LOCATION OF UST INCIDENT

Landowner		Address	
same as above			
City	State	Zip Code	Telephone Number

Draw Sketch of Area (showing two major road intersections) or Attach Map

Person Reporting Incident Mike Frailey	Company Terracon Consultants, Inc.	Telephone Number 919-873-2211
Title Project Engineer	Address 2401 Brentwood Rd. Ste. 124 Raleigh, NC 27614	Date 5/23/14

Definitions of Sources

Tank: means the tank that stores the product and is part of the underground storage tank system

Piping: means the piping and connectors running from the tank or submersible turbine pump to the dispenser or other end-use equipment (Vent, vapor recovery, or fill lines are excluded.)

Dispenser: includes the dispenser and the equipment used to connect the dispenser to the piping (e.g., a release from a suction pump or from components located above the shear valve)

Submersible Turbine Pump (STP) Area includes the submersible turbine pump head (typically located in the tank sump), the line leak detector, and the piping that connects the submersible turbine pump to the tank

Delivery Problem: identifies releases that occurred during product delivery to the tank. (Typical causes associated with this source are spills and overfills.)

Other: serves as the option to use when the release source is known but does not fit into one of the preceding categories (e.g., for releases from vent lines, vapor recovery lines, and fill lines)

Unknown: identifies releases for which the source has not been determined

Definitions of Causes

Spill: use this cause when a spill occurs (e.g., when the delivery hose is disconnected from the tank fill pipe or when the nozzle is removed from the dispenser)

Overfill: use when an overfill occurs (e.g., overfills may occur from the fill pipe at the tank or when the nozzle fails to shut off at the dispenser)

Physical or Mechanical Damage: use for all types of physical or mechanical damage, except corrosion (e.g., puncture of tank or piping, loose fittings, broken components, and components that have changed dimension)

Corrosion: use when a metal tank, piping, or other component has a release due to corrosion (e.g., for steel, corrosion takes the form of rust)

Installation Problem: use when the problem is determined to have occurred specifically because the UST system was not installed properly

Other: use this option when the cause is known but does not fit into one of the preceding categories (e.g., putting regulated substances into monitoring wells)

Unknown: use when the cause has not been determined

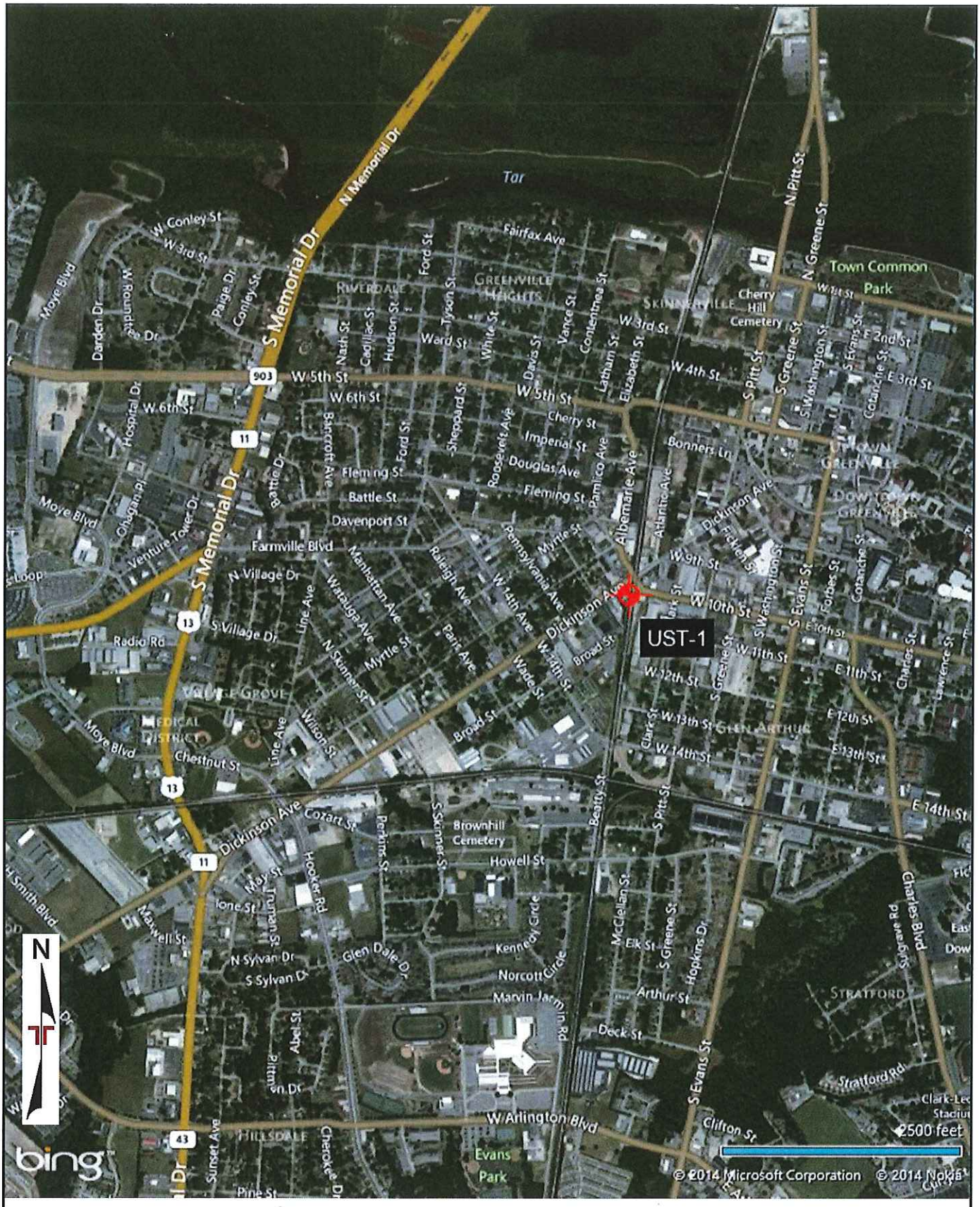


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

Project Manager: SJK	Project No. 70147349	Terracon 2401 Brentwood Rd. Suite 107 Raleigh, NC	UST REMOVAL NCDOT Pitt 35781.1.2 Stantonsburg Rd/Tenth Street Connector from Memorial Drive to Evans Street Greenville, NC
Drawn by: MHF	Scale: AS SHOWN		
Checked by: SJK	File Name: Exhibits		
Approved by: SJK	Date: 9/3/14		

Exhibit

A-2

UST-2 Site Investigation Report for Permanent Closure or Change-in-Service of UST

Return completed form to:
The DWM Regional Office located in the area where the facility is located. Send a copy to the Central Office in Raleigh so that the status of the tank may be changed to "PERMANENTLY CLOSED" and your tank fee account can be closed out.
SEE MAP ON THE BACK OF THIS FORM FOR THE CENTRAL AND REGIONAL OFFICE ADDRESSES.

STATE USE ONLY:
I.D. #_____
Date Received_____

INSTRUCTIONS (READ THIS FIRST)

For more than five UST systems you may attach additional forms as needed.

Permanent closure – For permanent closure, complete all sections of this form.

Change-in-service – For change-in-service where UST systems will be converted from containing a regulated substance to storing a non-regulated substance, complete sections I, II, III, IV, and VIII

Effective February 1, 1995, all UST closure/change-in-service reports must be submitted in the format provided in the UST-12 form. UST closure and change-in-services must be completed in accordance with the latest version of the *Guidelines for Tank Closure*. A copy of the UST-12 form and the *Guidelines for Tank Closure* can be obtained at www.wastenotnc.org.

You must make sure that USTs removed from your property are disposed of properly. When choosing a closure contractor, ask where the tank(s) will be taken for disposal. Usually, USTs are cleaned and cut up for scrap metal. This is dangerous work and must be performed by a qualified company. Tanks disposed of illegally in fields or other dumpsites can leak petroleum products and sludge into the environment. If your tanks are disposed of improperly, you could be held responsible for the cleanup of any environmental damage that occurs.

NOTE: If a release from the tank(s) has occurred, the site assessment portion of the tank closure must be conducted under the supervision of a P.E. or L.G., with all closure site assessment reports bearing the signature and seal of the P.E. or L.G.

I. OWNERSHIP OF TANKS

Owner Name (Corporation, Individual, Public Agency, or Other Entity) Abandoned in NCDOT Right of Way (ROW)/City of Greenville	
Street Address Greenville City Manager PO Box 7207	
City Greenville	County Pitt
State NC	Zip Code 27835
Phone Number Unavailable	

II. LOCATION OF TANKS

Facility Name or Company NCDOT ROW/Former City of Greenville Property		
Facility ID # (If known) Unknown		
Street Address Formerly: 1011 Dickinson Avenue		
City Greenville	County Pitt	Zip Code 27834
Phone Number N/A		

III. CONTACT PERSONNEL

Contact for Facility: NCDOT ROW: Gordon Box, NCDOT		Job Title: GeoEnvironmental Project Mgr.	Phone. No: 919-707-6859
Closure Contractor Name: Mark Mabe	Closure Contractor Company: Contaminant Control, Inc.	Address: 438-C Robeson Street -Fayetteville	Phone. No: 910-484-7000
Primary Consultant Name: Michael Frawley, P.E.	Primary Consultant Company: Terracon Consultants, Inc.	Address: 2401 Brentwood Road - Raleigh, NC	Phone. No: 919-873-2211

IV. UST INFORMATION FOR REGISTERED UST SYSTEMS

V. EXCAVATION CONDITION

Tank ID No.	Size in Gallons	Tank Dimensions	Last Contents	Last Use Date	Permanent Close Date	Change-in-Service Date	Water in excavation		Free product		Notable odor or visible soil contamination	
							Yes	No	Yes	No	Yes	No
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐

VI. UST INFORMATION FOR UNREGISTERED UST SYSTEMS

VII. EXCAVATION CONDITION

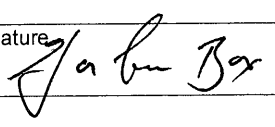
Tank ID No.	Size in Gallons	Tank Dimensions	Last Contents	Last Use Date	Permanent Close Date	Tank Owner Name *	Water in excavation		Free product		Notable odor or visible soil contamination	
							Yes	No	Yes	No	Yes	No
UST-1	1000	4.5 ft W X 8.5 ft L	Unknown	Unknown	8-21-2014	Abandoned in NCDOT ROW	☐	☒	☐	☒	☒	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐

* If the tank owner address is different from the one listed in Section I., then enter the street address, city, state, zip code and telephone no. below:

NCDENR DWM State Lead 8-27-13

VIII. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true accurate and complete.

Print name and official title of owner or owner's authorized representative	Signature	Date Signed
Gordon Box, GeoEnvironmental Project Manager, NCDOT		1/15/2015

APPENDIX B

Pitt County UST Removal Permit

Greenville
NORTH CAROLINA

FIRE-RESCUE

Application for Underground Storage Tank Permit

Select Type			Class of Work		Structure	
☐	Installation	*$150.00 per tank*	☐	New Facility	☒	Service Station
☒	Extraction	*$125.00 per tank*	☒	Closed Facility	☐	Commercial
☐	Abandonment	*$ 50.00 per tank*	☐	Repair	☐	Multi-family Residential
☐	Re-piping	*$ 50.00 per tank*	☐	Addition	☐	Other _____
☐	Follow-Up	*$ 50.00 per tank*				

Tank #1	Tank Fee:	$ 125.00	Tank size:	1000 gal	Product Stored:	?
Tank #2	Tank Fee:	$	Tank size:		Product Stored:	
Tank #3	Tank Fee:	$	Tank size:		Product Stored:	

Total Amount $ 125.00

Company Name:	CCI Environmental Services		
Company Address:	230 Lockhart Road, Kannapolis, NC 28083		
Site Address:	1011 Dickinson Road, Greenville, NC		
Contact Name:	Mark Mabe	Telephone:	704-273-1500
Event Start Date:	8/19/14	Event End Date:	
Comments:			
	mark.mabe@cci-env.com		

At time of payment, the applicant must submit any required copies of certifications, site plans and/or other documentation as stated by the North Carolina Fire Code and the City of Greenville Fire Marshal.

Mail Application, documentation and payment to: *Greenville Fire/Rescue, PO Box 7207, Greenville, NC 27835 OR* Submit in person to: *Greenville Fire/Rescue, 500 S. Greene St, Greenville, NC 27834.*

Make checks payable to: *City of Greenville*

Signature: _____ **Date:** 8/19/14

Fire/Rescue Use Only			
Date Received:	8/19/14	Receipt #:	CC641040
Date Reviewed:	8/19/14	Reviewed by:	Sal Smith
☒ Approved	☐ Denied		

Goldsboro Fire Department
"Committed to Life Safety"
Fire Inspection Report
919-750-2218 or 919-223-4764

Business Name Contaminate Control Phone: 336-339-6001
Emergency Contact: _____ Inspection Date: 8/8/2014
Address: 3434 802 N. Berkley Suite# _____ Owner/Mgr. Mark Mabe
Property Manager/Phone No. _____

Sprinkler System Service Date N.A Name of company _____
Fire Alarm System Service Date N.A Name of company _____
Kitchen Supp. System Service Date N.A Name of company _____

Section I: Life Safety Violations

- ☐ Locked exits: Chapter 10 Code Section 1008.1.9
- ☐ Blocked exits: Chapter 10 Code Section 1003.6
- ☐ Exit access obstructed: Chapter 10 Section 1017.2 (Not less than 36" in Groups B and M)
- ☐ Exit Lights inoperable: Chapter 10 Section: 1011.2
- ☐ Combustible storage in exits, aisles or under stairs: Chapter 3 Section 315.2.2
- ☐ Fire Sprinkler system inoperable Chapter 9 section 901.6
- ☐ Kitchen suppression system requires 6 month service: Chapter 9 Section 904.5.1 and 904.6.1
- ☐ Fire door assemblies shall be inspected and tested not less than annually. NFPA 80 2007
- ☐ Unapproved door locks or latches: Chapter 10 Section 1008.1.9
- ☐ Smoke alarms/fire alarm system due for annual service/ Chapter 907.9.5 IFC NFPA 72 2007 Chapter 10
- ☐ Portable un-vented fuel-fired heaters are prohibited in Groups A, E, I, R-1, R-2, R-3, and R-4: Chapter 6 Section 603.4
- ☐ Emergency lights inoperable: Chapter 10 Section 1006.3
- ☐ Fire Sprinkler system due for annual service: NFPA 25 2002 and Chapter 9 Section 901.6.1
- ☐ Illegal Burning: Goldsboro Open Burning Ordinance and Chapter 3 section 307
- ☐ Hood Cleaning: Chart Chapter 6 sections 609.3.3.1 through 609.3.3.3 (No less than once every 12 months)

Section II: Fire Code Violations

- ☐ Fire extinguisher service: annual, 6 yr., 12 yr. Chapter 9 Section 906.2 NFPA 10 2007
- ☐ Improper use of extension cords: Chapter 6 Section 605.5
- ☐ Required clearance around electrical panels: Chapter 6 Section 605.3
- ☐ Compressed gas cylinders unsecured: Chapter 30 Section 3003.5.3
- ☐ All circuit breakers labeled. Chap. 6 section 605.3.1
- ☐ 18 " clearance between sprinkler head deflectors in sprinklered buildings Chapter 3 Section 315.2.1
- ☐ General cleanup of area or room: Chapter 3 Section 304.1 and 304.1.1
- ☐ Replace broken or missing ceiling tiles: Chapter 7 Section 703.1.2
- ☐ Knox Box: (all keys and contents checked)
- ☐ Premises Identification: An address number at least 4" high shall be attached to structure on the street side of building. Chapter 5 505.1
- ☐ APPROVED FOR CONDITIONAL RELEASE
- ☐ NOT APPROVED FOR RELEASE
- ☑ APPROVED FOR RELEASE

Section III: List additional violations or information

TANK removal inspection
750 gallon fuel oil tank

Total violations from Section I _____ **Total violations found** _____ **Re-inspection Date Scheduled** _____
Date of re-inspection _____ **Section I violations corrected** _____ **Total violations corrected** _____ **Initials** _____

☐ Pay the fee / fine of $ _____ to 200 N. Center St. or mail to PO Draw A, Goldsboro, NC 27533.

☑ Provided owner / representative copy of Order to Comply Form _____ Initials

John A. Mathis, Fire Marshal — Mark H. M

Name of Code Enforcement Official / Title — Signature of Business Representative

APPENDIX C

Site Specific Health and Safety Plan (HASP)

Safety and Health Plan

Remediation of Soils Impacted by Petroleum Hydrocarbons

Parcel 186, Former City of Greenville Property

1011 Dickinson Avenue

Greenville, Pitt County, North Carolina

October 2014

Terracon Project No. 70147349

Prepared for:

Prepared by:

Terracon Consultants, Inc.

INTRODUCTION

This Site Safety and Health Plan has been developed to keep Terracon personnel engaged in construction materials testing services on the Underground Storage Tank Closure Project site safe so that they leave the site uninjured at the conclusion of every work day. Safety expectations of Terracon personnel working on this site will be as follows:

- Follow the safety rules applicable to your job.
- If it is not safe, do not do it; do not have your co-worker do it either.
- If you see something that is unsafe, **speak up** immediately, there and then, to your supervisor, no matter who—no matter what.
- If you are not sure of something or do not understand something, **speak up and ask**.

All Terracon employees have the right to expect management cooperation in helping to keep them safe. Here is what you can expect from Terracon management while engaging in services at this project site:

- If you stop a task for a safety reason, we will back you up.
- If you bring up a safety concern, we will address it promptly. It will not go into a black hole.
- If there is an injury, we will conduct an incident investigation in a way that does not blame anyone—the person or people involved. The investigation will focus on learning, so that we can eliminate the next injury.

We want every employee to conduct field operations in accordance with our Incident and Injury-Free principals:

- Evaluate the hazards of the work you are getting into and control the hazards to the extent practical before engaging in site services.

- Be observant to people who are inexperienced anxious about their work and for those who are being complacent with safe work procedures. Speak up to both, out of care and concern, and help them see that doing their work safely is the right thing to do for both them and their families.

- Be open if someone speaks to you about potential unsafe behaviors or equipment, and cooperate in the spirit of getting the job done safely. Everybody deserves a future.

IIF® Incident and Injury-Free®

1.0 APPLICABILITY

This Site Safety and Health Plan has been developed for the safety of Terracon personnel engaged in excavation activities at the UST Tank Closure site in Greenville, Pitt County, North Carolina. The purpose of this plan is to help assure that personnel assigned to field activities during this remediation project leave uninjured at the conclusion of every work day. Safety expectations of Terracon personnel working on this site will be as follows:

- Follow the safety rules applicable to your job.
- If it is not safe, do not do it; do not have your co-worker do it either.
- If you see something that is unsafe, **speak up** immediately, there and then, to your supervisor, no matter who—no matter what.
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- Be open if someone speaks to you about potential unsafe behaviors or equipment, and cooperate in the spirit of getting the job done safely. Everybody deserves a future.

2.0 SAFETY AND HEALTH ADMINISTRATION

The Project Manager is ultimately responsible for ensuring that work on this project is performed in accordance with the safety and health provisions contained in this Plan. The designated Site Safety and Health Officer (SSO) will monitor compliance with this Plan during field activities. All field team members engaged in project activities will be required to sign the "Acknowledgment of Instruction" form included with this Plan. The SSO will maintain a copy of this Plan on site for the duration of project activities.

Subcontractors engaged in project activity at this site will comply applicable provisions of the Occupational Safety and Health Act of 1970, the safety and health requirements set forth in Occupational Safety and Health Administration regulation 29 CFR 1910.120, where applicable, and any applicable state, city or local safety codes. Each subcontractor will be responsible for supplying and utilizing necessary equipment required for safety precautions for the subcontractor's employees engaged in this project.

In order to reduce the potential for accidents, subcontractors will maintain an orderly and safe work area. It will the responsibility of subcontractors to provide whatever safety barricades or warning devices are deemed necessary by Terracon to prevent accidents or injury to field personnel and the general public.

Subcontractors engaged on this project site may utilize this site Safety and Health Plan for their employees, or each subcontractor may develop and utilize their own site Safety and Health Plan provided the provisions of the subcontractor's site Safety and Health Plan are at least as stringent as the requirements contained in this Plan. Decisions regarding equivalence of safety and health requirements shall be made by Terracon Project Manager and Corporate Safety and Health Manager. Adoption of this Site Safety and Health Plan by subcontract employers shall not relieve any site subcontractor for the responsibility for the health and safety of its employees.

Terracon and subcontractor task leaders (if any) will be responsible for:

- Providing subordinate personnel a copy of this Plan, and briefing them on its content.
- Enforcing the applicable provisions of this Plan.
- Inspecting and maintaining equipment in compliance with applicable federal, state or local safety regulations.
- Enforcement of corrective actions.
- Investigation of accidents or injuries.

The following individuals will be responsible for implementation and enforcement of the Plan:

TITLE	NAME	PHONE
Project Manager	Steve Kerlin	919-873-2211
Safety and Health Director	Mark A Huddleston, CSP	913-599-6886
Site Safety Officer	Michael Frawley	919-436-2987
Senior Drill Crew Member	N/A	
Client Contact	Gordon Box	919-707-6850

3.0 MEDICAL SURVEILLANCE REQUIREMENTS

All Terracon personnel participating in field operations on this project will be enrolled in a health monitoring program in accordance with the provisions of OSHA 29 CFR 1910.120 and 1910.134.

Each project participant must be certified by a Doctor of Medicine as fit for respirator and semi-permeable/impermeable protective equipment use. The content and frequency of physical examinations will be determined by the Consulting physician in compliance with the requirements of 29 CFR 1910.120.

Follow-up medical examinations will also be provided in the event of illness or unprotected exposure to contaminants in excess of eight-hour time weighted average permissible exposure limits.

4.0 EMPLOYEE TRAINING REQUIREMENTS

All Terracon field personnel must have completed 40-hour Hazardous Waste Operations Training per the requirements of OSHA 29 CFR 1910.120. In addition, a current 8-hour annual refresher training certificate will be required for all field personnel.

Prior to the start of site activities, the SSO will conduct a pre-project safety and health briefing for all project participants. The personnel responsible for project safety and health will be addressed, as will site history, scope of work, site control measures, emergency procedures and site communications. The briefing will address site contaminants, air monitoring protocols and results and the level of personal protective equipment to be employed for each project task.

Daily "tailgate" safety and health briefings will be presented by the SSO at the start of each work day. In addition to a general review of the proposed daily activity and safety requirements, the results of previous air monitoring and any procedural changes will be addressed. A daily tailgate safety meeting documentation form is attached as an Appendix to this plan.

5.0 RESPIRATORY PROTECTION PROGRAM

All respirators employed by Terracon personnel will be NIOSH approved. Cartridges and filters for air purifying respirators will be appropriate for the contaminant(s) of concern. Cartridge/filter selection will be made by the Terracon Corporate Safety and Health Manager. Project personnel required to wear respiratory protection will be medically cleared for respirator use, trained and successfully fit tested in accordance with OSHA 29 CFR 1910.134. Personnel required to wear respirators will demonstrate competence in donning/doffing and inspecting the equipment prior to job assignment. All project tasks requiring the use of supplied air respirators will require properly equipped backup personnel.

At a minimum, air purifying respirator cartridges will be changed daily prior to use. More frequent change of respirator cartridges may be specified based on the results of site air monitoring. Under no circumstances will air purifying respirators be used in areas deficient in oxygen (<19.5%), in areas classified as immediately dangerous to life and health (IDLH) or in areas where contaminants have not been characterized.

Respirators will be inspected and required fit checks will be performed prior to use, and any necessary repairs will be made before proceeding to the project site. Respirators will be sanitized daily after use.

6.0 SITE HISTORY/SCOPE OF SERVICES

It is anticipated that soils and groundwater at this project site may be impacted by petroleum hydrocarbons. The personal protective equipment and direct-reading air monitoring protocols specified below are designed to prevent personnel exposure to contamination in excess of permissible exposure limits.

6.1 Scope of Services

Services to be conducted on this project site will excavation of soils impacted by petroleum hydrocarbons. Soils will either be stockpiled or loaded into dump trucks or roll-off containers for transport and appropriate disposal.

7.0 HAZARD ASSESSMENT

7.1 Chemical Hazards

Soils at this project site may be contaminated with petroleum hydrocarbons. Benzene is the most significant health hazard contained in petroleum blends and typically comprises less than 1% of regular grade gasolines. Specific health hazard information on petroleum and its most volatile aromatic constituents are provided below. Additional health-hazard information can be found in the chemical information sheets attached to this Plan.

GASOLINE
Permissible Exposure Limit
300 ppm ACGIH TLV
Gasoline is irritating to the skin, eyes and mucous membranes. Dermatitis may result from prolonged contact with the liquid. Gasoline acts as a central nervous system depressant. Exposure may cause staggering gait, slurred speech and mental confusion. Gasoline exposure may affect the liver, kidneys and spleen. Absorption of alkyl lead antiknock compounds contained in many gasolines poses an additional health concern, especially where there is prolonged skin contact.

DIESEL FUEL (No. 2-D)
Permissible Exposure Limit
100 mg/m^3 ppm ACGIH TLV (As mist/vapor)
Diesel fuel is a skin and mucous membrane irritant and a central nervous system depressant. Poisoning may affect the liver and kidneys. Skin contact may result in drying and cracking of the skin.

FUEL OIL (No. 6)
Permissible Exposure Limit
400 ppm OSHA PEL (as petroleum distillates/naphtha)
0.2 mg/m^3 OSHA PEL (Coal Tar Pitch Volatiles, "PNA's")

Fuel oil No. 6, or "Bunker Fuel", is of low volatility. It can be irritating to the eyes and skin. This substance is likely to contain polynuclear aromatic hydrocarbons (PNA's), some of which are considered carcinogenic. PNA's present a skin contact hazard. Avoid skin contact with potentially contaminated site materials.

BENZENE
Permissible Exposure Limit
1 ppm OSHA PEL
5 ppm OSHA 15 min STEL
0.5 ppm OSHA Action Level

Benzene is a central nervous system depressant and an eye and skin irritant. Poisoning may cause hemorrhages and immunosuppression. A relationship has been discovered between benzene exposure and leukemia. Benzene is regulated as an occupational carcinogen. Acute exposure may cause dizziness, excitation, weakness, headache, giddiness, breathlessness and chest constriction.

TOLUENE
Permissible Exposure Limit
20 ppm ACGIH TLV
(Skin Absorbable)

Toluene is an eye, skin and mucous membrane irritant and a central nervous system depressant. Poisoning may affect the liver and kidneys. Prolonged exposure may affect the heart and blood. The ingestion of alcoholic beverages may enhance the toxic effects of toluene. Symptoms of exposure include respiratory tract irritation, headache, dizziness and eye irritation. Toluene may be absorbed to the bloodstream via skin contact.

ETHYL BENZENE
Permissible Exposure Limit
20 ppm ACGIH TLV

Ethyl benzene is a skin, eye and mucous membrane irritant. It is moderately toxic by ingestion and slightly toxic by skin absorption. Ethyl benzene is a central nervous system depressant. Poisoning may affect the liver. Symptoms of exposure may include a sense of chest constriction

and nervous disorders. Skin contact may result in first and second degree burns. The odor can be detected at 140 ppm and irritation occurs at ~200 ppm.

XYLENE
Permissible Exposure Limit
100 ppm OSHA PEL

Xylene is a mild eye and mucous membrane irritant, primary skin irritant and a central nervous system depressant. Ingestion causes severe gastrointestinal upset and creates an aspiration hazard. Chronic inhalation results in symptoms that resemble acute poisoning, but are more severe systemically.

7.2 Drilling Safety Precautions

Activities to be performed on site involve powered excavating equipment and materials. Personnel should be aware that as personal protective equipment increases, dexterity and visibility may be impacted and performing some tasks may be more difficult. Tape all loose protective clothing to avoid entanglement in rotating equipment. ***Before excavation proceeds, underground utilities must be located and marked.*** Other safety precautions to be observed during this assessment include the following:

- No loose fitting clothing, jewelry or unsecured long hair is permitted near the rig.
- Ground personnel will remain upwind and outside the swing radius of backhoe buckets during excavation. Line-of-sight contact with the backhoe operator must be maintained.
- A first aid kit and fire extinguisher will be immediately available at all times.
- A 10 foot horizontal and vertical clearance will be maintained from all overhead power lines.
- Personnel will not enter excavations to collect samples. Samples will be obtained from backhoe buckets or with sampling devices of sufficient length to prevent the necessity for excavation entry.

7.3 Site Physical Hazards/Precautions

The physical hazards associated with intrusive site activities can include inclement weather, material handling, slips/falls etc. Some anticipated hazards and means for preventing injury from those hazards are as follows:

- **Back injuries due to improper lifting** - Use proper lifting techniques. Lift with the legs, not the back. Keep loads close to the body and avoid twisting. Loads heavier than 50 pounds (lbs.) require a second person or mechanical device for lifting. Use mechanical devices such as drum dollies, hand trucks, and tool hoists (for lifting augers) to lift or move heavy loads whenever possible.
- **Ergonomic Stress** - Lift carefully with load close to body with the legs taking most of the weight. Get help with lifts greater than 40 lbs. When working with a heavy tool or object,

keep legs under the load and do not overreach or twist to the side. Reposition body to be more square to the load and work. Push loads, rather than pull, whenever feasible. Do not persist with lifting when the load is too heavy. Use a mechanical lifting aid or have a coworker assist with the lift. Rotate repetitive tasks to avoid soft-tissue fatigue.

- **Falls From Elevated Surfaces** - Protect employees from falling off surfaces that have a side or an edge that is 6 ft. or more above a lower level. Provide a safety harness and shock-absorbing lifeline or adequate fall protection where applicable. Employees must wear them when working 6 ft. or higher above the platform or main work deck. Install either a guardrail system or fall arrest system that conforms to 29 CFR 1926.502 (d) and is approved by the American National Standards Institute.

- **Vehicles** - Obey all site traffic signs and speed limits. Seat belts must be functional and in use during operation of any site vehicles (including rentals). Operator shall regularly inspect the vehicle for defective parts, such as brakes, controls, motor, chassis and drives. Always be aware and stay alert to traffic around the work area.

- **Inclement Weather** – The project may be shut down by the SSO during the following inclement weather conditions: poor visibility; precipitation severe enough to impair safe movement or travel; lightning in the immediate area; steady winds in excess of 40 mph; or, other conditions as determined by the SSO or Corporate Safety and Health Manager. Work will resume when the conditions are deemed safe by the SSO.

- **Noise** - Wear hearing protection when speech becomes difficult to understand at a distance of 10 ft. and while standing within 20 to 25 ft. from heavy equipment, pneumatic power tools, steam cleaners, and other equipment in operation that can generate more than 85 decibels (A-weighted scale) (dB).

- **Slips, Trips, and Falls** - Clear work area of obstructions and debris before setting up. Alter work areas as necessary to provide a safe, reasonably level area. All walking and working surfaces shall continually be inspected and maintained to be free of slip, trip, and fall hazards. Keep platforms, stairs, and immediate work areas clear. Do not allow oil, grease, or excessive mud to accumulate in these areas. Eliminate slip, trip, and fall hazards or identify them clearly with caution tape, barricades, or equivalent means. Store loose or light material and debris in designated areas or containers. Secure tools, materials, and equipment subject to displacement or falling.

- **Traffic Control** - If site activities interrupt the normal flow of pedestrian or vehicular traffic, barricades and warning signs which comply with the Manual on Uniform Traffic Control Devices and/or State or local ordinances will be erected around affected equipment. Safety orange work vests will be worn by personnel working within 10 feet of any active roadway. All borings or partially completed groundwater monitoring wells will be adequately covered and/or barricaded if left unattended for any period of time.

- **Confined Spaces –** No work will be conducted within confined spaces without discussion with the Corporate Safety and Health Manager and development of a confined space safety plan and permit.

7.4 Biological Hazards

Biological hazards may include ticks, fleas, mosquitoes, wasps, spiders or other pests; poisonous plants (poison ivy, poison oak); snakes; thorny bushes and trees; and medical waste.

West Nile virus is primarily spread through the bite of an infected mosquito (usually a Culex species). Mosquitoes pick up the virus when they feed on infected birds. The virus must then circulate in the mosquito for a few days before they are capable of transmitting the infection to animals or humans while biting. The virus is found in the salivary gland of the mosquito. During feeding, the virus may be injected into a human or animal where it may multiply and possibly cause disease.

Most persons who are infected with West Nile virus will have no noticeable symptoms, or have an illness syndrome called “West Nile Fever” lasting 2-10 days. Common symptoms of West Nile Fever include headache, fever, and extreme muscle weakness, occasionally accompanied by vomiting or skin rashes. In some cases, West Nile virus infection will cause severe neurologic disease such as meningitis, paralysis, or encephalitis (swelling and inflammation of the brain).

Symptoms of West Nile meningitis or encephalitis may be intense headache, dizziness, stiff neck, marked weakness, muscle tremors, disorientation, mental confusion, or convulsions.

Workers should protect themselves from mosquito bites by applying insect repellent to exposed skin. Generally, the more active ingredient a repellent contains, the longer it can protect from mosquito bites. A higher percentage of active ingredient in a repellent does not mean that protection is better—just that it will last longer. Choose a repellent that provides protection for the amount of time that you will be outdoors. Repellents may irritate the eyes and mouth. Whenever an insecticide or insect repellent is used, workers must read and follow the manufacturer's DIRECTIONS FOR USE, as printed on the product.

Insect repellent containing diethyltoluamide (DEET) can be sprayed on skin or clothing to provide protection from mosquitoes. A repellent containing permethrin can also be sprayed on clothing. Repellents containing permethrin should not be applied directly to exposed skin.
Workers should wear long-sleeved shirts and long pants whenever outdoors.

Workers should consider staying indoors at dawn, dusk, and in the early evening,
which are peak mosquito biting times. Note: Vitamin B and "ultrasonic" devices are NOT effective in preventing mosquito bites.

Tick borne diseases
Lyme Disease, Ehrlichiosis, Tularemia, Southern Tick-Associated Rash Illness (STARI), and Rocky Mountain Spotted Fever (RMSF) are diseases transmitted by ticks and may occur throughout the United States during spring, summer, and fall.

Lyme Disease is a potentially serious disease caused by the bacteria Borrelia burgdorferi. Humans can become infected following the bite of an infected deer tick also called the black legged tick (see figure below). Persons bitten by ticks carrying Lyme Disease may have symptoms such as a rash or a peculiar red spot (Bulls Eye) that expands outward in a circular manner (see photo below). Headaches, weakness, fever, a stiff neck, swelling and pain in the joints, and eventually, arthritis may also occur. The primary symptom of RMSF is the sudden appearance of a moderate to high fever. The fever may persist for two to three weeks. A severe headache, deep muscle pain and chills may also occur. A rash will appear on the hands and feet on about the third day and eventually spread to all parts of the body (see photo on the following page). RMSF may cause death if untreated. Ehrlichiosis refers to a disease caused by the bacteria Ehrlichia from the bite of the Lone Star Tick (see figure below). Symptoms of ehrlichiosis will generally include a sudden onset of fever, chills, headache, myalgia, and fatigue within 10 to 15 days following a tick bite. The symptoms of ehrlichiosis are similar to RMSF; however, a rash occurs less often. Other symptoms include nausea, vomiting, abdominal pain, and loss of appetite.

Tularemia is a disease caused by the bacteria Francisella tuarensis. In Oklahomathe ticks commonly associated with Tularemia are the Dog Tick and the Lone Star Tick (see figures below). Symptoms of Tularemia are high fever, chills, fatigue, general body aches, headache, and nausea. Tularemia was once known as “Rabbit Fever”. Southern Tick-Associated Rash Illness (STARI) is an illness that is indistinguishable from the early stages of Lyme Disease. These symptoms include the “bull’s eye” rash commonly associated with Lyme Disease. The cause of the disease is not fully understood, but it appears to be associated with the bite of the Lone Star Tick. Lyme Disease is associated with the bite of the Deer Tick.

Early diagnosis of tick borne diseases is essential to treatment of the disease. The following photographs show common symptoms one may develop. Insect repellent, containing diethyltoluamide (DEET), should be used in tick infested areas, and pants legs should be tucked into boots. Another option is to spray clothing with a repellent containing permethrin. Repellents containing permethrin should not be applied directly to exposed skin. Additionally, workers should search the entire body every three or four hours for attached ticks. Ticks should be removed promptly and carefully without crushing. A gentle and steady pulling action should be used to avoid leaving the head or mouth parts in the skin.

Folklore remedies, such as the use of petroleum jelly or hot matches, do little to encourage a tick to detach from skin. In fact, they may make matters worse by irritating the tick and stimulating it to release additional saliva or regurgitate gut contents, increasing the chances of transmitting the pathogen. These methods of tick removal should be avoided. A number of tick removal devices have been marketed, but none are better than a plain set of fine tipped tweezers.

Tick Bite Prevention Tips

Avoiding tick bites is the best way to reduce your risk of developing a tick-borne illness. The following personal tick bite prevention tips are recommended when exposure to a wooded or tick infested area is likely:

- Wear light colored clothing to make ticks easier to see.
- Wear long-sleeved shirts and long pants tucked into socks to deprive ticks of attachment sites.
- Check for ticks every three to four hours; particularly along waistbands, in the armpits, and groin area. Don't forget the back and the scalp!
- Use a tick repellent with DEET on skin and clothing according to the directions.
- Use a tick repellent with permethrin ON CLOTHING ONLY as directed by the label.

Stinging Insects

To avoid stinging insects, it is important to learn what they look like and where they live. Most sting reactions are caused by five types of insects: yellow jackets, honeybees, paper wasps, hornets and fire ants. Yellow jackets are black with yellow markings, and are found in various climates. Their nests, which are made of a paper-Mache material, are usually located underground, but can sometimes be found in the walls of frame buildings, cracks in masonry or woodpiles.

Honeybees have a rounded, "fuzzy" body with dark brown coloring and yellow markings. Upon stinging, the honeybee usually leaves its barbed stinger in its victim; the bee dies as a result. Honeybees are non-aggressive and will only sting when provoked. However, Africanized honeybees, or so-called "killer bees" found in the southwestern United States and South and Central America, are more aggressive and may sting in swarms. Domesticated honeybees live in man-made hives, while wild honeybees live in colonies or "honeycombs" in hollow trees or cavities of buildings. Africanized honeybees may nest in holes in building frames, between fence posts, in old tires or holes in the ground, or other partially protected sites. Paper wasps' slender, elongated bodies are black, brown, or red with yellow markings. Their nests are also made of a paper-like material that forms a circular comb of cells which opens downward. The nests are often located under eaves, behind shutters, or in shrubs or woodpiles.

Hornets are black or brown with white, orange or yellow markings and are usually larger than yellow jackets. Their nests are gray or brown, football-shaped, and made of a paper material similar to that of yellow jackets' nests. Hornets' nests are usually found high above ground on branches of trees, in shrubbery, on gables or in tree hollows.

Fire ants are reddish brown to black stinging insects related to bees and wasps. They build nests of dirt in the ground that may be quite tall (18 inches) in the right kinds of soil. Fire ants may attack with little warning: after firmly grasping the victim's skin with its jaws, the fire ant arches its back as it inserts its rear stinger into the skin. It then pivots at the head and may inflict multiple stings in a circular pattern. Fire ant venom often causes an immediate burning sensation.

Preventing stings

Personnel should stay out of the "territory" of the stinging insects' nests as much as possible. These insects are most likely to sting if their homes are disturbed, so it is important to have hives and nests around work areas destroyed. Since this activity can be dangerous, a trained exterminator should be hired.

If any flying stinging insects are encountered, workers should remain calm and quiet, and move slowly away from them. Many stinging insects are foraging for food. It is important to not look or smell like a flower—avoid brightly colored clothing and perfume when outdoors. Because the smell of food attracts insects, be careful when eating, or drinking sweet drinks like soda or juice outdoors. Keep food and beverages covered until consumed. Workers should avoid loose-fitting garments that can trap insects between material and skin.

Treating stings

If stung by a honeybee that has left its stinger (and attached venom sac) in your skin, remove the stinger within 30 seconds to avoid receiving more venom. A quick scrape of a fingernail removes the stinger and sac. Squeezing the sac should be avoided—this forces more venom through the stinger and into the skin. Hornets, wasps, and yellow jackets do not usually leave their stingers. Try to remain calm, and brush these insects from the skin promptly with deliberate movements to prevent additional stings. Then, quietly and immediately leave the area.

If stung by fire ants, carefully brush them off to prevent repeated stings, and leave the area. Fire ant stings usually result in the development of a blister about 24 hours after the sting. The material in this will become cloudy and appear to be pustular. IT IS NOT! Fire ant venom kills bacteria, this is just dead tissue and should be left alone. It will dry and heal within the next 7 – 10 days. If the blister is opened it must be monitored for secondary bacterial infection. Diabetics and others with circulatory disorders, including varicose veins and phlebitis, can be particularly at risk for complications, and should see a physician to monitor their condition after being stung. Up to 50% of patients develop large local reactions at the site of fire ant stings—swelling may last for several days and may be accompanied by itching, redness and pain.

Use topical steroid ointments or oral antihistamines to relieve itching. See your doctor if swelling progresses or if the sting site seems infected.

Poisonous Plants

Poison ivy, poison oak or poison sumac may be present in the work area. Personnel should be alerted to the presence of these plants, and instructed on methods to prevent exposure.

The main control is to avoid contact with the plant, cover arms and hands, and use Ivy Block barrier cream on exposed skin. Particular attention must be given to avoiding skin contact with objects or protective clothing that have touched the plants. Treat every surface that may have touched the plant as contaminated, and practice contamination avoidance. If skin contact is made,

the area should be washed immediately with Ivy Wipes or soap and water, and observed for signs of reddening.

Snakes

The possibility of encountering snakes exists, specifically for personnel working in heavily wooded/vegetated areas. Avoid walking in areas where snakes may nest or hide. When walking, always look ahead for signs of snakes. Employees should make as much noise as possible when approaching a possible snake area to give snakes time to leave. Use a long handled shovel, heavy equipment or other tools when moving or lifting objects that could be used by snakes as cover. Never reach under or behind objects or into other areas where snakes may hide. Look before placing your hands or feet anywhere, and do not put your hands or feet into places you cannot see. Avoid walking alone in snake-infested areas. Do not go out of your way to disturb or kill a snake. Avoid snakes – living and dead. Even dead snakes
can bite reflexively.

If an employee is bitten by a snake the following actions are recommended: An attempt should be made to identify the snake. Do not try and capture or kill the snake.

The victim should be transported to the nearest hospital within 30 minutes. First aid consists of washing the area around the wound to remove any unabsorbed venom. Keep the victim calm and limit the victim's physical activity. While limiting movement of the bitten body part, keep the bitten area at the level of the heart.
Remove all constricting clothing or jewelry from the bite site because swelling may occur. Remove shoes if bitten on the leg.

- Do not apply a tourniquet.
- Clean the wound if possible.
- Do not pack wound in ice or apply heat.
- Do not give the victim a sedative or alcohol.
- Do not waste time capturing or killing the snake.
- Do not cut into the bite area; you might damage important nerves, tissues or muscles

8.0 EXCAVATION SAFETY PRECAUTIONS

The backhoe should be positioned such that the operator's back is on the UPWIND side of each proposed excavation. Excavated soil stockpiles will be placed in an area downwind from the back hoe operator. Terracon site personnel will position themselves at the UPWIND side of each excavation within sight of the backhoe operator and outside the swing radius of the backhoe bucket. The backhoe operator will set the backhoe bucket, power down the backhoe and stand-by at ground level before Terracon approach the excavated area to collect samples. Terracon personnel will NOT enter excavations for any reason. Other backhoe operations safety precautions are as follows:

- The backhoe loader controls should only be operated from the operator's position — for the operator's safety, controls should never be activated from the ground.

- While operating a backhoe loader, the operator must be aware of several safety procedures. During travel, the bucket or other attachments should be carried as low as possible, and the backhoe should be locked in the transport position. It is important to the stability of the unit that travel or turning is done with the lift arms down and that the operator is looking in the direction of travel.

- Loading, unloading and turning should be done on flat, level ground. The operator should slow down when turning or traveling with a full bucket. Other important safety tips include keeping the heavy end of the backhoe loader uphill with the loader bucket full. The backhoe loader should go directly up or down a slope or incline with the loader bucket empty and not drive across slopes.

- When picking up a load, the operator must be aware to not exceed the rated operating capacity of the machine. Operators should never use attachments that exceed the capacity of the backhoe loader or are not approved for use by the manufacturer. When lifting objects with the backhoe loader, it is important that the operator keeps the objects balanced and as close to the backhoe loader as possible. The operator should swing lifted objects slowly and always lower objects to the ground before leaving the machine. The stabilizers should be used for increased stability when lifting objects with the backhoe loader.

- Most important to ensuring others' safety, the operator should never swing loads over other personnel. Some backhoe loaders come with an emergency stop button so operators can quickly shut down the backhoe loader, if needed.

- Every operator should be aware of the environmental conditions surrounding the backhoe loader. Operators should never use a backhoe loader in an atmosphere with explosive dust or gases or where the backhoe loader exhaust can contact flammable materials — explosion or fire can result. Exhaust gases can kill, therefore, it is important to have adequate ventilation when using a backhoe loader in an enclosed area.

- Before leaving a backhoe loader, operators should lower the lift arms and backhoe boom (unless it is locked), place the attachment flat on the ground, put all the controls in neutral, engage the parking brake, stop the engine and remove the key.

- Operators should never use a backhoe loader without an operator cab that does not have Rollover Protective Structure (ROPS) or Falling Object Protective Structure (FOPS) approval — the cab should not be modified from the manufacturer's original design in order to best protect the operator. Some open cab models allow operators to enter and exit from both sides of the machine. However on backhoe loaders with curb-side exit only, operators should be aware of traffic when exiting the cab.

Safety of Ground Personnel

- Operators should not carry riders. Also, operators should not allow bystanders within the backhoe arm working area — workers should never enter a trench while the backhoe is

working and should wait to enter the trench until it has been reinforced with proper shoring equipment after the excavation is complete.

- Bystanders should also be aware of the machine's operation at all time, keeping out of the backhoe swing area and away from the stabilizers. No one should ever reach under or stand under raised lift arms, unless an approved lift arm support device is employed. Accidental movement of a lift arm control lever can cause the lift arms to drop.

9.0 SITE CONTROL

An exclusion zone, contaminant reduction zone and a support zone will be established whenever project activities require Level C or Level B personal protective equipment. Defined access and egress points will be established and personnel will enter only through those points.

As permitted by site topography, the area within a 50 foot radius of a drill rig, prove unit or excavation equipment be considered the site exclusion zone. Only those personnel designated by the Project Manager/SSO are allowed to enter the Exclusion Zone. Where practical, or where their use will prevent public injury, temporary signs or barricade fencing will be established to define the Exclusion Zone. No smoking is permitted within 100 feet of any soil boring or probe location on petroleum contaminated project sites.

If unauthorized personnel attempt to enter the exclusion zone, the SSO will verbally inform the individual(s) to leave the project site. If unauthorized individuals refuse to leave the exclusion zone or are considered in danger or pose danger to project personnel, the SSO will cease project activities (i.e., shut down drill rigs, excavation equipment, etc.) and notify the client representative or the local police of the situation. Site activities will not resume until unauthorized personnel have left the project site.

10.0 AIR MONITORING AND SITE ACTION LEVELS

This air monitoring protocol is designed to prevent personnel exposure to airborne contaminants in excess of established permissible exposure limits. The results of field air monitoring will be used to determine the adequacy of initial personal protective equipment selection. Air monitoring equipment required for petroleum contaminated sites will include the following:

- **Photoionization Detector**

Task Leader(s) will be knowledgeable in the operation of the photoionization detector. A manual on the operation of the PID and the appropriate calibration kit will be mobilized to the project site with the instrument. Photoionization detectors will be calibrated under field conditions *each day* prior to use. Task Leaders are instructed to consult the manufacturer's specifications for appropriate calibration gas and calibration techniques.

A photoionization detector (PID) will be used to determine approximate hydrocarbon vapor concentrations in the BREATHING ZONE of site personnel. Continuous breathing zone air monitoring will be conducted during initial phases of intrusive activities (i.e., boring, excavation). If PID readings are less than 10 ppm, monitoring may be conducted at intervals of 10 minutes. If initial PID readings exceed 10 ppm, or if hydrocarbon odors become evident upon during auger advancement, continuous breathing zone air monitoring will be conducted..

If sustained PID readings in the breathing zone exceed 25 ppm, personnel will upgrade to respiratory protection as outlined below. Personnel will remain in air purifying respirators until the photoionization detector readings in the breathing zone have fallen and stabilized below 25 ppm.

10.1 Site Action Levels

Level D/D Modified	**Level C**	**Site Evacuation**
< 25 ppm	> 25 ppm	> 300 ppm

The Action Levels indicated above are for air in the breathing zone and NOT applicable to vapor above containerized soil samples. The Action Levels are established to prevent exposure to airborne petroleum hydrocarbon vapors in excess of established exposure limits. Although the Action Levels indicated for Site Evacuation are within the protective capacity of the respirator cartridges specified below, personnel will evacuate to the UPWIND side of the site if the continuous breathing zone vapor concentrations exceed these limits. The SSO will contact the Corporate Safety and Health Manager for discussion and re-evaluation of personal protective equipment and air monitoring requirements if airborne contamination exceeds Site Evacuation Action Levels. In the event that site evacuation is required, a modification of this safety and health plan will be issued with contingencies for combustible gas monitoring and upgrading to Level B personal protective equipment.

11.0 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

The air monitoring regimen identified above will allow initial project activity to begin in LEVEL D personal protective equipment to include:

- **Hard Hat**
- **Safety Footwear (ASTM spec; Impermeable or with outer impermeable covers)**
- **Nitrile or Neoprene Rubber Outer Gloves**
- **Nitrile Glove Liners**
- **Safety Eye Wear (ANSI Z-87 specification)**
- **Hearing Protection (if within 10 feet of drill rigs, concrete coring or other equipment which impairs normal conversation at < 5 feet.)**

If petroleum saturated soils and potential splashing conditions develop during the course of the assessment, personnel will upgrade to LEVEL D MODIFIED personal protective equipment. Level D Modified personal protective equipment ensemble consists of the above, plus:

- **Laminated Tyvek Coveralls**
- **Tape Sleeves/Legs to Gloves and Boots**

If air monitoring exceeds Action Level specified for upgrade to LEVEL C personal protective equipment, personnel will don:

- **Full Face Air Purifying Respirator**
- **Equipped with Combination Organic Vapor/Acid Gas/HEPA Cartridges**

Respirator cartridges will be changed daily prior to start of site activity.

11.0 DECONTAMINATION

Equipment decontamination is required on all sites with petroleum hydrocarbon impact. Personnel decontamination for projects below personal protective Level C will consist of washing off safety footwear, proper cleaning or disposal of outer and inner gloves and thorough washing of face, arms and hands. For projects involving Level C personal protective equipment, a decontamination station will be established and the following procedures enforced.

11.1 Personal Decontamination

Personnel will establish a decontamination station on the interface of the Exclusion Zone. A Contaminant Reduction Zone will be established and will extend 10 feet beyond from the decontamination station.

- Two Wash Tubs
- Scrub Brush
- Plastic Bags
- Water and Alconox Detergent

The wash tub on the exclusion zone side of the site will contain a solution of water and Alconox detergent; the second wash tub will contain clean rinse water. Personnel decontamination will consist primarily of detergent washing and rinsing of reusable exterior protective gear. Coveralls will be removed by turning the clothing inside out.

Personnel may not leave the contaminant reduction zone without proceeding through the decontamination sequence described below. The general decontamination sequence should be as follows:

- Wash work gloves, boots and polylaminated protective coveralls,
- Rinse work gloves, boots and coveralls,
- Remove tape at wrists and ankles,
- Remove protective coveralls,
- Remove respirator
- Dispose of spent cartridges; wash and rinse respirator
- Remove outer gloves
- Remove inner gloves

Expendable personal protective equipment will be placed in plastic trash bags, sealed and disposed of per client agreement. Decontamination solutions will be containerized or disposed of as arranged by Project Manager.

11.2 Equipment Decontamination

Decontamination of equipment will be performed to limit the migration of contaminants off-site. All equipment will be cleaned prior to site entry to remove grease, oil and encrusted soil.

Decontamination of large equipment will consist of physically removing gross contamination with shovels, brushes etc. followed by detergent and water high pressure wash with a clean water rinse. The Project Manager is responsible for determining if decontamination solutions must be containerized. If so, a decontamination sump or polyethylene sheeting and fluid containers will be mobilized and established in the decontamination area. Decontamination of hand samplers and similar small equipment will be performed at a designated location within the Contaminant Reduction Zone. Decontamination of such equipment will consist of detergent solution wash and clean water rinse.

11.3 Power Washer/Decontamination Safety

The operator should wear safety glasses or a face shield at all times during use of the power washer. Caution should be used while operating the washer to ensure that all Site personnel are out of the area.

12.0 SITE COMMUNICATIONS

Communication between personnel within the Exclusion Zone will be via verbal communication or hand signals. Visual contact between members of task teams should be possible throughout the course of project activities. Contact with the SSO will be through direct verbal communication. The following hand signals will be used by personnel wherever respiratory protection and/or equipment noise limit verbal communication.

Signal	**Meaning**

Thumbs Up	OK; all is well
Grab throat with both hands	Can't breathe
Shake head, thumbs down	NO, negative
Point right (when facing equipment operator)	Move/steer left
Point left (when facing equipment operator)	Move/steer right
Grab partner's wrist	Leave area immediately

13.0 EMERGENCY RESPONSE PROCEDURES

The Project Manager is responsible for obtaining and recording the following emergency information prior to site mobilization:

Location of Nearest Telephone:_____

Nearest Hospital/Clinic: Pitt County Memorial Hospital Phone: (252) 847-4100

Estimated Drive Time:10 Minutes

Directions From Site: (Attach a Site Diagram as an Appendix to this Plan) Go southwest on Dickinson Avenue, turn northwest of West 14th Avenue, turn southwest on Farmville Boulevard / Stantonsburg Road to Pitt County Memorial Hospital.

Ambulance:	911
WorkCare (Managed Care Provider)	888-449-7787
Fire Department:	911
Police:	911
Poison Control Center:	800-222-1222
Project Manager:	Steve Kerlin
Safety and Health Manager:	(913) 599-6886
Client Contact:	Gordon Box, LG

13.1 Personal Injury

The SSO and at least one other individual on site will be appropriately trained to administer first aid and CPR. A certificate issued by the American Red Cross, National Safety Council or equivalent will be considered appropriate.

In the event of non-life threatening injuries such as minor cuts, burns, exhaustion, heat cramps, insect stings, etc., the affected employee will be removed to a safe location and appropriate first aid measures should be rendered. It is the responsibility of every employee to report all unsafe acts and incidents (equipment or facility damages as well as injury accidents) to their direct supervisor as soon as possible. Personnel who incur injuries not requiring immediate medical attention are instructed to call WorkCare at 888-449-7787. The affected supervisor will complete an Accident/Injury Investigation form within 48 hours of the incident, and forward it to their home office or enter it directly into Terracon's Automated Claims Management System. Details will be shared with the client and/or contractor as may be required by contractual agreement. A root cause analysis will be prepared by the affected Office Manager. All reports must include written recommendations of actions the office will take to prevent a recurrence of the incident.

For more serious injuries the Site Safety Officer or designee will summon an ambulance to the project site. No attempt will be made by Terracon personnel to move the victim, without the aid and/or instructions of qualified medical personnel.

Where air monitoring indicates the absence of toxic gases or vapors, the ambulance will be directed to the affected employee. If site conditions warrant and as time permits, the wheels of the ambulance will be decontaminated with high pressure wash. The SSO or designee will accompany the ambulance to the medical facility, and provide guidance concerning additional decontamination which may be required for the injured employee, ambulance or attendants.

Whenever an injury occurs on sites with contamination requiring personal protective equipment greater than Level D modified, a minimum of two employees will don appropriate equipment and proceed to the victim. An ambulance will be called immediately. If the extent of injuries permit, the injured employee will be removed to fresh air. Appropriate first aid will be administered.

If rescuer(s) assess that the victim cannot be removed without a stretcher or other specialized equipment, the victim will be removed at the earliest possible moment by appropriately attired Terracon personnel with the direction and/or assistance of qualified medical response personnel. The injured employee will be immediately decontaminated and transported to the nearest medical facility. A crew member designated by the SSO will inform the ambulance crew of contaminants of concern and provide assistance with additional decontamination if required.

13.2 Evacuation and Shutdown Procedures

The SSO will establish and notify site personnel of emergency "rally" points. In the event of a site emergency, personnel will immediately exit the site and assemble at the designated rally point. Evacuation routes will be dependent on site topography and wind conditions. The routes will be selected and presented by the SSO daily prior to site activity.

If emergency evacuation becomes necessary, the SSO will sound the emergency alarm (e.g. support vehicle horn or compressed air horn). Personnel will safely shutdown all electrical and mechanical equipment and quickly proceed to closest designated rally point. The SSO will then account for each crew member on site.

In the event that a Terracon employee does not report to the designated rally point within 5 minutes of the evacuation alarm, the SSO will perform an immediate assessment of site conditions. If site conditions do not pose an immediate hazard to life or health, the SSO will initiate search and rescue efforts utilizing two crew members attired in appropriate personal protective equipment.

14.0 THERMAL STRESS

14.1 Heat Stress

Whenever ambient temperature exceeds 70 degrees F and personal protective equipment requirements are Level D or Level D modified, the following heat stress monitoring and preventive measures will be implemented:

- Mobilize at least one gallon of water for each field employee during each day of site activity.
- Periodically observe personnel for signs of heat stress (excessive perspiration, flushed skin, nausea, etc.).
- Move affected workers out of contaminant zones,
- Loosen protective clothing and permit them to rest
- Have conscious, affected personnel drink at least one 8 oz. glass of cool water.
- Check pulse; personnel should not return to work until pulse rate is less than 90 beats/min.

14.2 Heat Stress in Level C/Level B PPE

In addition to the above precautions, the following procedures will be implemented whenever the ambient temperature exceeds 70^{o} F and personal protective equipment requirements are Level C or above. Ambient temperature will be measured with a dry bulb thermometer and percent cloud cover will be estimated:

1.0 = No Clouds
0.75 = 25% Clouds
0.5 = 50% Clouds
0.25 = 75% Clouds
0.0 = 100% Clouds).

Calculate the adjusted temperature using the following formula:

ADJUSTED TEMPERATURE = 13(% CLOUD COVER) + DRY TEMPERATURE

Rest regimens will be implemented at frequencies dependent upon adjusted temperature. Monitor pulse during each rest period.

Adjusted Temperature	Rest Period/Monitoring Frequency
90+	After 15 minutes
87.5-90	After 30 minutes
82.5-87.4	After 60 minutes
77.5-82.5	After 90 minutes
70.5-77.4	After 120 minutes

Employees will return to work only after their pulse rate is below 90. Fluid replacement will be encouraged during each rest period. The use of stimulants and alcoholic beverages in off hours should be discouraged to prevent heat related illnesses.

14.3 Cold Stress

Persons working outdoors in low temperatures are subject to cold stress, especially if the temperature is at or below freezing. Exposure to cold for a short period of time can cause severe injury to the surface of the body (frostbite), or result in profound general cooling, potentially resulting in clinical hypothermia and death. Areas of the body with high surface to volume area, such as fingers, toes, and ears are the most susceptible. In general, the body's response to cold stress progresses from frostbite to hypothermia. Recognition of the symptoms of cold stress is essential to worker protection when operating in low temperatures.

Utilize cold weather clothing available from Terracon's personal protective equipment vendor, including thermal hardhat liners, gloves, and footwear traction devices to prevent slips and falls on slick and icy walking surfaces.

15.0 TRAFFIC CONTROL

Worksites confront motorists with a situation they do not expect, cannot anticipate and find confusing. They also tend to create hazards with which the driver can collide. Worksites distract motorist's attention from the driving tasks and expose workers to oncoming traffic.

Some inadequate traffic control measures that have led to worksite traffic accidents include:

- Inadequate advance warning
- Inadequate and inappropriate signs and messages
- Confusing messages
- Inadequate guidance through the work zone
- Conflicting pavement markings
- Unprotected hazard such as shoulder drop offs

Whenever project sites under Terracon control will disrupt vehicle traffic or expose Terracon personnel to the hazards of vehicle traffic, (i.e., work on an active roadway, including shoulders) adequate traffic control measures must be implemented.

Terracon's preferred method for implementing traffic control is to request that clients assume this responsibility. Where clients refuse to assume responsibility, Terracon will attempt to sub-contract the service to a reputable traffic control firm. Terracon personnel with no training or experience in traffic flagging or the placement of traffic control devices such as signs, barricades or flashers are prohibited from engaging in traffic control operations unless directed by a trained and experienced individual.

Project-Specific Traffic Control Requirements
The Project Manager will be primarily responsible for assuring that traffic control measures utilized on the various compressor station project sites (where applicable) are in accordance with Department of Transportation requirements. All Terracon personnel working within 10 feet of an active roadway will wear ANSI Class III traffic safety vests as the outermost garment. All Terracon field personnel will participate in site traffic control briefings with affected field representatives where requested.

16.0 MOTOR VEHICLE SAFETY

Vehicles must be periodically inspected in accordance with Terracon motor vehicle operations policies. Any vehicle found to be unsafe shall not be operated and shall be removed from service until it can be repaired or serviced and rendered safe. Driving at the maximum posted speed limit can be too fast for safety in some situations.
Drivers shall use good judgment and proceed at a speed suitable for the conditions of the vehicle, road, traffic, and weather. Vehicles are not to be moved until all passengers are properly seated inside the vehicle. All operators and passengers must use seat belts and shoulder harnesses, if the vehicle is so equipped.

Before driving, all windows should be cleared of any materials such as frost, mud, or dew that may reduce visibility. Drivers should not engage in distracting activities while a vehicle is in motion. The vehicle should be pulled over to the side of the road and stopped when performing activities such as dialing or using a mobile telephone or taking notes. If the phone rings while driving, let the cellular voice mail service take the call and listen to the message later when you are parked.

Vehicles should be properly parked. When possible, they should be parked so that no backing is required when leaving, unless doing so creates a greater hazard. Where backing is required when leaving a location, the driver shall walk around the vehicle prior to backing and inspect the area for any potential obstructions, or use a spotter. Hazard lights shall be utilized when parking on a road shoulder. Bridge load limits should be reviewed and a pre-approved route established prior to transporting heavy equipment over county road bridges.

Items carried inside the vehicle should be secured to prevent them from being thrown about in event of emergency braking or sharp maneuvers. Items that cannot be secured must be carried in an enclosed trunk or luggage compartment that is physically separated from the passenger area.

All large tools should be carried outside the cab of the vehicle and be properly secured. All fittings, tools, supplies, equipment, and other cargo carried on cargo beds or in the back of trucks must be properly secured and restrained.

17.0 WORK AROUND OPEN WATER

Work around open water and boats presents an unstable surface that may lead to falls and potential for drowning or injury. The following safety precautions are required. The “buddy system” shall be used during all sampling tasks. Within 6 feet of unguarded water more than 3 feet deep, workers will don USCG Type III, V, or better personal floatation device (PFD) with retro reflective tape worn by all personnel aboard boat at all times. The maximum capacity (weight and passenger number) of the boat shall not be exceeded at any time (this number is listed on the boat tag). Workers should be cautious when boarding and keep weight toward center of boat Personnel will not stand in the boat when underway. All equipment must be secured to the boat or securely stowed during transit. Appropriate footwear should be worn when it is necessary to access the shoreline by wading, and nonskid footwear must be worn on board. Employees should dress appropriately for the weather (sunscreen must be worn when sunburn is a threat). The boat must always proceed at a safe speed, under control, and ready to stop within a safe distance. A ring buoy with at least 90 feet of line shall be provided and readily available for emergency rescue operations. In open water areas, at least one life saving skiff shall be immediately available.

Hip waders shall be worn when sampling in shallow waters without a boat to safe guard against stepping on a deep hole or getting stuck in the mud. A PFD should be worn with the waders if you cannot always see to bottom. Use the “buddy system” but keep some distance apart when walking from point A to point B to reduce the risk of both people at the same time stepping in a deep hole. A ring buoy with at least 90 feet of line shall be provided and readily available for emergency rescue operations. If working in a small area close to shore, secure the worker with safety line and harness with the line tended by a second person on shore.

ACKNOWLEDGMENT OF INSTRUCTION

I understand this project involves the excavation of soils impacted by petroleum hydrocarbons. I have read this Safety and Health Plan and have received instructions for safe work practices, personal protective equipment and air monitoring requirements. I further understand that if I encounter unanticipated contamination or site conditions I am to leave the site and immediately notify the Project Manager and Corporate Safety and Health Manager of the conditions observed.

PROJECT NAME: UST Tank Closure - Greenville, Pitt County, North Carolina.

TERRACON JOB #: 70147349

Name (Please Print)	**Signature**	**Date**
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

PERSONAL PROTECTIVE EQUIPMENT UTILIZED:

__X__ **LEVEL D** _____ **LEVEL D MOD.** ____ **LEVEL C**

Safety briefing performed by: _____ Date:_____

PETROLEUM CONTAMINANT(S): DRO, GRO

AIR MONITORING RESULTS (Attach separate page if required.)

APPENDIX D

Residual Materials, Soil, and UST Disposal Certificates

CCI DM's.

GARCO, Inc.

Environmental, Industrial & Recycling Services

2503 North Fayetteville Street
Asheboro, NC 27203
336-683-0911

02:24 PM 09/04/14
9780 lb Gross

02:31 PM 09/04/14
8880 lb Gross

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	CESQG	1	866-624-6555	14319

GENERATOR

5. Generator's Name and Mailing Address
NCDOT
Parcel 186 - 1011
Dickinson AVE Greenville NC
Generator's Phone: 919-436-2987

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name
CCI Services

U.S. EPA ID Number
NCR 000010116

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Garco INC 2305
North Fayetteville St Asheville NC 28803
Facility's Phone: 336-683-0911

U.S. EPA ID Number
NCR 0000135384

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non DOT/NON RCRA Material (Water & Heating oil Mix)	2	DM	800	P	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Chris Lance on Behalf of DOT
Signature:
Month: 9 Day: 4 Year: 14

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Garrett Braddy
Signature:
Month: 9 Day: 4 Year: 14

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Robin Stefanacci
Signature: Robin Stefanacci
Month: 9 Day: 4 Year: 14

Soilworks, Inc.

Profile

Mailing Address
12861 NC Hwy. 96 North
Zebulon, NC 27597

Facility Address
7534 Hwy. 42 East
Selma, NC 27576

NCDENR Permit
SRU600075

Phone (919) 366-1500
Fax (919) 553-5832
soilworks@centurylink.net

CLIENT INFORMATION

Name	Contaminant Control Inc.	Contact	James Loyless
Address	PO Box 64399	Phone Number	+1 (770) 328-1709
City	Fayetteville	State NC Zip Code 28306	email james.loyless@cci-env.com

GENERATOR INFORMATION

Name	North Carolina Department of Transportation	Site Name	NCDOT Parcel 186
Mailing Address	1592 Mail Service Center	Site Address	1011 Dickenson Ave.
City	Raleigh	State NC Zip Code 27699	City Greenville State NC Zip Code 27834
Consultant	Terracon	Contact	Michael Frawley

County where release occurred: Pitt

CONTAMINATED SOIL SUMMARY

Soil Contaminants

Class I Petroleum Fuel Products
low boiling point fuels
Gasoline

Class II Petroleum Fuel Products
medium/high boiling point fuels
Diesel Fuel

☐ Used Oil *TCLP Metals analytical data is required.*
Was the used oil generated at a service station?
☐ Yes ☐ No

Generating Process

☒ Underground Storage Tank (UST) ☐ Aboveground Storage Tank (AST) ☐ Spill

☐ Other *(give a detailed explanation)*

Is the soil contaminated with virgin petroleum product from a UST? ☐ Yes ☒ No

Preapproval Laboratory Data *Check the following analytical data submitted for preapproval:*

☒ TPH 5030	☐ 9071 Oil & Grease	☒ 8260/MTBE/IPE	☒ MADEP EPH	☐ TCLP RCRA Metals	☐ 8081
☒ TPH 3550	☐ Total RCRA Metals	☒ 8270	☒ MADEP VPH	☐ 8082	

Estimated Quantity Tons 42.81 Yards

Pricing is based on the quantity of soil accepted into Soilworks. If the final tons accepted is less than the initial estimated quantity, pricing will be adjusted.

I certify the information contained on this profile is true and correct, and understand any misrepresentation of contaminants, source information, and laboratory values will be a direct violation of the North Carolina Solid Waste Management Code found in 13 NCAC as enforced by the North Carolina Department of Environment and Natural Resources.

Electronic Signature: mhfrawley@terracon.com Digitally signed by mhfrawley@terracon.com DN: cn=mhfrawley@terracon.com, email=mhfrawley@terracon.com Date: 2014.09.02 09:01:36 -04'00'

OR Printed Signature _____

Date: 8/29/2014

Printed Name

Soilworks, Inc.

Facility Address:
7534 Hwy. 42E
Selma, NC 27576

Mailing Address:
7230 Hwy. 42 East
Selma, NC 27576

NCDENR
Permit
SRU600075

Phone (919) 366-1500
Fax (919) 553-5832
laura@soilworksnc.com

Certificate of Disposal

Soilworks, Inc., operating under Permit SRU600075, hereby acknowledges the receipt of 42.81 tons of soil contaminated with petroleum hydrocarbons and will properly execute the disposal of this soil in the prescribed manner set forth by the North Carolina Department of Environment and Natural Resources, Division of Waste Management in accordance with the requirements of SRU600075.

CLIENT

CCI Environmental
3434 Black & Decker Road
Hope Mills, NC 28348

GENERATOR

NCDOT
1589 Mail Service Center
Raleigh, NC 27699
Site: *1101 Dickinson Avenue*
Greenville, NC 27834

TRANSPORTER

Puryear Transport
5844 Lease Lane
Raleigh, NC 27617

DATE(S) ACCEPTED

August 21, 2014

CERTIFICATION BY SOILWORKS, INC.

Laura Buchanan
SIGNATURE

Laura Buchanan — *PRINTED NAME*

08/29/14 — *DATE*

Soilworks, Inc.

Manifest

Facility Address:
7534 Hwy. 42E
Selma, NC 27576

Mailing Address:
7230 Hwy. 42 East
Selma, NC 27576

NCDENR
Permit
SRU600075

Phone (919) 366-1500
Fax (919) 553-5832
laura@soilworksnc.com

CLIENT CCI Environmental
3434 Black & Decker Road
Hope Mills, NC 28348
(910) 484-7000

GENERATOR NCDOT

MAILING ADDRESS 1589 Mail Service Center
Raleigh, NC 27699

SITE ADDRESS 1101 Dickinson Avenue
Greenville, NC 27834

CONSULTANT Terracon
2401 Brentwood Road Ste. 106
Raleigh, NC 27604

TRANSPORTER Puryear Transport
5844 Lease Lane
Raleigh, NC 27617

SHIPMENT INFORMATION

Material Description:
Petroleum Contaminated Soil

Contaminant:	diesel fuel
Manifest Number:	1
Date Weighed:	8/21/2014
Truck Number:	P115
Gross Weight (lbs):	64480
Tare Weight (lbs):	27280
Net Weight (lbs):	37200
Equivalent Tons:	18.60

INSPECTED & ACCEPTED BY SOILWORKS, INC.:

Laura Buchanan
SIGNATURE

Laura Buchanan — *PRINTED NAME*

8/21/2014 — *DATE*

Weight tickets will be issued using scales owned and operated by Soilworks, Inc (regulated by the NCDA-Standards Division [registration #582]). Weight tickets are certified by a Public Weighmaster.

Soilworks, Inc.

Manifest

Facility Address:
7534 Hwy. 42E
Selma, NC 27576

Mailing Address:
7230 Hwy. 42 East
Selma, NC 27576

NCDENR
Permit
SRU600075

Phone (919) 366-1500
Fax (919) 553-5832
laura@soilworksnc.com

CLIENT CCI Environmental
3434 Black & Decker Road
Hope Mills, NC 28348
(910) 484-7000

GENERATOR NCDOT
MAILING ADDRESS 1589 Mail Service Center
Raleigh, NC 27699
SITE ADDRESS 1101 Dickinson Avenue
Greenville, NC 27834

CONSULTANT Terracon
2401 Brentwood Road Ste. 106
Raleigh, NC 27604

TRANSPORTER Puryear Transport
5844 Lease Lane
Raleigh, NC 27617

SHIPMENT INFORMATION

Material Description:
Petroleum Contaminated Soil

Contaminant:	diesel fuel
Manifest Number:	2
Date Weighed:	8/21/2014
Truck Number:	P87
Gross Weight (lbs):	51820
Tare Weight (lbs):	28020
Net Weight (lbs):	23800
Equivalent Tons:	11.90

INSPECTED & ACCEPTED BY SOILWORKS, INC.:

Laura Buchanan
SIGNATURE

Laura Buchanan — *PRINTED NAME*

8/21/2014 — *DATE*

Weight tickets will be issued using scales owned and operated by Soilworks, Inc (regulated by the NCDA-Standards Division [registration #582]). Weight tickets are certified by a Public Weighmaster.

Soilworks, Inc.

Manifest

Facility Address:
7534 Hwy. 42E
Selma, NC 27576

Mailing Address:
7230 Hwy. 42 East
Selma, NC 27576

NCDENR
Permit
SRU600075

Phone (919) 366-1500
Fax (919) 553-5832
laura@soilworksnc.com

CLIENT CCI Environmental
3434 Black & Decker Road
Hope Mills, NC 28348
(910) 484-7000

GENERATOR NCDOT
MAILING ADDRESS 1589 Mail Service Center
Raleigh, NC 27699
SITE ADDRESS 1101 Dickinson Avenue
Greenville, NC 27834

CONSULTANT Terracon
2401 Brentwood Road Ste. 106
Raleigh, NC 27604

TRANSPORTER Puryear Transport
5844 Lease Lane
Raleigh, NC 27617

SHIPMENT INFORMATION

Material Description:
Petroleum Contaminated Soil

Contaminant:	diesel fuel
Manifest Number:	3
Date Weighed:	8/21/2014
Truck Number:	P119
Gross Weight (lbs):	53020
Tare Weight (lbs):	28400
Net Weight (lbs):	24620
Equivalent Tons:	12.31

INSPECTED & ACCEPTED BY SOILWORKS, INC.:

Laura Buchanan
SIGNATURE

Laura Buchanan — *PRINTED NAME*

8/21/2014 — *DATE*

Weight tickets will be issued using scales owned and operated by Soilworks, Inc (regulated by the NCDA-Standards Division [registration #582]). Weight tickets are certified by a Public Weighmaster.

Soilworks, Inc.

7534 Hwy. 42 East
Selma, NC 27576
(919) 366-1500
Permit SRU600075

08:23am 08/21/2014
64480 lb GR

EMPTY WT TRUCK P115

Transporter PURYERR

Client CONTAMINANT CONTROL
DOT.

Project 1011 DICKSON RVR

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
JOEY SULLIVAN 37250

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
RAYMOND EDWARD EARP 31977

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
BOBBY G PAGAN 33380

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
LAURA BUCHANAN 31739

INVALID UNLESS SIGNED

Soilworks, Inc.

7534 Hwy. 42 East
Selma, NC 27576
(919) 366-1500
Permit SRU600075

7

08:27am 08/21/2014
51820 lb GR

EMPTY WT **TRUCK** P&M

Transporter PURYEAR

Client CONTAINMENT CONT.

Project 104 DICKSON AVE DOT

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
JOEY SULLIVAN 37250

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
RAYMOND EDWARD EARP 31977

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
BOBBY G PAGAN 33380

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
LAURA BUCHANAN 31739

INVALID UNLESS SIGNED

Soilworks, Inc.

7534 Hwy. 42 East
Selma, NC 27576
(919) 366-1500
Permit SRU600075

3

08:42am 08/21/2014
53020 lb GR

EMPTY WT TRUCK P119

Transporter PURYEAR

Client CONTAMINATE CONT
DOT

Project 2011 DICKSON AVE

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
JOEY SULLIVAN 37250

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
RAYMOND EDWARD EARP 31977

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
BOBBY G PAGAN 33380

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
LAURA BUCHANAN 31739

INVALID UNLESS SIGNED

Soilworks, Inc.

7534 Hwy. 42 East
Selma, NC 27576
(919) 366-1500
Permit SRU600075

EMPTY WT

TRUCK P115

08:31am 08/21/2014
27280 lb GR

Transporter PURYEAR

Client CONTAINMENT CONT
DOT.

Project 1021 DICKSON AVE

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
JOEY SULLIVAN 37250

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
RAYMOND EDWARD EARP 31977

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
BOBBY G PAGAN 33380

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
LAURA BUCHANAN 31739

INVALID UNLESS SIGNED

Soilworks, Inc.

7534 Hwy. 42 East
Selma, NC 27576
(919) 366-1500
Permit SRU600075

08:33am 08/21/2014
28020 lb GR

EMPTY WT

TRUCK P42

Transporter PURYEAR

Client CONTAMINANT CONT

JOB

Project 1011 DICKSON AVE

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
JOEY SULLIVAN 37250

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
RAYMOND EDWARD EARP 31977

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
BOBBY G PAGAN 33380

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
LAURA BUCHANAN 31739

INVALID UNLESS SIGNED

Soilworks, Inc.

7534 Hwy. 42 East
Selma, NC 27576
(919) 366-1500
Permit SRU600075

EMPTY WT

TRUCK 119

08:49am 08/21/2014
28400 lb GR

Transporter PURVEAR

Client CONTAMINATE CONT

Project 1011 DICKSON AVE DOT

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
JOEY SULLIVAN 37250

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
RAYMOND EDWARD EARP 31977

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
BOBBY G PAGAN 33380

INVALID UNLESS SIGNED

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2015
LAURA BUCHANAN 31739

INVALID UNLESS SIGNED

CCI

Contaminant Control Inc.
281 Lane Parkway
Salisbury, NC. 28146
Phone (704) 314-4060

CERTIFICATE OF DESTRUCTION

Wednesday September 20, 2014

- CCI excavated and removed 1) 1,200 gallon UST tank from Parcel 186 – 1011 Dickenson Ave. Greenville, NC.
- Liquid contents were pumped out using a vacuum truck. Liquids were drummed up into 55 gallon metal drums and sent out for disposal.
- CCI utilized an excavator to load the tank into dump trailer for disposal.
- CCI transported and disposed of the UST at Cohen & Green Salvage Company located at 445 Glidden St, Fayetteville, NC 28301.

Note: Steel Tank will be further processed for recycling and smelting usage.

Contaminant Control Inc.
Project Rep: _____

Cohen & Green Salvage.
Cohen Rep: _____

APPENDIX E

Standard Procedures

E.30
CHAIN OF CUSTODY DOCUMENTATION

Last Revision: November 2001

OBJECTIVE AND APPLICATION
This document defines standard operating procedures for documenting sample collection using proper chain-of-custody techniques. The purpose of proper chain-of-custody techniques is to provide accountability for and documentation of sample integrity from the time samples are collected until sample disposal.

This procedure is intended to document sample possession during each stage of a sample's life cycle, that is, during collection, shipment, storage, and the process of analysis.

EQUIPMENT
- Terracon chain-of-custody record(s) or laboratory-specific chain-of-custody forms (typically supplied with sample containers),
- If samples are being shipped via courier, custody seals for coolers,
- Indelible ink marker, and
- Ziplock bag.

PROCEDURE
Sample containers will be labeled in advance of sampling with the sample date, location (well identifier), sampler's initials, and project name. Written sample custody procedures will be followed whenever samples are collected, transferred, stored, analyzed, or destroyed, in order to trace possession and handling of a sample from collection to disposal. Accountability for a sample begins when the sample is collected. Each sample will be accounted for with the use of sample labels, chain-of-custody forms, a record of sample collection, and field data notebooks.

The following chain-of-custody procedures will be implemented by the field staff:

- Entries in the field notebook and chain-of-custody form will be made in ink. Documentation of each sample must be completed at the time of sampling.
- The chain-of-custody should include at a minimum:
  - Project name and/or number
  - Name and contact information for the sampler collector
  - Collector's signature
  - Sample designation

  - Date sampled
  - Time sampled
  - Sample media
  - Number and size of containers for each sample
  - Types of sample preservatives used
  - Analyses requested
- The original chain-of-custody must accompany the samples at all times after collection, until receipt at the analytical laboratory. A copy of the chain-of-custody form will be kept by the field staff until filing at the office.
- The original chain-of-custody form should be sealed in a Ziplock bag if shipping samples on ice via courier. The sealed Ziplock bag will protect the document from moisture that may be present due to sample preservation. The chain-of-custody should be the last item packed in a sample cooler, so that it is easily accessible if the cooler is misplaced by the courier or shipped to an incorrect address.
- If shipping samples, a chain-of-custody specific to the contents of each cooler will be packaged with the respective samples. Chain-of-custody forms should not be shipped in separate containers than the samples they document. At least one custody seal should be completed by the collector and applied to each cooler sent to the laboratory. The custody seal should be affixed to the cooler in such a manner as to ensure breakage of the seal upon opening of the cooler (e.g., across the cooler lid opening).
- When the possession of samples is transferred, the individuals relinquishing and receiving the samples will sign, date, and note the time on the chain-of-custody form.
- If samples are shipped, strict chain-of-custody is violated. However at the discretion of the project manager the procedures can still be followed.

ATTACHED REFERENCES

Terracon Form COC-7/92 *Chain-of-Custody Record*, revised 4/93

Quality Environmental Containers *Custody Seal*

OTHER SUPPORTING DOCUMENTS

ASTM D4840-99 *Standard Guide for Sampling Chain-of-Custody Procedures*

Terracon BETTENDORF [42]
STANDARD OPERATING PROCEDURE

E.150
SOIL SAMPLING
Low-Level Volatile / Terra Core™

Last Revision: March 15, 2001

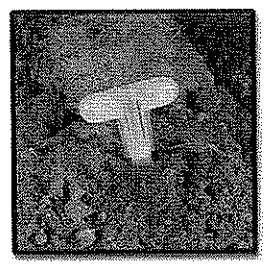
Objective and Application:
To provide standard procedure for sample collection in conditions in which low concentrations of volatile organic compounds are anticipated in soils which minimizes handling and volatilization from the samples. The methods will provide representative samples for laboratory analysis using EPA Standard Method SW-846 5035.

This application uses proprietary commercial equipment and materials which will be purchased from an authorized vendor.

Equipment:

- Commercial Low-Level Terra Core™ Kits, each to include:
  - 8 disposable Terra Core™ Samplers
  - 16 tared 40-milliliter (ml) Volatile Organic Analysis (VOA) vials containing 5 mls of sodium bisulfate solution and integral stir bars
  - 8 tared 40-ml VOA vials containing methanol
  - 8 two ounce dry weight jars with lids
  - 8 zippered plastic bags
- Disposable gloves.
- Chain of Custody.
- Stable field platform to support test kit, screened from wind and elements.

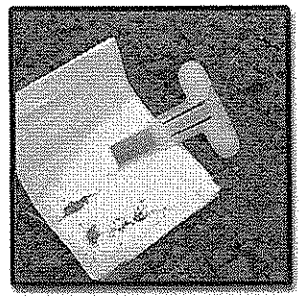
Procedures:
Set up the working platform on a stable surface or in the field vehicle remote from fuel, exhaust or other contaminant sources. Cover the platform and secure with disposable plastic sheeting.



At each location prior to collecting the soil sample, put on a clean pair of disposable gloves.

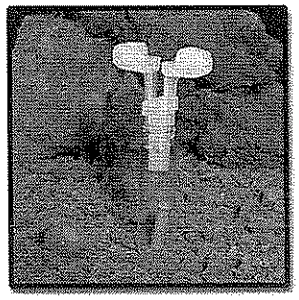
Have ready a 40ml glass VOA vial containing the appropriate preservative. With the plunger seated in the handle, push the Terra

Core™ into freshly exposed soil until the sample chamber is filled. A filled chamber will deliver approximately 5 grams of soil.



Wipe all soil or debris from the outside of the Terra Core™ sampler. Immediately cap the end of the plunger with clean cap provided. The soil plug should be flush with the mouth of the sampler. Remove any excess soil that extends beyond the mouth of the sampler.

Rotate the plunger that was seated in the handle top 90° until it is aligned with the slots in the body. Place the mouth of the sampler into the 40ml VOA vial containing the appropriate preservative, and extrude the sample by pushing the plunger down. Quickly place the lid back on the 40ml VOA vial. When capping the 40ml VOA vial, be sure to remove any soil or debris from the threads of the vial.



Label with a non-solvent-based permanent marker. Place in the zippered bags provided.

Pack well in the kit box provided by the manufacturer. Place the kit box in a large capacity Ziplock® freezer bag and seal. Avoid use of tape and a plastic bag as this method deals specifically with low-level volatile testing.

Place in the cooler filled with ice and pack suitable for overnight courier shipping.

Other Supporting Documents :

- **TerraCore™ Internet Website at http://www.ennovativetech.com/TC_sampler_kit.htm**
  En Novative Technologies, Inc.
  Phone:(920)465-3960
  Fax: (920)465-3963
  Toll Free: 888-411-0757
  Procedures by En Novative Technologies, Inc. 1999-2000, Modified: March 13, 2001

- **Alternative EPA Method 5035 Sampling as EnCore**

- **USEPA SW-846 Method 5035 For Organic Analytes Using Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples**
  Test methods for Evaluating Solid Waste – Volume I, EPA Document #SW-846, United States Environmental Protection Agency, Office of Solid Waste and Emergency Response, Section B, Chapter Four.

Terracon BETTENDORF [42]
STANDARD OPERATING PROCEDURE

E.155
SOIL SAMPLING
High-Level Volatile / Terra Core™

Last Revision: March 15, 2001

Objective: To provide standard procedure for sample collection in conditions in which higher concentrations of volatile organic compounds are anticipated in soils but for which maximum reduction in volatilization during sampling is required. This special procedure minimizes handling and volatilization from the samples in the field and in the laboratory. This procedure will provide representative samples of soil for laboratory analysis using EPA Standard Method SW-846 5035.

Application: The procedure applies to fine grained soils, fills and sands, but may have limited applicability in soils/fills with gravel or debris greater than 1/4-inch in diameter. This application uses proprietary commercial equipment and materials which will be purchased from an authorized vendor.

Equipment:

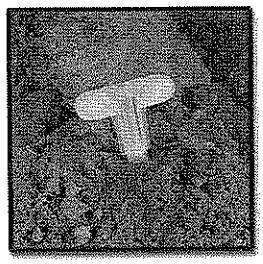
- Commercial High-Level Terra Core™ Kits, each to include:
  - 8 Disposable Terra Core Samplers
  - 8 tared 40-ml VOA vials containing methanol
  - 8 two ounce dry weight jars with lids
  - 8 zipper bags

- Additional Items If Needed: Deionized Water Vials for use in case of effervescence as described in low level sampling in EPA Method 5035.
  - 16 - Tared, 40-ml vials containing 5mls of deionized water and stir bar.

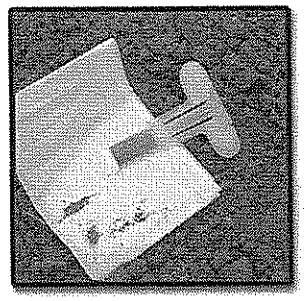
- Disposable gloves.
- Chain of Custody.
- Stable field platform to support test kit, screened from wind and elements.

Procedures:
Set up the working platform on a stable surface or in the field vehicle remote from fuel, exhaust or other contaminant sources. Cover the platform and secure with disposable plastic sheeting.

At each location prior to collecting the soil sample, put on a clean pair of disposable gloves. Check the field kit for presence of all components listed on the box.

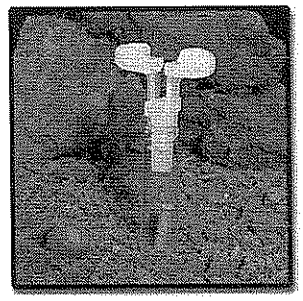


Have ready a 40-ml glass VOA vial containing the appropriate preservative. With the plunger seated in the handle, push the Terra Core™ into freshly exposed soil until the sample chamber is filled. A filled chamber will deliver approximately 5 grams of soil.



Wipe all soil or debris from the outside of the Terra Core™ sampler. Immediately cap the end of the plunger with clean cap provided. The soil plug should be flush with the mouth of the sampler. Remove any excess soil that extends beyond the mouth of the sampler.

Rotate the plunger that was seated in the handle top 90° until it is aligned with the slots in the body. Place the mouth of the sampler into the 40ml VOA vial containing the appropriate preservative, and extrude the sample by pushing the plunger down. Quickly place the lid back on the 40ml VOA vial. When capping the 40ml VOA vial, be sure to remove any soil or debris from the threads of the vial.



Label with a non-solvent-based permanent marker. Place in the zippered bags provided.

Pack well in the kit box provided by the manufacturer. Place the kit box in a large capacity Ziplock® freezer bag and seal. Avoid use of tape and a plastic bag as this method deals specifically with low-level volatile testing.

Place in the cooler filled with ice and pack suitable for overnight courier shipping.

Other Supporting Documents :

- **TerraCore™ Internet Website at http://www.ennovativetech.com/TC_sampler_kit.htm**
  En Novative Technologies, Inc.
  Phone:(920)465-3960
  Fax: (920)465-3963
  Toll Free: 888-411-0757
  Procedures by En Novative Technologies, Inc. 1999-2000, Modified: March 13, 2001

- **Alternative EPA Method 5035 Sampling as EnCore**

- **USEPA SW-846 Method 5035 For Organic Analytes Using Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples**
  Test methods for Evaluating Solid Waste – Volume I, EPA Document #SW-846, United States Environmental Protection Agency, Office of Solid Waste and Emergency Response, Section B, Chapter Four.

E.550
Field Surface Screening – Soil / Photoionization Detector

Objective

To provide a qualitative and limited quantitative field screening of soil samples to aid in the evaluation of soil for the presence of volatile or semi-volatile organic chemicals.

The procedure is premised on the physical property of volatile compounds to move from the soil matrix of a freshly obtained soil sample (e.g., split spoon sample, grab sample) to the airborne state as vapor. The measurement of ambient air in close proximity to the surface of the soil will produce an indication of contaminants moving from the soil matrix to air. The relative strength of contaminants in ambient air around the sample will be considered an indication of the relative concentration of chemicals in the soil sample.

The procedure is semi-quantitative but valid only for the most preliminary qualitative decision-making. The procedure is highly susceptible to external air changes in wind velocity, ambient dilution by moving air and ambient influence by contaminants in moving air. The rate and degree of volatilization is susceptible to smearing of the exterior of the sample by the sampler wall in clay soils.

Measurements cannot be used as the sole indicator of soil contamination or in lieu of prescribed laboratory chemical testing for purposes of regulatory compliance. This procedure is only to be used for sites involving volatile or semi-volatile organic compounds, including PCE. This procedure is not to be used for purposes of health and safety monitoring.

Equipment

- Calibration gas from manufacturer
- Photoionization detector equipped with 10.0 eV lamp or greater.
- Forms and indelible ink pen
- Surgical gloves

Procedures

On a daily basis, the unit should be gas calibrated to a manufacturer's gas standard and the results recorded in the field logbook. If the unit does not calibrate, return it to the local Terracon equipment evaluation for evaluation and, if necessary, repair.

Immediately prior to making a field measurement the unit should be operated for approximately 1 minute and any background concentrations noted or zeroed out relative to measurements.

The opened sampler should be placed on disposable plastic material or a surface that can be cleaned between tests to avoid inadvertent contribution of ionizable vapor from previous tests.

Using a clean stainless steel knife or other cutting tool, slice through the sample to expose fresh soil material not smeared by the sampler or excavating equipment. Immediately begin the test procedure as follows.

- Place the tip of the PID probe between ½ and 1 inches from the surface of the exposed soil.

- Maintaining the proper and constant distance of the probe tip from the sample move the probe very slowly over the surface of sample material, giving good coverage to all portions of the sample.

- Total test time should be in excess of 1 minute for volatile chemicals of concern and in excess of 3 minutes for semi-volatile chemicals of concern.

- Record the highest reading obtained as parts per million (ppm) calibration gas equivalents (i.e., TEI580 calibrated to isobutylene would be expressed as ppmi). Record unusual fluctuations and any noticeable physical correlation to the sample (i.e., "highest readings at ½-1 feet below ground surface over a sand seam in the split spoon sample").

Sample Disposal

Soil samples should be returned to the site and included in auger soil or excavation soil for proper disposal.

Documentation

Record the highest reading in calibration gas equivalents on forms provided by the Project Manager or in the field log book. Pertinent data will vary based on the parameter and the form; however, the following data must be recorded; date, job number, project name, sampling location, sample interval (if appropriate) sample identification, samplers name, and general observations.

Attached Supporting Documents

- **Thermo Environmental Instruments, Inc.** *OVM/Datalogger Model 580B Operating Manual*

Terracon BETTENDORF [42]
STANDARD OPERATING PROCEDURE

E.552
Field Headspace Screening – Soil / Photoionization Detector

LAST REVISED: October 2001

OBJECTIVE

To provide a qualitative and limited quantitative field screening of soil samples to aid in the evaluation of soil for the presence of volatile or semi-volatile organic chemicals.

The procedure is premised on the physical property of volatile compounds to move from the soil matrix to the airborne state as vapor. The amount of airborne material as vapor will be a relative concentration between samples if the volume of sample, volume of air, temperature and period of testing remain reasonably constant. The measurement is semi-quantitative for qualitative decision-making.

Measurements cannot be used as the sole indicator of soil contamination or in lieu of prescribed laboratory chemical testing for purposes of regulatory compliance. This procedure is only to be used for sites involving volatile organic compounds, including PCE. This procedure is not to be used for purposes of health and safety monitoring.

EQUIPMENT

- Calibration gas from manufacturer
- Photoionization detector equipped with 10.0 eV lamp or greater.
- Test chamber, reusable or disposable, examples:
  - Mason jar with aluminum foil
  - Mason jar equipped with charcoal filter
  - Ziploc® bags or other sealable container of at least 500 cubic centimeters to provide a fixed headspace volume for constancy between tests
  - Rigid, disposable concrete test cylinder mold with plastic cap
- Forms and indelible ink pen
- Surgical gloves

PROCEDURES

On a daily basis, the unit should be gas calibrated to a manufacturer's gas standard and the results recorded in the field logbook. If the unit does not calibrate, return it to the local Terracon equipment evaluation for evaluation and, if necessary, repair.

Immediately prior to making a field measurement the unit should be operated for approximately 1 minute and any background concentrations noted or zeroed out relative to measurements.

Prior to site testing an empty, unused test chamber should be sealed containing nothing but ambient air and allowed to stabilize for 1 minute. Test the chamber headspace to identify background contaminants contributed by the chamber itself. If anything is detected, change to another type of chamber which is inert relative to contributing ionizable materials to the headspace.

- Transfer soil sample representative of the condition to be measured from the sampling device to testing chamber (e.g., mason jar covered by aluminum foil, disposal concrete cylinder mold, Ziplock® bag, or other sealable container).
- Sample material should be representative of the vertical and horizontal cross-section of the sampled interval.
- The volume of soil should remain as constant as is practical for all site tests.
- The soil volume should not exceed 25% of the total volume of the air-filled testing chamber.
- Immediately seal the chamber after transfer and allow the sample to equilibrate for a minimum of 15 minutes at ambient temperatures above 50° F.
- Insert probe into sealed container for reading for 1 minute for volatile compounds of concern and 3 minutes for semi-volatile compounds of concern to account for varied response times.
- Record highest reading obtained as parts per million (ppm) calibration gas equivalents (i.e., TEI580 calibrated to isobutylene would be expressed as ppmi) .

SAMPLE DISPOSAL

Soil samples should be returned to the site and included in auger soil or excavation soil for proper disposal.

DOCUMENTATION

Record the highest reading in calibration gas equivalents on forms provided by the Project Manager or in the field log book. Pertinent data will vary based on the parameter and the form; however, the following data must be recorded; date, job number, project name, sampling location, sample interval (if appropriate) sample identification, samplers name, and general observations.

OTHER SUPPORTING DOCUMENTS

- **Thermo Environmental Instruments, Inc.** *OVM/Datalogger Model 580B Operating Manual*

E.2405
CLEANING – GENERAL

LAST REVISION: November 2001

OBJECTIVE AND APPLICATION

To prepare the equipment for field activities in a manner that minimizes the potential for obtaining biased or erroneous data due to contaminant transfer. Cleaning is performed as a quality assurance measure and a safety precaution. It minimizes cross-contaminants between samples and also helps to maintain a clean working environment. This procedure provides general guidelines and should be used in conjunction with more specific procedures applicable to the cleaning method used.

EQUIPMENT

- As determined by the project manager
- Expendable supplies:
  - Surgical gloves
  - Garbage bags
  - Laboratory glassware detergent such as Alconox or Trisodium Phosphate (TSP)
  - Containers for collection of waste liquids, if necessary
  - Dilute acid, methanol, ethanol or other cleaning fluid
- Source of potable water without chemicals that would interfere or be identified in chemical analysis of samples. The project manager may require laboratory testing of cleaning water as a background for evaluating chemical analyses.

PROCEDURES

Cleaning procedures will vary considerably based on the equipment, type of contaminant, type of sample and detection levels. Initial cleaning should take place at the site prior to demobilizing. This will minimize the spread of contamination. The extent of on-site cleaning will vary based on specific conditions; however, an attempt should be made to decontaminate as thoroughly as possible on site. The more care one applies on keeping the equipment clean, the less energy will be required on cleaning.

All field equipment must be prepared at the laboratory/office prior to use. This will include additional cleaning, inspection, and maintenance.

Equipment such as hand trowels, bailers, mixing bowls, hand augers, etc., should be cleaned and wrapped in aluminum foil (with shiny side out) prior to mobilization.

Sampling and monitoring equipment is normally cleaned by washing and rinsing with liquids such as a soap or detergent solution, potable tap water, deionized water (DI), methanol, or a dilute acid.

The extent and type of contaminant will determine the degree of cleaning. If the level of contamination cannot be readily determined, cleaning should be based on the assumption that the equipment is highly contaminated.

Waste products produced by the cleaning procedures such as waste liquids, solids, gloves, used Chem-wipe® cleaning pads, etc., should be collected and disposed of based on the nature of the contaminant. Specific details for the handling of these wastes should be addressed by the project manager.

APPENDIX F

Laboratory Analytical Report and Chain of Custody

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

October 24, 2014

Steve Kerlin
Terracon
2401 Brentwood Rd
Suite 107
Raleigh, NC 27612

RE: Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Dear Steve Kerlin:
Enclosed are the analytical results for sample(s) received by the laboratory on August 21, 2014. 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.

This report was revised to include 8260, 8270, MA EPH, & MA VPH on lab ID 92214461002 and 005, per client request.

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

Sincerely,

Nicole Benjamin
nicole.benjamin@pacelabs.com
Project Manager

Enclosures

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

cc: Chemical Testing Engineer, NCDOT

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

CERTIFICATIONS

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

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 SUMMARY

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92214461001	**UST1-N**	Solid	08/19/14 15:30	08/21/14 16:35
92214461002	**UST1-E**	Solid	08/19/14 16:00	08/21/14 16:35
92214461003	**UST1-W**	Solid	08/19/14 16:15	08/21/14 16:35
92214461004	**UST1-S**	Solid	08/20/14 12:00	08/21/14 16:35
92214461005	**UST1-B**	Solid	08/20/14 12:20	08/21/14 16:35

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

SAMPLE ANALYTE COUNT

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92214461001	**UST1-N**	EPA 8015 Modified	JDW1	2	PASI-C
		EPA 8015 Modified	GAW	2	PASI-C
		ASTM D2974-87	ACS	1	PASI-C
92214461002	**UST1-E**	EPA 8015 Modified	JDW1	2	PASI-C
		MADEP EPH	JDW1	7	PASI-C
		EPA 8015 Modified	GAW	2	PASI-C
		EPA 8260	MCK	70	PASI-C
		ASTM D2974-87	ACS	1	PASI-C
92214461003	**UST1-W**	EPA 8015 Modified	JDW1	2	PASI-C
		EPA 8015 Modified	GAW	2	PASI-C
		ASTM D2974-87	ACS	1	PASI-C
92214461004	**UST1-S**	EPA 8015 Modified	JDW1	2	PASI-C
		EPA 8015 Modified	GAW	2	PASI-C
		ASTM D2974-87	ACS	1	PASI-C
92214461005	**UST1-B**	EPA 8015 Modified	JDW1	2	PASI-C
		MADEP EPH	JDW1	7	PASI-C
		EPA 8015 Modified	GAW	2	PASI-C
		EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	ACS	1	PASI-C

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

SUMMARY OF DETECTION

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92214461001	**UST1-N**					
EPA 8015 Modified	Diesel Range Organics(C10-C28)	6.6	mg/kg	6.3	08/26/14 19:42	
ASTM D2974-87	Percent Moisture	20.6	%	0.10	08/25/14 15:18	
92214461002	**UST1-E**					
EPA 8015 Modified	Diesel Range Organics(C10-C28)	16.6	mg/kg	6.5	08/25/14 17:44	
EPA 8260	Acetone	138	ug/kg	118	09/10/14 17:19	
EPA 8260	Benzene	30.2	ug/kg	5.9	09/10/14 17:19	
EPA 8260	Naphthalene	23.5	ug/kg	5.9	09/10/14 17:19	
EPA 8260	1,2,4-Trimethylbenzene	18.9	ug/kg	5.9	09/10/14 17:19	
EPA 8260	1,3,5-Trimethylbenzene	7.6	ug/kg	5.9	09/10/14 17:19	
ASTM D2974-87	Percent Moisture	23.5	%	0.10	08/25/14 15:18	
92214461003	**UST1-W**					
ASTM D2974-87	Percent Moisture	15.6	%	0.10	08/25/14 15:18	
92214461004	**UST1-S**					
ASTM D2974-87	Percent Moisture	21.5	%	0.10	08/25/14 15:19	
92214461005	**UST1-B**					
EPA 8015 Modified	Diesel Range Organics(C10-C28)	461	mg/kg	12.2	08/26/14 20:29	
MADEP EPH	Aliphatic (C09-C18)	1120	mg/kg	610	09/10/14 12:28	N2
MADEP EPH	Aromatic (C11-C22)	294	mg/kg	48.8	09/10/14 10:52	N2
EPA 8015 Modified	Gas Range Organics (C6-C10)	162	mg/kg	6.8	08/25/14 14:35	
EPA 8260	Benzene	450	ug/kg	307	09/08/14 21:35	
EPA 8260	n-Butylbenzene	659	ug/kg	307	09/08/14 21:35	
EPA 8260	sec-Butylbenzene	378	ug/kg	307	09/08/14 21:35	
EPA 8260	Ethylbenzene	573	ug/kg	307	09/08/14 21:35	
EPA 8260	Isopropylbenzene (Cumene)	427	ug/kg	307	09/08/14 21:35	
EPA 8260	p-Isopropyltoluene	3400	ug/kg	307	09/08/14 21:35	
EPA 8260	Naphthalene	3650	ug/kg	307	09/08/14 21:35	
EPA 8260	n-Propylbenzene	700	ug/kg	307	09/08/14 21:35	
EPA 8260	1,2,4-Trimethylbenzene	8510	ug/kg	307	09/08/14 21:35	
EPA 8260	1,3,5-Trimethylbenzene	4800	ug/kg	307	09/08/14 21:35	
EPA 8260	Xylene (Total)	4020	ug/kg	613	09/08/14 21:35	
EPA 8260	m&p-Xylene	2960	ug/kg	613	09/08/14 21:35	
EPA 8260	o-Xylene	1060	ug/kg	307	09/08/14 21:35	
ASTM D2974-87	Percent Moisture	18.0	%	0.10	08/25/14 13:25	

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

PROJECT NARRATIVE

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Method: **EPA 8015 Modified**
Description: 8015 GCS THC-Diesel
Client: NCDOT East Central
Date: October 24, 2014

General Information:
5 samples were analyzed for EPA 8015 Modified. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/29548

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92214461001

R1: RPD value was outside control limits.

- MSD (Lab ID: 1270005)
  - Diesel Range Organics(C10-C28)

Additional Comments:

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

PROJECT NARRATIVE

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Method: **MADEP EPH**
Description: MADEP EPH NC Soil
Client: NCDOT East Central
Date: October 24, 2014

General Information:
2 samples were analyzed for MADEP EPH. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H3: Sample was received or analysis requested beyond the recognized method holding time.
- UST1-B (Lab ID: 92214461005)
- UST1-E (Lab ID: 92214461002)

Sample Preparation:
The samples were prepared in accordance with MADEP EPH with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/29750

S4: Surrogate recovery not evaluated against control limits due to sample dilution.
- UST1-B (Lab ID: 92214461005)
  - Nonatriacontane (S)

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).
- UST1-B (Lab ID: 92214461005)
  - 2-Bromonaphthalene (S)
  - 2-Fluorobiphenyl (S)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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

PROJECT NARRATIVE

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Method: **MADEP EPH**
Description: MADEP EPH NC Soil
Client: NCDOT East Central
Date: October 24, 2014

Analyte Comments:

QC Batch: OEXT/29750

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1277890)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-C22)
- LCS (Lab ID: 1277891)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-C22)
- LCSD (Lab ID: 1277892)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-C22)
- UST1-B (Lab ID: 92214461005)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-C22)
- UST1-E (Lab ID: 92214461002)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-C22)

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PROJECT NARRATIVE

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Method: **EPA 8015 Modified**
Description: Gasoline Range Organics
Client: NCDOT East Central
Date: October 24, 2014

General Information:
5 samples were analyzed for EPA 8015 Modified. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 5035A/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: GCV/8475

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

- UST1-B (Lab ID: 92214461005)
  - 4-Bromofluorobenzene (S)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Method: **EPA 8260**
Description: 8260/5035A Volatile Organics
Client: NCDOT East Central
Date: October 24, 2014

General Information:
2 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Sample: UST1-N **Lab ID: 92214461001** Collected: 08/19/14 15:30 Received: 08/21/14 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Range Organics(C10-C28)	**6.6**	mg/kg	6.3	5.7	1	08/22/14 11:26	08/26/14 19:42		
Surrogates									
n-Pentacosane (S)	66	%	41-119		1	08/22/14 11:26	08/26/14 19:42	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gas Range Organics (C6-C10)	ND	mg/kg	5.1	5.1	1	08/25/14 13:50	08/25/14 13:03		
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-167		1	08/25/14 13:50	08/25/14 13:03	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**20.6**	%	0.10	0.10	1		08/25/14 15:18		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Sample: UST1-E **Lab ID: 92214461002** Collected: 08/19/14 16:00 Received: 08/21/14 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Range Organics(C10-C28)	**16.6**	mg/kg	6.5	5.9	1	08/22/14 11:26	08/25/14 17:44		
Surrogates									
n-Pentacosane (S)	66	%	41-119		1	08/22/14 11:26	08/25/14 17:44	629-99-2	
MADEP EPH NC Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Aliphatic (C09-C18)	ND	mg/kg	13.1	13.1	1	09/04/14 16:10	09/09/14 17:31		N2
Aliphatic (C19-C36)	ND	mg/kg	13.1	13.1	1	09/04/14 16:10	09/09/14 17:31		N2
Aromatic (C11-C22)	ND	mg/kg	13.1	13.1	1	09/04/14 16:10	09/09/14 18:35		N2
Surrogates									
Nonatriacontane (S)	65	%	40-140		1	09/04/14 16:10	09/09/14 17:31	7194-86-7	H3
o-Terphenyl (S)	58	%	40-140		1	09/04/14 16:10	09/09/14 18:35	84-15-1	H3
2-Fluorobiphenyl (S)	81	%	40-140		1	09/04/14 16:10	09/09/14 18:35	321-60-8	
2-Bromonaphthalene (S)	93	%	40-140		1	09/04/14 16:10	09/09/14 18:35	580-13-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gas Range Organics (C6-C10)	ND	mg/kg	6.8	6.8	1	08/25/14 13:50	08/25/14 13:26		
Surrogates									
4-Bromofluorobenzene (S)	87	%	70-167		1	08/25/14 13:50	08/25/14 13:26	460-00-4	
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
Acetone	**138**	ug/kg	118	11.8	1		09/10/14 17:19	67-64-1	
Benzene	**30.2**	ug/kg	5.9	1.9	1		09/10/14 17:19	71-43-2	
Bromobenzene	ND	ug/kg	5.9	2.4	1		09/10/14 17:19	108-86-1	
Bromochloromethane	ND	ug/kg	5.9	2.0	1		09/10/14 17:19	74-97-5	
Bromodichloromethane	ND	ug/kg	5.9	2.2	1		09/10/14 17:19	75-27-4	
Bromoform	ND	ug/kg	5.9	2.7	1		09/10/14 17:19	75-25-2	
Bromomethane	ND	ug/kg	11.8	2.9	1		09/10/14 17:19	74-83-9	
2-Butanone (MEK)	ND	ug/kg	118	3.4	1		09/10/14 17:19	78-93-3	
n-Butylbenzene	ND	ug/kg	5.9	2.1	1		09/10/14 17:19	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.9	1.9	1		09/10/14 17:19	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.9	2.4	1		09/10/14 17:19	98-06-6	
Carbon tetrachloride	ND	ug/kg	5.9	3.1	1		09/10/14 17:19	56-23-5	
Chlorobenzene	ND	ug/kg	5.9	2.2	1		09/10/14 17:19	108-90-7	
Chloroethane	ND	ug/kg	11.8	2.8	1		09/10/14 17:19	75-00-3	
Chloroform	ND	ug/kg	5.9	1.9	1		09/10/14 17:19	67-66-3	
Chloromethane	ND	ug/kg	11.8	2.8	1		09/10/14 17:19	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.9	2.0	1		09/10/14 17:19	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.9	2.1	1		09/10/14 17:19	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.9	4.2	1		09/10/14 17:19	96-12-8	
Dibromochloromethane	ND	ug/kg	5.9	2.1	1		09/10/14 17:19	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.9	2.1	1		09/10/14 17:19	106-93-4	
Dibromomethane	ND	ug/kg	5.9	2.9	1		09/10/14 17:19	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.9	2.2	1		09/10/14 17:19	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.9	2.4	1		09/10/14 17:19	541-73-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Sample: UST1-E **Lab ID: 92214461002** Collected: 08/19/14 16:00 Received: 08/21/14 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
1,4-Dichlorobenzene	ND	ug/kg	5.9	2.0	1		09/10/14 17:19	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	11.8	4.2	1		09/10/14 17:19	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.9	1.8	1		09/10/14 17:19	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.9	2.6	1		09/10/14 17:19	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.9	2.1	1		09/10/14 17:19	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.9	1.6	1		09/10/14 17:19	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.9	2.2	1		09/10/14 17:19	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.9	2.0	1		09/10/14 17:19	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.9	2.2	1		09/10/14 17:19	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.9	2.0	1		09/10/14 17:19	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.9	1.8	1		09/10/14 17:19	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.9	2.1	1		09/10/14 17:19	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.9	1.8	1		09/10/14 17:19	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.9	2.0	1		09/10/14 17:19	108-20-3	
Ethylbenzene	ND	ug/kg	5.9	2.1	1		09/10/14 17:19	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.9	2.4	1		09/10/14 17:19	87-68-3	
2-Hexanone	ND	ug/kg	58.9	4.6	1		09/10/14 17:19	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.9	2.2	1		09/10/14 17:19	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.9	2.0	1		09/10/14 17:19	99-87-6	
Methylene Chloride	ND	ug/kg	23.6	3.5	1		09/10/14 17:19	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	58.9	4.4	1		09/10/14 17:19	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.9	1.8	1		09/10/14 17:19	1634-04-4	
Naphthalene	**23.5**	ug/kg	5.9	1.4	1		09/10/14 17:19	91-20-3	
n-Propylbenzene	ND	ug/kg	5.9	2.0	1		09/10/14 17:19	103-65-1	
Styrene	ND	ug/kg	5.9	2.1	1		09/10/14 17:19	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.9	2.5	1		09/10/14 17:19	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.9	2.2	1		09/10/14 17:19	79-34-5	
Tetrachloroethene	ND	ug/kg	5.9	2.0	1		09/10/14 17:19	127-18-4	
Toluene	ND	ug/kg	5.9	2.1	1		09/10/14 17:19	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.9	2.6	1		09/10/14 17:19	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.9	1.9	1		09/10/14 17:19	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.9	2.1	1		09/10/14 17:19	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.9	2.5	1		09/10/14 17:19	79-00-5	
Trichloroethene	ND	ug/kg	5.9	2.5	1		09/10/14 17:19	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.9	2.6	1		09/10/14 17:19	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.9	1.9	1		09/10/14 17:19	96-18-4	
1,2,4-Trimethylbenzene	**18.9**	ug/kg	5.9	2.4	1		09/10/14 17:19	95-63-6	
1,3,5-Trimethylbenzene	**7.6**	ug/kg	5.9	2.1	1		09/10/14 17:19	108-67-8	
Vinyl acetate	ND	ug/kg	58.9	10.4	1		09/10/14 17:19	108-05-4	
Vinyl chloride	ND	ug/kg	11.8	2.1	1		09/10/14 17:19	75-01-4	
Xylene (Total)	ND	ug/kg	11.8	4.2	1		09/10/14 17:19	1330-20-7	
m&p-Xylene	ND	ug/kg	11.8	4.2	1		09/10/14 17:19	179601-23-1	
o-Xylene	ND	ug/kg	5.9	2.2	1		09/10/14 17:19	95-47-6	
Surrogates									
Toluene-d8 (S)	108	%	70-130		1		09/10/14 17:19	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Sample: UST1-E **Lab ID: 92214461002** Collected: 08/19/14 16:00 Received: 08/21/14 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130		1		09/10/14 17:19	460-00-4	
1,2-Dichloroethane-d4 (S)	123	%	70-132		1		09/10/14 17:19	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**23.5**	%	0.10	0.10	1		08/25/14 15:18		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Sample: UST1-W **Lab ID: 92214461003** Collected: 08/19/14 16:15 Received: 08/21/14 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Range Organics(C10-C28)	ND	mg/kg	5.9	5.3	1	08/22/14 11:26	08/26/14 20:06		
Surrogates									
n-Pentacosane (S)	68	%	41-119		1	08/22/14 11:26	08/26/14 20:06	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gas Range Organics (C6-C10)	ND	mg/kg	6.0	6.0	1	08/25/14 13:50	08/25/14 13:49		
Surrogates									
4-Bromofluorobenzene (S)	86	%	70-167		1	08/25/14 13:50	08/25/14 13:49	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**15.6**	%	0.10	0.10	1		08/25/14 15:18		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Sample: UST1-S **Lab ID: 92214461004** Collected: 08/20/14 12:00 Received: 08/21/14 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Range Organics(C10-C28)	ND	mg/kg	6.4	5.7	1	08/22/14 11:26	08/25/14 18:08		
Surrogates									
n-Pentacosane (S)	66	%	41-119		1	08/22/14 11:26	08/25/14 18:08	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gas Range Organics (C6-C10)	ND	mg/kg	7.2	7.2	1	08/25/14 13:50	08/25/14 14:12		
Surrogates									
4-Bromofluorobenzene (S)	89	%	70-167		1	08/25/14 13:50	08/25/14 14:12	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**21.5**	%	0.10	0.10	1		08/25/14 15:19		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Sample: UST1-B **Lab ID: 92214461005** Collected: 08/20/14 12:20 Received: 08/21/14 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Range Organics(C10-C28)	**461**	mg/kg	12.2	11.0	2	08/22/14 11:26	08/26/14 20:29		
Surrogates									
n-Pentacosane (S)	73	%	41-119		2	08/22/14 11:26	08/26/14 20:29	629-99-2	
MADEP EPH NC Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Aliphatic (C09-C18)	**1120**	mg/kg	610	610	50	09/04/14 16:10	09/10/14 12:28		N2
Aliphatic (C19-C36)	ND	mg/kg	610	610	50	09/04/14 16:10	09/10/14 12:28		N2
Aromatic (C11-C22)	**294**	mg/kg	48.8	48.8	4	09/04/14 16:10	09/10/14 10:52		N2
Surrogates									
Nonatriacontane (S)	0	%	40-140		50	09/04/14 16:10	09/10/14 12:28	7194-86-7	H3,S4
o-Terphenyl (S)	113	%	40-140		4	09/04/14 16:10	09/10/14 10:52	84-15-1	H3
2-Fluorobiphenyl (S)	179	%	40-140		4	09/04/14 16:10	09/10/14 10:52	321-60-8	S5
2-Bromonaphthalene (S)	287	%	40-140		4	09/04/14 16:10	09/10/14 10:52	580-13-2	S5
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gas Range Organics (C6-C10)	**162**	mg/kg	6.8	6.8	1	08/25/14 13:50	08/25/14 14:35		
Surrogates									
4-Bromofluorobenzene (S)	182	%	70-167		1	08/25/14 13:50	08/25/14 14:35	460-00-4	S5
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
Acetone	ND	ug/kg	6130	613	50		09/08/14 21:35	67-64-1	
Benzene	**450**	ug/kg	307	98.2	50		09/08/14 21:35	71-43-2	
Bromobenzene	ND	ug/kg	307	123	50		09/08/14 21:35	108-86-1	
Bromochloromethane	ND	ug/kg	307	104	50		09/08/14 21:35	74-97-5	
Bromodichloromethane	ND	ug/kg	307	117	50		09/08/14 21:35	75-27-4	
Bromoform	ND	ug/kg	307	141	50		09/08/14 21:35	75-25-2	
Bromomethane	ND	ug/kg	613	153	50		09/08/14 21:35	74-83-9	
2-Butanone (MEK)	ND	ug/kg	6130	178	50		09/08/14 21:35	78-93-3	
n-Butylbenzene	**659**	ug/kg	307	110	50		09/08/14 21:35	104-51-8	
sec-Butylbenzene	**378**	ug/kg	307	98.2	50		09/08/14 21:35	135-98-8	
tert-Butylbenzene	ND	ug/kg	307	123	50		09/08/14 21:35	98-06-6	
Carbon tetrachloride	ND	ug/kg	307	160	50		09/08/14 21:35	56-23-5	
Chlorobenzene	ND	ug/kg	307	117	50		09/08/14 21:35	108-90-7	
Chloroethane	ND	ug/kg	613	147	50		09/08/14 21:35	75-00-3	
Chloroform	ND	ug/kg	307	98.2	50		09/08/14 21:35	67-66-3	
Chloromethane	ND	ug/kg	613	147	50		09/08/14 21:35	74-87-3	
2-Chlorotoluene	ND	ug/kg	307	104	50		09/08/14 21:35	95-49-8	
4-Chlorotoluene	ND	ug/kg	307	110	50		09/08/14 21:35	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	307	221	50		09/08/14 21:35	96-12-8	
Dibromochloromethane	ND	ug/kg	307	110	50		09/08/14 21:35	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	307	110	50		09/08/14 21:35	106-93-4	
Dibromomethane	ND	ug/kg	307	153	50		09/08/14 21:35	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	307	117	50		09/08/14 21:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	307	123	50		09/08/14 21:35	541-73-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Sample: UST1-B **Lab ID: 92214461005** Collected: 08/20/14 12:20 Received: 08/21/14 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
1,4-Dichlorobenzene	ND	ug/kg	307	104	50		09/08/14 21:35	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	613	221	50		09/08/14 21:35	75-71-8	
1,1-Dichloroethane	ND	ug/kg	307	92.0	50		09/08/14 21:35	75-34-3	
1,2-Dichloroethane	ND	ug/kg	307	135	50		09/08/14 21:35	107-06-2	
1,1-Dichloroethene	ND	ug/kg	307	110	50		09/08/14 21:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	307	85.9	50		09/08/14 21:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	307	117	50		09/08/14 21:35	156-60-5	
1,2-Dichloropropane	ND	ug/kg	307	104	50		09/08/14 21:35	78-87-5	
1,3-Dichloropropane	ND	ug/kg	307	117	50		09/08/14 21:35	142-28-9	
2,2-Dichloropropane	ND	ug/kg	307	104	50		09/08/14 21:35	594-20-7	
1,1-Dichloropropene	ND	ug/kg	307	92.0	50		09/08/14 21:35	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	307	110	50		09/08/14 21:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	307	92.0	50		09/08/14 21:35	10061-02-6	
Diisopropyl ether	ND	ug/kg	307	104	50		09/08/14 21:35	108-20-3	
Ethylbenzene	**573**	ug/kg	307	110	50		09/08/14 21:35	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	307	123	50		09/08/14 21:35	87-68-3	
2-Hexanone	ND	ug/kg	3070	239	50		09/08/14 21:35	591-78-6	
Isopropylbenzene (Cumene)	**427**	ug/kg	307	117	50		09/08/14 21:35	98-82-8	
p-Isopropyltoluene	**3400**	ug/kg	307	104	50		09/08/14 21:35	99-87-6	
Methylene Chloride	ND	ug/kg	1230	184	50		09/08/14 21:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	3070	227	50		09/08/14 21:35	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	307	92.0	50		09/08/14 21:35	1634-04-4	
Naphthalene	**3650**	ug/kg	307	73.6	50		09/08/14 21:35	91-20-3	
n-Propylbenzene	**700**	ug/kg	307	104	50		09/08/14 21:35	103-65-1	
Styrene	ND	ug/kg	307	110	50		09/08/14 21:35	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	307	129	50		09/08/14 21:35	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	307	117	50		09/08/14 21:35	79-34-5	
Tetrachloroethene	ND	ug/kg	307	104	50		09/08/14 21:35	127-18-4	
Toluene	ND	ug/kg	307	110	50		09/08/14 21:35	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	307	135	50		09/08/14 21:35	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	307	98.2	50		09/08/14 21:35	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	307	110	50		09/08/14 21:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	307	129	50		09/08/14 21:35	79-00-5	
Trichloroethene	ND	ug/kg	307	129	50		09/08/14 21:35	79-01-6	
Trichlorofluoromethane	ND	ug/kg	307	135	50		09/08/14 21:35	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	307	98.2	50		09/08/14 21:35	96-18-4	
1,2,4-Trimethylbenzene	**8510**	ug/kg	307	123	50		09/08/14 21:35	95-63-6	
1,3,5-Trimethylbenzene	**4800**	ug/kg	307	110	50		09/08/14 21:35	108-67-8	
Vinyl acetate	ND	ug/kg	3070	540	50		09/08/14 21:35	108-05-4	
Vinyl chloride	ND	ug/kg	613	110	50		09/08/14 21:35	75-01-4	
Xylene (Total)	**4020**	ug/kg	613	221	50		09/08/14 21:35	1330-20-7	
m&p-Xylene	**2960**	ug/kg	613	221	50		09/08/14 21:35	179601-23-1	
o-Xylene	**1060**	ug/kg	307	117	50		09/08/14 21:35	95-47-6	
Surrogates									
Toluene-d8 (S)	113	%	70-130		50		09/08/14 21:35	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Sample: UST1-B **Lab ID: 92214461005** Collected: 08/20/14 12:20 Received: 08/21/14 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		50		09/08/14 21:35	460-00-4	
1,2-Dichloroethane-d4 (S)	82	%	70-132		50		09/08/14 21:35	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**18.0**	%	0.10	0.10	1		08/25/14 13:25		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

QC Batch: GCV/8475 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 5035A/5030B Analysis Description: Gasoline Range Organics
Associated Lab Samples: 92214461001, 92214461002, 92214461003, 92214461004, 92214461005

METHOD BLANK: 1270970 Matrix: Solid
Associated Lab Samples: 92214461001, 92214461002, 92214461003, 92214461004, 92214461005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gas Range Organics (C6-C10)	mg/kg	ND	6.0	08/25/14 10:46	
4-Bromofluorobenzene (S)	%	84	70-167	08/25/14 10:46	

LABORATORY CONTROL SAMPLE: 1270971

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gas Range Organics (C6-C10)	mg/kg	49.6	47.5	96	70-165	
4-Bromofluorobenzene (S)	%			89	70-167	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1270972 1270973

Parameter	Units	92214501002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gas Range Organics (C6-C10)	mg/kg	ND	53.1	53.1	68.1	60.9	126	112	47-187	11	30	
4-Bromofluorobenzene (S)	%						93	93	70-167			

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REPORT OF LABORATORY ANALYSIS

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(704)875-9092

QUALITY CONTROL DATA

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

QC Batch: MSV/28247
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92214461005

METHOD BLANK: 1280462
Matrix: Solid
Associated Lab Samples: 92214461005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	5.9	09/08/14 12:16	
1,1,1-Trichloroethane	ug/kg	ND	5.9	09/08/14 12:16	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.9	09/08/14 12:16	
1,1,2-Trichloroethane	ug/kg	ND	5.9	09/08/14 12:16	
1,1-Dichloroethane	ug/kg	ND	5.9	09/08/14 12:16	
1,1-Dichloroethene	ug/kg	ND	5.9	09/08/14 12:16	
1,1-Dichloropropene	ug/kg	ND	5.9	09/08/14 12:16	
1,2,3-Trichlorobenzene	ug/kg	ND	5.9	09/08/14 12:16	
1,2,3-Trichloropropane	ug/kg	ND	5.9	09/08/14 12:16	
1,2,4-Trichlorobenzene	ug/kg	ND	5.9	09/08/14 12:16	
1,2,4-Trimethylbenzene	ug/kg	ND	5.9	09/08/14 12:16	
1,2-Dibromo-3-chloropropane	ug/kg	ND	5.9	09/08/14 12:16	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.9	09/08/14 12:16	
1,2-Dichlorobenzene	ug/kg	ND	5.9	09/08/14 12:16	
1,2-Dichloroethane	ug/kg	ND	5.9	09/08/14 12:16	
1,2-Dichloropropane	ug/kg	ND	5.9	09/08/14 12:16	
1,3,5-Trimethylbenzene	ug/kg	ND	5.9	09/08/14 12:16	
1,3-Dichlorobenzene	ug/kg	ND	5.9	09/08/14 12:16	
1,3-Dichloropropane	ug/kg	ND	5.9	09/08/14 12:16	
1,4-Dichlorobenzene	ug/kg	ND	5.9	09/08/14 12:16	
2,2-Dichloropropane	ug/kg	ND	5.9	09/08/14 12:16	
2-Butanone (MEK)	ug/kg	ND	118	09/08/14 12:16	
2-Chlorotoluene	ug/kg	ND	5.9	09/08/14 12:16	
2-Hexanone	ug/kg	ND	58.8	09/08/14 12:16	
4-Chlorotoluene	ug/kg	ND	5.9	09/08/14 12:16	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	58.8	09/08/14 12:16	
Acetone	ug/kg	ND	118	09/08/14 12:16	
Benzene	ug/kg	ND	5.9	09/08/14 12:16	
Bromobenzene	ug/kg	ND	5.9	09/08/14 12:16	
Bromochloromethane	ug/kg	ND	5.9	09/08/14 12:16	
Bromodichloromethane	ug/kg	ND	5.9	09/08/14 12:16	
Bromoform	ug/kg	ND	5.9	09/08/14 12:16	
Bromomethane	ug/kg	ND	11.8	09/08/14 12:16	
Carbon tetrachloride	ug/kg	ND	5.9	09/08/14 12:16	
Chlorobenzene	ug/kg	ND	5.9	09/08/14 12:16	
Chloroethane	ug/kg	ND	11.8	09/08/14 12:16	
Chloroform	ug/kg	ND	5.9	09/08/14 12:16	
Chloromethane	ug/kg	ND	11.8	09/08/14 12:16	
cis-1,2-Dichloroethene	ug/kg	ND	5.9	09/08/14 12:16	
cis-1,3-Dichloropropene	ug/kg	ND	5.9	09/08/14 12:16	
Dibromochloromethane	ug/kg	ND	5.9	09/08/14 12:16	

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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: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

METHOD BLANK: 1280462 Matrix: Solid
Associated Lab Samples: 92214461005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/kg	ND	5.9	09/08/14 12:16	
Dichlorodifluoromethane	ug/kg	ND	11.8	09/08/14 12:16	
Diisopropyl ether	ug/kg	ND	5.9	09/08/14 12:16	
Ethylbenzene	ug/kg	ND	5.9	09/08/14 12:16	
Hexachloro-1,3-butadiene	ug/kg	ND	5.9	09/08/14 12:16	
Isopropylbenzene (Cumene)	ug/kg	ND	5.9	09/08/14 12:16	
m&p-Xylene	ug/kg	ND	11.8	09/08/14 12:16	
Methyl-tert-butyl ether	ug/kg	ND	5.9	09/08/14 12:16	
Methylene Chloride	ug/kg	ND	23.5	09/08/14 12:16	
n-Butylbenzene	ug/kg	ND	5.9	09/08/14 12:16	
n-Propylbenzene	ug/kg	ND	5.9	09/08/14 12:16	
Naphthalene	ug/kg	ND	5.9	09/08/14 12:16	
o-Xylene	ug/kg	ND	5.9	09/08/14 12:16	
p-Isopropyltoluene	ug/kg	ND	5.9	09/08/14 12:16	
sec-Butylbenzene	ug/kg	ND	5.9	09/08/14 12:16	
Styrene	ug/kg	ND	5.9	09/08/14 12:16	
tert-Butylbenzene	ug/kg	ND	5.9	09/08/14 12:16	
Tetrachloroethene	ug/kg	ND	5.9	09/08/14 12:16	
Toluene	ug/kg	ND	5.9	09/08/14 12:16	
trans-1,2-Dichloroethene	ug/kg	ND	5.9	09/08/14 12:16	
trans-1,3-Dichloropropene	ug/kg	ND	5.9	09/08/14 12:16	
Trichloroethene	ug/kg	ND	5.9	09/08/14 12:16	
Trichlorofluoromethane	ug/kg	ND	5.9	09/08/14 12:16	
Vinyl acetate	ug/kg	ND	58.8	09/08/14 12:16	
Vinyl chloride	ug/kg	ND	11.8	09/08/14 12:16	
Xylene (Total)	ug/kg	ND	11.8	09/08/14 12:16	
1,2-Dichloroethane-d4 (S)	%	114	70-132	09/08/14 12:16	
4-Bromofluorobenzene (S)	%	101	70-130	09/08/14 12:16	
Toluene-d8 (S)	%	110	70-130	09/08/14 12:16	

LABORATORY CONTROL SAMPLE: 1280463

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	53.9	50.0	93	74-137	
1,1,1-Trichloroethane	ug/kg	53.9	56.2	104	67-140	
1,1,2,2-Tetrachloroethane	ug/kg	53.9	46.1	86	72-141	
1,1,2-Trichloroethane	ug/kg	53.9	52.2	97	78-138	
1,1-Dichloroethane	ug/kg	53.9	50.4	94	69-134	
1,1-Dichloroethene	ug/kg	53.9	56.5	105	67-138	
1,1-Dichloropropene	ug/kg	53.9	54.6	101	69-139	
1,2,3-Trichlorobenzene	ug/kg	53.9	54.3	101	70-146	
1,2,3-Trichloropropane	ug/kg	53.9	49.6	92	69-144	
1,2,4-Trichlorobenzene	ug/kg	53.9	54.5	101	68-148	
1,2,4-Trimethylbenzene	ug/kg	53.9	52.3	97	74-137	

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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: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

LABORATORY CONTROL SAMPLE: 1280463

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromo-3-chloropropane	ug/kg	53.9	52.2	97	65-140	
1,2-Dibromoethane (EDB)	ug/kg	53.9	51.8	96	77-135	
1,2-Dichlorobenzene	ug/kg	53.9	51.4	95	77-141	
1,2-Dichloroethane	ug/kg	53.9	50.1	93	65-137	
1,2-Dichloropropane	ug/kg	53.9	49.1	91	72-136	
1,3,5-Trimethylbenzene	ug/kg	53.9	51.3	95	76-133	
1,3-Dichlorobenzene	ug/kg	53.9	51.1	95	74-138	
1,3-Dichloropropane	ug/kg	53.9	50.8	94	71-139	
1,4-Dichlorobenzene	ug/kg	53.9	51.4	95	76-138	
2,2-Dichloropropane	ug/kg	53.9	58.5	109	68-137	
2-Butanone (MEK)	ug/kg	108	99.3J	92	58-147	
2-Chlorotoluene	ug/kg	53.9	50.8	94	73-139	
2-Hexanone	ug/kg	108	101	93	62-145	
4-Chlorotoluene	ug/kg	53.9	51.1	95	76-141	
4-Methyl-2-pentanone (MIBK)	ug/kg	108	96.9	90	64-149	
Acetone	ug/kg	108	99.3J	92	53-153	
Benzene	ug/kg	53.9	48.5	90	73-135	
Bromobenzene	ug/kg	53.9	52.3	97	75-133	
Bromochloromethane	ug/kg	53.9	50.0	93	73-134	
Bromodichloromethane	ug/kg	53.9	54.6	101	71-135	
Bromoform	ug/kg	53.9	52.8	98	66-141	
Bromomethane	ug/kg	53.9	66.0	122	53-160	
Carbon tetrachloride	ug/kg	53.9	53.4	99	60-145	
Chlorobenzene	ug/kg	53.9	49.0	91	78-130	
Chloroethane	ug/kg	53.9	60.2	112	64-149	
Chloroform	ug/kg	53.9	51.5	96	70-134	
Chloromethane	ug/kg	53.9	54.2	101	52-150	
cis-1,2-Dichloroethene	ug/kg	53.9	58.1	108	70-133	
cis-1,3-Dichloropropene	ug/kg	53.9	51.0	95	68-134	
Dibromochloromethane	ug/kg	53.9	58.0	108	71-138	
Dibromomethane	ug/kg	53.9	51.5	96	74-130	
Dichlorodifluoromethane	ug/kg	53.9	51.1	95	40-160	F3
Diisopropyl ether	ug/kg	53.9	51.8	96	69-141	
Ethylbenzene	ug/kg	53.9	50.2	93	75-133	
Hexachloro-1,3-butadiene	ug/kg	53.9	51.4	95	68-143	
Isopropylbenzene (Cumene)	ug/kg	53.9	49.0	91	76-143	
m&p-Xylene	ug/kg	108	96.2	89	75-136	
Methyl-tert-butyl ether	ug/kg	53.9	49.2	91	68-144	
Methylene Chloride	ug/kg	53.9	53.5	99	45-154	
n-Butylbenzene	ug/kg	53.9	52.2	97	72-137	
n-Propylbenzene	ug/kg	53.9	50.0	93	76-136	
Naphthalene	ug/kg	53.9	53.9	100	68-151	
o-Xylene	ug/kg	53.9	47.1	87	76-141	
p-Isopropyltoluene	ug/kg	53.9	50.0	93	76-140	
sec-Butylbenzene	ug/kg	53.9	50.5	94	79-139	
Styrene	ug/kg	53.9	51.1	95	79-137	
tert-Butylbenzene	ug/kg	53.9	48.8	91	74-143	

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REPORT OF LABORATORY ANALYSIS

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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

LABORATORY CONTROL SAMPLE: 1280463

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	53.9	51.9	96	71-138	
Toluene	ug/kg	53.9	48.6	90	74-131	
trans-1,2-Dichloroethene	ug/kg	53.9	57.0	106	67-135	
trans-1,3-Dichloropropene	ug/kg	53.9	50.5	94	65-146	
Trichloroethene	ug/kg	53.9	51.8	96	67-135	
Trichlorofluoromethane	ug/kg	53.9	66.1	123	59-144	
Vinyl acetate	ug/kg	108	99.0	92	40-160	F3
Vinyl chloride	ug/kg	53.9	56.8	105	56-141	
Xylene (Total)	ug/kg	162	143	89	76-137	
1,2-Dichloroethane-d4 (S)	%			102	70-132	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			101	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: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

QC Batch: MSV/28280
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92214461002

METHOD BLANK: 1282337
Matrix: Solid
Associated Lab Samples: 92214461002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	5.9	09/10/14 15:41	
1,1,1-Trichloroethane	ug/kg	ND	5.9	09/10/14 15:41	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.9	09/10/14 15:41	
1,1,2-Trichloroethane	ug/kg	ND	5.9	09/10/14 15:41	
1,1-Dichloroethane	ug/kg	ND	5.9	09/10/14 15:41	
1,1-Dichloroethene	ug/kg	ND	5.9	09/10/14 15:41	
1,1-Dichloropropene	ug/kg	ND	5.9	09/10/14 15:41	
1,2,3-Trichlorobenzene	ug/kg	ND	5.9	09/10/14 15:41	
1,2,3-Trichloropropane	ug/kg	ND	5.9	09/10/14 15:41	
1,2,4-Trichlorobenzene	ug/kg	ND	5.9	09/10/14 15:41	
1,2,4-Trimethylbenzene	ug/kg	ND	5.9	09/10/14 15:41	
1,2-Dibromo-3-chloropropane	ug/kg	ND	5.9	09/10/14 15:41	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.9	09/10/14 15:41	
1,2-Dichlorobenzene	ug/kg	ND	5.9	09/10/14 15:41	
1,2-Dichloroethane	ug/kg	ND	5.9	09/10/14 15:41	
1,2-Dichloropropane	ug/kg	ND	5.9	09/10/14 15:41	
1,3,5-Trimethylbenzene	ug/kg	ND	5.9	09/10/14 15:41	
1,3-Dichlorobenzene	ug/kg	ND	5.9	09/10/14 15:41	
1,3-Dichloropropane	ug/kg	ND	5.9	09/10/14 15:41	
1,4-Dichlorobenzene	ug/kg	ND	5.9	09/10/14 15:41	
2,2-Dichloropropane	ug/kg	ND	5.9	09/10/14 15:41	
2-Butanone (MEK)	ug/kg	ND	118	09/10/14 15:41	
2-Chlorotoluene	ug/kg	ND	5.9	09/10/14 15:41	
2-Hexanone	ug/kg	ND	58.8	09/10/14 15:41	
4-Chlorotoluene	ug/kg	ND	5.9	09/10/14 15:41	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	58.8	09/10/14 15:41	
Acetone	ug/kg	ND	118	09/10/14 15:41	
Benzene	ug/kg	ND	5.9	09/10/14 15:41	
Bromobenzene	ug/kg	ND	5.9	09/10/14 15:41	
Bromochloromethane	ug/kg	ND	5.9	09/10/14 15:41	
Bromodichloromethane	ug/kg	ND	5.9	09/10/14 15:41	
Bromoform	ug/kg	ND	5.9	09/10/14 15:41	
Bromomethane	ug/kg	ND	11.8	09/10/14 15:41	
Carbon tetrachloride	ug/kg	ND	5.9	09/10/14 15:41	
Chlorobenzene	ug/kg	ND	5.9	09/10/14 15:41	
Chloroethane	ug/kg	ND	11.8	09/10/14 15:41	
Chloroform	ug/kg	ND	5.9	09/10/14 15:41	
Chloromethane	ug/kg	ND	11.8	09/10/14 15:41	
cis-1,2-Dichloroethene	ug/kg	ND	5.9	09/10/14 15:41	
cis-1,3-Dichloropropene	ug/kg	ND	5.9	09/10/14 15:41	
Dibromochloromethane	ug/kg	ND	5.9	09/10/14 15:41	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

METHOD BLANK: 1282337 Matrix: Solid
Associated Lab Samples: 92214461002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/kg	ND	5.9	09/10/14 15:41	
Dichlorodifluoromethane	ug/kg	ND	11.8	09/10/14 15:41	
Diisopropyl ether	ug/kg	ND	5.9	09/10/14 15:41	
Ethylbenzene	ug/kg	ND	5.9	09/10/14 15:41	
Hexachloro-1,3-butadiene	ug/kg	ND	5.9	09/10/14 15:41	
Isopropylbenzene (Cumene)	ug/kg	ND	5.9	09/10/14 15:41	
m&p-Xylene	ug/kg	ND	11.8	09/10/14 15:41	
Methyl-tert-butyl ether	ug/kg	ND	5.9	09/10/14 15:41	
Methylene Chloride	ug/kg	ND	23.5	09/10/14 15:41	
n-Butylbenzene	ug/kg	ND	5.9	09/10/14 15:41	
n-Propylbenzene	ug/kg	ND	5.9	09/10/14 15:41	
Naphthalene	ug/kg	ND	5.9	09/10/14 15:41	
o-Xylene	ug/kg	ND	5.9	09/10/14 15:41	
p-Isopropyltoluene	ug/kg	ND	5.9	09/10/14 15:41	
sec-Butylbenzene	ug/kg	ND	5.9	09/10/14 15:41	
Styrene	ug/kg	ND	5.9	09/10/14 15:41	
tert-Butylbenzene	ug/kg	ND	5.9	09/10/14 15:41	
Tetrachloroethene	ug/kg	ND	5.9	09/10/14 15:41	
Toluene	ug/kg	ND	5.9	09/10/14 15:41	
trans-1,2-Dichloroethene	ug/kg	ND	5.9	09/10/14 15:41	
trans-1,3-Dichloropropene	ug/kg	ND	5.9	09/10/14 15:41	
Trichloroethene	ug/kg	ND	5.9	09/10/14 15:41	
Trichlorofluoromethane	ug/kg	ND	5.9	09/10/14 15:41	
Vinyl acetate	ug/kg	ND	58.8	09/10/14 15:41	
Vinyl chloride	ug/kg	ND	11.8	09/10/14 15:41	
Xylene (Total)	ug/kg	ND	11.8	09/10/14 15:41	
1,2-Dichloroethane-d4 (S)	%	109	70-132	09/10/14 15:41	
4-Bromofluorobenzene (S)	%	88	70-130	09/10/14 15:41	
Toluene-d8 (S)	%	103	70-130	09/10/14 15:41	

LABORATORY CONTROL SAMPLE: 1282338

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	56.7	52.0	92	74-137	
1,1,1-Trichloroethane	ug/kg	56.7	56.2	99	67-140	
1,1,2,2-Tetrachloroethane	ug/kg	56.7	43.2	76	72-141	F3
1,1,2-Trichloroethane	ug/kg	56.7	51.7	91	78-138	
1,1-Dichloroethane	ug/kg	56.7	55.7	98	69-134	
1,1-Dichloroethene	ug/kg	56.7	52.8	93	67-138	
1,1-Dichloropropene	ug/kg	56.7	55.9	99	69-139	
1,2,3-Trichlorobenzene	ug/kg	56.7	51.4	91	70-146	
1,2,3-Trichloropropane	ug/kg	56.7	47.8	84	69-144	
1,2,4-Trichlorobenzene	ug/kg	56.7	51.2	90	68-148	
1,2,4-Trimethylbenzene	ug/kg	56.7	77.5	137	74-137	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Huntersville, NC 28078
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QUALITY CONTROL DATA

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

LABORATORY CONTROL SAMPLE: 1282338

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromo-3-chloropropane	ug/kg	56.7	48.0	85	65-140	
1,2-Dibromoethane (EDB)	ug/kg	56.7	49.9	88	77-135	
1,2-Dichlorobenzene	ug/kg	56.7	52.8	93	77-141	
1,2-Dichloroethane	ug/kg	56.7	53.6	94	65-137	
1,2-Dichloropropane	ug/kg	56.7	56.2	99	72-136	
1,3,5-Trimethylbenzene	ug/kg	56.7	64.3	113	76-133	
1,3-Dichlorobenzene	ug/kg	56.7	52.5	93	74-138	
1,3-Dichloropropane	ug/kg	56.7	51.5	91	71-139	
1,4-Dichlorobenzene	ug/kg	56.7	60.8	107	76-138	
2,2-Dichloropropane	ug/kg	56.7	57.3	101	68-137	
2-Butanone (MEK)	ug/kg	113	108J	95	58-147	
2-Chlorotoluene	ug/kg	56.7	62.9	111	73-139	
2-Hexanone	ug/kg	113	94.7	84	62-145	
4-Chlorotoluene	ug/kg	56.7	65.1	115	76-141	
4-Methyl-2-pentanone (MIBK)	ug/kg	113	96.1	85	64-149	
Acetone	ug/kg	113	81.4J	72	53-153	
Benzene	ug/kg	56.7	53.7	95	73-135	
Bromobenzene	ug/kg	56.7	59.0	104	75-133	
Bromochloromethane	ug/kg	56.7	52.6	93	73-134	
Bromodichloromethane	ug/kg	56.7	58.4	103	71-135	
Bromoform	ug/kg	56.7	51.2	90	66-141	
Bromomethane	ug/kg	56.7	65.2	115	53-160	
Carbon tetrachloride	ug/kg	56.7	54.4	96	60-145	
Chlorobenzene	ug/kg	56.7	58.0	102	78-130	
Chloroethane	ug/kg	56.7	54.2	96	64-149	
Chloroform	ug/kg	56.7	61.9	109	70-134	
Chloromethane	ug/kg	56.7	66.3	117	52-150	
cis-1,2-Dichloroethene	ug/kg	56.7	59.4	105	70-133	
cis-1,3-Dichloropropene	ug/kg	56.7	53.4	94	68-134	
Dibromochloromethane	ug/kg	56.7	57.2	101	71-138	
Dibromomethane	ug/kg	56.7	54.9	97	74-130	
Dichlorodifluoromethane	ug/kg	56.7	62.2	110	40-160	
Diisopropyl ether	ug/kg	56.7	51.6	91	69-141	
Ethylbenzene	ug/kg	56.7	62.7	111	75-133	
Hexachloro-1,3-butadiene	ug/kg	56.7	52.9	93	68-143	
Isopropylbenzene (Cumene)	ug/kg	56.7	63.2	112	76-143	
m&p-Xylene	ug/kg	113	119	105	75-136	
Methyl-tert-butyl ether	ug/kg	56.7	45.2	80	68-144	
Methylene Chloride	ug/kg	56.7	51.5	91	45-154	
n-Butylbenzene	ug/kg	56.7	68.3	120	72-137	
n-Propylbenzene	ug/kg	56.7	61.3	108	76-136	
Naphthalene	ug/kg	56.7	49.9	88	68-151	
o-Xylene	ug/kg	56.7	52.9	93	76-141	
p-Isopropyltoluene	ug/kg	56.7	52.9	93	76-140	
sec-Butylbenzene	ug/kg	56.7	60.6	107	79-139	
Styrene	ug/kg	56.7	55.3	98	79-137	
tert-Butylbenzene	ug/kg	56.7	62.0	109	74-143	

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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: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

LABORATORY CONTROL SAMPLE: 1282338

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	56.7	52.2	92	71-138	
Toluene	ug/kg	56.7	53.8	95	74-131	
trans-1,2-Dichloroethene	ug/kg	56.7	53.8	95	67-135	
trans-1,3-Dichloropropene	ug/kg	56.7	53.1	94	65-146	
Trichloroethene	ug/kg	56.7	55.9	99	67-135	F3
Trichlorofluoromethane	ug/kg	56.7	52.9	93	59-144	
Vinyl acetate	ug/kg	113	58.2	51	40-160	F3
Vinyl chloride	ug/kg	56.7	56.9	100	56-141	
Xylene (Total)	ug/kg	170	172	101	76-137	
1,2-Dichloroethane-d4 (S)	%			100	70-132	
4-Bromofluorobenzene (S)	%			94	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE SAMPLE: 1283035

Parameter	Units	92215518010 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	19.3	19.5	101	70-130	
1,1,1-Trichloroethane	ug/kg	ND	19.3	20.5	106	70-130	
1,1,2,2-Tetrachloroethane	ug/kg	ND	19.3	18.8	97	70-130	
1,1,2-Trichloroethane	ug/kg	ND	19.3	18.7	96	70-130	
1,1-Dichloroethane	ug/kg	ND	19.3	21.3	110	70-130	
1,1-Dichloroethene	ug/kg	ND	19.3	20.5	106	49-180	
1,1-Dichloropropene	ug/kg	ND	19.3	21.2	110	70-130	
1,2,3-Trichlorobenzene	ug/kg	ND	19.3	20.2	105	70-130	
1,2,3-Trichloropropane	ug/kg	ND	19.3	20.1	104	70-130	
1,2,4-Trichlorobenzene	ug/kg	ND	19.3	19.5	101	70-130	
1,2,4-Trimethylbenzene	ug/kg	ND	19.3	21.5	111	70-130	
1,2-Dibromo-3-chloropropane	ug/kg	ND	19.3	18.0	93	70-130	
1,2-Dibromoethane (EDB)	ug/kg	ND	19.3	20.0	103	70-130	
1,2-Dichlorobenzene	ug/kg	ND	19.3	19.7	102	70-130	
1,2-Dichloroethane	ug/kg	ND	19.3	20.7	107	70-130	
1,2-Dichloropropane	ug/kg	ND	19.3	20.4	105	70-130	
1,3,5-Trimethylbenzene	ug/kg	ND	19.3	20.9	108	70-130	
1,3-Dichlorobenzene	ug/kg	ND	19.3	20.1	104	70-130	
1,3-Dichloropropane	ug/kg	ND	19.3	20.5	106	70-130	
1,4-Dichlorobenzene	ug/kg	ND	19.3	20.0	103	70-130	
2,2-Dichloropropane	ug/kg	ND	19.3	21.0	108	70-130	
2-Butanone (MEK)	ug/kg	ND	38.6	41J	106	70-130	
2-Chlorotoluene	ug/kg	ND	19.3	20.7	107	70-130	
2-Hexanone	ug/kg	ND	38.6	37.4J	97	70-130	
4-Chlorotoluene	ug/kg	ND	19.3	21.2	109	70-130	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	38.6	37.3J	96	70-130	
Acetone	ug/kg	ND	38.6	28J	72	70-130	
Benzene	ug/kg	ND	19.3	20.2	105	50-166	
Bromobenzene	ug/kg	ND	19.3	21.5	111	70-130	

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Huntersville, NC 28078
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QUALITY CONTROL DATA

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

MATRIX SPIKE SAMPLE: 1283035

Parameter	Units	92215518010 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromochloromethane	ug/kg	ND	19.3	20.0	104	70-130	
Bromodichloromethane	ug/kg	ND	19.3	21.7	112	70-130	
Bromoform	ug/kg	ND	19.3	19.8	102	70-130	
Bromomethane	ug/kg	ND	19.3	21.7	112	70-130	
Carbon tetrachloride	ug/kg	ND	19.3	20.0	103	70-130	
Chlorobenzene	ug/kg	ND	19.3	19.5	101	43-169	
Chloroethane	ug/kg	ND	19.3	20.8	108	70-130	
Chloroform	ug/kg	ND	19.3	23.1	119	70-130	
Chloromethane	ug/kg	ND	19.3	24.3	126	70-130	
cis-1,2-Dichloroethene	ug/kg	ND	19.3	22.6	117	70-130	
cis-1,3-Dichloropropene	ug/kg	ND	19.3	19.8	103	70-130	
Dibromochloromethane	ug/kg	ND	19.3	21.9	113	70-130	
Dibromomethane	ug/kg	ND	19.3	20.7	107	70-130	
Dichlorodifluoromethane	ug/kg	ND	19.3	21.3	110	70-130	
Diisopropyl ether	ug/kg	ND	19.3	19.3	100	70-130	
Ethylbenzene	ug/kg	ND	19.3	20.4	105	70-130	
Hexachloro-1,3-butadiene	ug/kg	ND	19.3	19.4	100	70-130	
Isopropylbenzene (Cumene)	ug/kg	ND	19.3	20.3	105	70-130	
m&p-Xylene	ug/kg	ND	38.6	43.1	111	70-130	
Methyl-tert-butyl ether	ug/kg	ND	19.3	18.0	93	70-130	
Methylene Chloride	ug/kg	ND	19.3	21.2	109	70-130	
n-Butylbenzene	ug/kg	ND	19.3	21.6	111	70-130	
n-Propylbenzene	ug/kg	ND	19.3	21.8	113	70-130	
Naphthalene	ug/kg	ND	19.3	19.7	102	70-130	
o-Xylene	ug/kg	ND	19.3	19.8	103	70-130	
p-Isopropyltoluene	ug/kg	ND	19.3	19.6	101	70-130	
sec-Butylbenzene	ug/kg	ND	19.3	21.5	111	70-130	
Styrene	ug/kg	ND	19.3	20.6	107	70-130	
tert-Butylbenzene	ug/kg	ND	19.3	19.2	99	70-130	
Tetrachloroethene	ug/kg	ND	19.3	20.1	104	70-130	
Toluene	ug/kg	ND	19.3	20.2	104	52-163	
trans-1,2-Dichloroethene	ug/kg	ND	19.3	20.2	104	70-130	
trans-1,3-Dichloropropene	ug/kg	ND	19.3	19.7	102	70-130	
Trichloroethene	ug/kg	ND	19.3	18.9	98	49-167	
Trichlorofluoromethane	ug/kg	ND	19.3	20.1	104	70-130	
Vinyl acetate	ug/kg	ND	38.6	39.7J	103	70-130	
Vinyl chloride	ug/kg	ND	19.3	22.0	114	70-130	
1,2-Dichloroethane-d4 (S)	%				101	70-132	
4-Bromofluorobenzene (S)	%				99	70-130	
Toluene-d8 (S)	%				102	70-130	

SAMPLE DUPLICATE: 1283036

Parameter	Units	92215518011 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		30	

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QUALITY CONTROL DATA

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

SAMPLE DUPLICATE: 1283036

Parameter	Units	92215518011 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/kg	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,2-Trichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethene	ug/kg	ND	ND		30	
1,1-Dichloropropene	ug/kg	ND	ND		30	
1,2,3-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,3-Trichloropropane	ug/kg	ND	ND		30	
1,2,4-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,4-Trimethylbenzene	ug/kg	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		30	
1,2-Dichlorobenzene	ug/kg	ND	ND		30	
1,2-Dichloroethane	ug/kg	ND	ND		30	
1,2-Dichloropropane	ug/kg	ND	ND		30	
1,3,5-Trimethylbenzene	ug/kg	ND	ND		30	
1,3-Dichlorobenzene	ug/kg	ND	ND		30	
1,3-Dichloropropane	ug/kg	ND	ND		30	
1,4-Dichlorobenzene	ug/kg	ND	ND		30	
2,2-Dichloropropane	ug/kg	ND	ND		30	
2-Butanone (MEK)	ug/kg	ND	ND		30	
2-Chlorotoluene	ug/kg	ND	ND		30	
2-Hexanone	ug/kg	ND	ND		30	
4-Chlorotoluene	ug/kg	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		30	
Acetone	ug/kg	ND	ND		30	
Benzene	ug/kg	ND	ND		30	
Bromobenzene	ug/kg	ND	ND		30	
Bromochloromethane	ug/kg	ND	ND		30	
Bromodichloromethane	ug/kg	ND	ND		30	
Bromoform	ug/kg	ND	ND		30	
Bromomethane	ug/kg	ND	ND		30	
Carbon tetrachloride	ug/kg	ND	ND		30	
Chlorobenzene	ug/kg	ND	ND		30	
Chloroethane	ug/kg	ND	ND		30	
Chloroform	ug/kg	ND	ND		30	
Chloromethane	ug/kg	ND	ND		30	
cis-1,2-Dichloroethene	ug/kg	ND	ND		30	
cis-1,3-Dichloropropene	ug/kg	ND	ND		30	
Dibromochloromethane	ug/kg	ND	ND		30	
Dibromomethane	ug/kg	ND	ND		30	
Dichlorodifluoromethane	ug/kg	ND	ND		30	
Diisopropyl ether	ug/kg	ND	ND		30	
Ethylbenzene	ug/kg	ND	ND		30	
Hexachloro-1,3-butadiene	ug/kg	ND	ND		30	
Isopropylbenzene (Cumene)	ug/kg	ND	ND		30	
m&p-Xylene	ug/kg	ND	ND		30	

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: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

SAMPLE DUPLICATE: 1283036

Parameter	Units	92215518011 Result	Dup Result	RPD	Max RPD	Qualifiers
Methyl-tert-butyl ether	ug/kg	ND	ND		30	
Methylene Chloride	ug/kg	ND	ND		30	
n-Butylbenzene	ug/kg	ND	ND		30	
n-Propylbenzene	ug/kg	ND	ND		30	
Naphthalene	ug/kg	ND	ND		30	
o-Xylene	ug/kg	ND	ND		30	
p-Isopropyltoluene	ug/kg	ND	ND		30	
sec-Butylbenzene	ug/kg	ND	ND		30	
Styrene	ug/kg	ND	ND		30	
tert-Butylbenzene	ug/kg	ND	ND		30	
Tetrachloroethene	ug/kg	ND	ND		30	
Toluene	ug/kg	ND	ND		30	
trans-1,2-Dichloroethene	ug/kg	ND	ND		30	
trans-1,3-Dichloropropene	ug/kg	ND	ND		30	
Trichloroethene	ug/kg	ND	ND		30	
Trichlorofluoromethane	ug/kg	ND	ND		30	
Vinyl acetate	ug/kg	ND	ND		30	
Vinyl chloride	ug/kg	ND	ND		30	
Xylene (Total)	ug/kg	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	108	111	2		
4-Bromofluorobenzene (S)	%	92	93	4		
Toluene-d8 (S)	%	102	100	7		

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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: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

QC Batch: OEXT/29548 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 3546 Analysis Description: 8015 Solid GCSV
Associated Lab Samples: 92214461001, 92214461002, 92214461003, 92214461004, 92214461005

METHOD BLANK: 1270002 Matrix: Solid
Associated Lab Samples: 92214461001, 92214461002, 92214461003, 92214461004, 92214461005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics(C10-C28)	mg/kg	ND	5.0	08/26/14 11:29	
n-Pentacosane (S)	%	72	41-119	08/26/14 11:29	

LABORATORY CONTROL SAMPLE: 1270003

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organics(C10-C28)	mg/kg	66.7	46.9	70	49-113	
n-Pentacosane (S)	%			69	41-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1270004 1270005

Parameter	Units	92214461001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Range Organics(C10-C28)	mg/kg	6.6	84	84	38.5	60.5	38	64	10-146	44	30	R1
n-Pentacosane (S)	%						56	71	41-119			

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
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(704)875-9092

QUALITY CONTROL DATA

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

QC Batch: OEXT/29750 Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH Analysis Description: MADEP EPH NC Soil
Associated Lab Samples: 92214461002, 92214461005

METHOD BLANK: 1277890 Matrix: Solid
Associated Lab Samples: 92214461002, 92214461005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C09-C18)	mg/kg	ND	10.0	09/04/14 19:52	N2
Aliphatic (C19-C36)	mg/kg	ND	10.0	09/04/14 19:52	N2
Aromatic (C11-C22)	mg/kg	ND	10.0	09/04/14 20:24	N2
2-Bromonaphthalene (S)	%	86	40-140	09/04/14 20:24	
2-Fluorobiphenyl (S)	%	73	40-140	09/04/14 20:24	
Nonatriacontane (S)	%	62	40-140	09/04/14 19:52	
o-Terphenyl (S)	%	72	40-140	09/04/14 20:24	

LABORATORY CONTROL SAMPLE & LCSD: 1277891 1277892

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C09-C18)	mg/kg	10	ND	ND	77	60	40-140		50	N2
Aliphatic (C19-C36)	mg/kg	13.3	11.0	ND	82	67	40-140		50	N2
Aromatic (C11-C22)	mg/kg	28.3	27.0	22.8	95	81	40-140	17	50	N2
2-Bromonaphthalene (S)	%				98	92	40-140			
2-Fluorobiphenyl (S)	%				100	85	40-140			
Nonatriacontane (S)	%				68	58	40-140			
o-Terphenyl (S)	%				102	88	40-140			

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: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

QC Batch: PMST/6960
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92214461005

SAMPLE DUPLICATE: 1270837

Parameter	Units	92214091001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	26.1	25.0	4	25	

SAMPLE DUPLICATE: 1270838

Parameter	Units	92214330001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	18.1	18.7	4	25	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

QC Batch: PMST/6961 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92214461001, 92214461002, 92214461003, 92214461004

SAMPLE DUPLICATE: 1270839

Parameter	Units	92214057001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	19.9	18.3	9	25	

SAMPLE DUPLICATE: 1270840

Parameter	Units	92214106004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	36.8	36.6	1	25	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

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.

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

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.
H3	Sample was received or analysis requested beyond the recognized method holding time.
N2	The lab does not hold TNI accreditation for this parameter.
R1	RPD value was outside control limits.
S4	Surrogate recovery not evaluated against control limits due to sample dilution.
S5	Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 357814.1.2 NCDOT UST REMOVAL
Pace Project No.: 92214461

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92214461001	**UST1-N**	EPA 3546	OEXT/29548	EPA 8015 Modified	GCSV/18651
92214461002	**UST1-E**	EPA 3546	OEXT/29548	EPA 8015 Modified	GCSV/18651
92214461003	**UST1-W**	EPA 3546	OEXT/29548	EPA 8015 Modified	GCSV/18651
92214461004	**UST1-S**	EPA 3546	OEXT/29548	EPA 8015 Modified	GCSV/18651
92214461005	**UST1-B**	EPA 3546	OEXT/29548	EPA 8015 Modified	GCSV/18651
92214461002	**UST1-E**	MADEP EPH	OEXT/29750	MADEP EPH	GCSV/18784
92214461005	**UST1-B**	MADEP EPH	OEXT/29750	MADEP EPH	GCSV/18784
92214461001	**UST1-N**	EPA 5035A/5030B	GCV/8475	EPA 8015 Modified	GCV/8478
92214461002	**UST1-E**	EPA 5035A/5030B	GCV/8475	EPA 8015 Modified	GCV/8478
92214461003	**UST1-W**	EPA 5035A/5030B	GCV/8475	EPA 8015 Modified	GCV/8478
92214461004	**UST1-S**	EPA 5035A/5030B	GCV/8475	EPA 8015 Modified	GCV/8478
92214461005	**UST1-B**	EPA 5035A/5030B	GCV/8475	EPA 8015 Modified	GCV/8478
92214461002	**UST1-E**	EPA 8260	MSV/28280		
92214461005	**UST1-B**	EPA 8260	MSV/28247		
92214461001	**UST1-N**	ASTM D2974-87	PMST/6961		
92214461002	**UST1-E**	ASTM D2974-87	PMST/6961		
92214461003	**UST1-W**	ASTM D2974-87	PMST/6961		
92214461004	**UST1-S**	ASTM D2974-87	PMST/6961		
92214461005	**UST1-B**	ASTM D2974-87	PMST/6960		

Pace Analytical	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: April 07. 2014 Page 1 of 2
	Document Number: **F-CHR-CS-003-rev.14**	Issuing Authority: Pace Huntersville Quality Office

Client Name: Terracon

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

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

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: IR Gun T1102 (T1401) **Type of Ice:** (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor **T1102**: No Correction **T1301**: No Correction

Corrected Cooler Temp.: 2.1 °C **Biological Tissue is Frozen:** Yes No (N/A)

Temp should be above freezing to 6°C

Optional
Proj. Due Date:
Proj. Name:

Date and Initials of person examining contents: CE 8/21/14

		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: CE 8/21/14	☑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: CE 8/21/14	☑Yes (☐No) ☐N/A	8. #2 Gas kit = 1 vial (TPH) is broken = Methanol vial
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. CE 8/21/14
-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: JDB **Date:** 8/21/14

SRF Review: [illegible] **Date:** 8/25/14

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)

Place label here

OR

92214461

Handwrite project number (if no label available)

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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

1838122

Section A Required Client Information:

Company: Terracon
Address: 2401 Brentwood, Ste. 107
Raleigh, NC 27604
Email To: SJKerlin@terracon.com
Phone: 919.873.2211 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Steve Kerlin
Copy To:
Purchase Order No.:
Project Name: NC DOT UST Removal
Project Number: 70147349

Section C Invoice Information:

Attention: Same
Company Name: "
Address: "
Pace Quote Reference: 56714
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

Requested Analysis Filtered (Y/N)

92214461

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	Analysis Test Y/N: Diesel/TPH-DRO EPH	8270	Gas/TPH-GRO VPH	8260/5035E	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	UST 1-N	SL	G			8/19/14	1530	80	15														001
2	UST 1-E	SL	G			8/19/14	1600	80	15														002
3	UST 1-W	SL	G			8/19/14	1615	80	15														003
4	UST 1-S	SL	G			8/20/14	1200	80	15														004
5	UST 1-B	SL	G			8/20/14	1220	80	15														005
6																							
7																							
8																							
9																							
10																							
11																							
12																							

Hold 8260 and 8270, EPH and VPH Pending TPH Analytical Results

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Michael Frazier Terracon	8/20/14	1021	PACE	8-20-14	1021				
	PACE	8-21-14	1635	Chris Clark Pace	8-21-14	1635	2.1	Y	N	N

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Mike Frazier
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 8/20/14

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

*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.

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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

1838122

Section A Required Client Information:

Company:	Terracon
Address:	2401 Brentwood, Ste. 107 Raleigh, NC 27604
Email To:	sjkerlin@terracon.com
Phone:	919.873.2211 Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Steve Kerlin
Copy To:	
Purchase Order No.:	
Project Name:	NC DOT UST Removal
Project Number:	70147349

Section C Invoice Information:

Attention:	Same
Company Name:	"
Address:	"
Pace Quote Reference:	56714
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	Analysis Test Y/N: Diesel/TPH-DRO	EPH	8270	Gas/TPH GRO	VPH	8260/5035 E	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	UST 1-N	SL	G			8/19/14	1530	80	15									/	/	/	/	/	/		
2	UST 1-E	SL	G			8/19/14	1600	80	15									/	/	/	/	/	/		
3	UST 1-W	SL	G			8/19/14	1615	80	15									/	/	/	/	/	/		
4	UST 1-S	SL	G			8/20/14	1200	80	15									/	/	/	/	/	/		
5	UST 1-B	SL	G			8/20/14	1220	80	15									/	/	/	/	/	/		
6																									
7																									
8																									
9																									
10																									
11																									
12																									

Hold 8260 and 8270, EPH and VPH Pending TPH Analytical Results

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Michael Crawley Terracon	8/20/14	1021		8-20-14	1021	

2

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Mike Crawley

SIGNATURE of SAMPLER: _____ DATE Signed (MM/DD/YY): 8/20/14

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

*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.