

June 24, 2015

State of North Carolina  
Department of Environment and Natural Resources  
Federal & State Lead Program  
Division of Waste Management-Underground Storage Tank Section  
1637 Mail Service Center  
Raleigh, North Carolina 27699-1637

Attn: Ms. Sharon Ghiold

RE: **FEDERAL/STATE-LEAD MONITORING REPORT**  
*LWY Groometown Eckerd*  
3611 Groometown Road  
Greensboro, Guilford County, North Carolina  
Groundwater Incident Number: 30687  
W&R Project Number: 02140214.81

Ms. Ghiold:

Withers & Ravenel, Inc. (W&R) has completed this Federal/State-Lead Monitoring Report to document the groundwater sampling and site assessment activities described in our proposal number TA-03 for the above referenced site, which was approved by the Federal & State Lead Program. The enclosed report summarizes the results of these recently completed activities.

W&R appreciates the opportunity to be of service to the Federal & State Lead Program. Should you have any questions regarding the attached, please do not hesitate to contact Ty Colwell at (919) 535-5209.

Cordially,

**WITHERS & RAVENEL, INC.**



Wesley "Ross" Perry  
Staff Engineer



K. Ty Colwell  
Senior Project Manager



C. Chan Bryant, PE  
Vice President – Environmental Services

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## A. SITE INFORMATION

### A-1. Site Identification

Date of Report: June 24, 2015  
Facility ID: N/A UST Incident Number: 30687  
Site Risk: High Site Rank: L105D  
Site Name: LWY Groometown Eckerd  
City/Town: Greensboro Zip: 27407 County: Guilford  
Description of Geographical Data Point: Center of Source Area  
Location Method (GPS, topo map, other): Google Earth  
Latitude (decimal degrees): N 36° 00' 56.7" Longitude (decimal degrees): W 79° 51' 55.2"

### A-2. Information about Contacts Associated with the Leaking UST System

UST Owner/Operator: Unknown  
Address: Unknown Tel: Unknown  
Property Owner: LWY Groometown, LLC  
Address: 2008 Prescott Place, Raleigh, NC 27615 Tel: 919-782-2223  
Property Occupant: Rite Aid Pharmacy  
Address: 3611 Groometown Road, Greensboro, NC Tel: 336-856-7437  
Consultant/Contractor: Withers & Ravenel  
Address: 115 MacKenan Drive, Cary, NC 27511 Tel: 919-469-3340  
Analytical Laboratory: ESC Lab Sciences State Certification # ENV375  
Address: 12065 Mt. Lebanon Rd., Mt. Juliet, TN 37122 Tel: 615-758-5858

### A-3. Information about Release

Date Discovered: February 2005  
Estimated Release Quantity: Unknown  
Cause of Release: Unknown  
Source of Release: UST System from a Former Gas Station  
Size(s) & Content(s) of UST Systems from which release occurred: Unknown  
Criteria Used to Classify Risk: Proximity to Supply Wells

### A-4. Information about Monitoring Report

Date(s) of Assessment/Monitoring Event(s): May 5, 2015

### A-5. Certification

I, C. Chan Bryant, PE, a Professional Engineer for Withers & Ravenel and do certify that the information contained in this report is correct and accurate to the best of my knowledge.



Withers & Ravenel, Inc. is licensed to practice geology/engineering in North Carolina. The certification numbers are C-293 (Geology) and C-0832 (Engineering).

## B. EXECUTIVE SUMMARY

### 1. *Summary of Activities Associated with Current TA*

W&R installed, developed, and sampled one (1) Type II monitoring well (MW-1). W&R also purged and sampled supply wells WSW-2 and WSW-3.

### 2. *Soil, Groundwater and Free Product Assessment Information*

#### Soils

No soil samples were obtained from locations on the site in connection with Task Authorization (TA) 03. See **Appendix F** for historical soil assessment documentation provided by previous consultants.

#### Groundwater

Analytical data for the groundwater sample obtained from newly installed onsite monitoring well MW-1 indicated that no targeted petroleum related compounds were detected above laboratory detection limits. However, trichloroethene (TCE), a chlorinated solvent, was detected in the groundwater sample above 2L Standards. In addition, TCE daughter-product cis-1,2-dichloroethene was also detected above laboratory detection limits but below 2L Standards.

#### Free Product

To date, no free product has been identified in association with the subject property.

### 3. *Receptor Information*

Crawford Environmental Services (CES) conducted the most recent receptor survey associated with the subject property in April 2013. Results of the survey identified three (3) water supply wells (WSW-2, WSW-3, and WSW-4) located within 1,000 feet of the site. All three wells were identified as being used for potable purposes. The City of Greensboro provides public water to the vicinity surrounding the subject site. No surface water features were identified within 500 feet of the subject site.

### 4. *Remediation Activities*

To date, no remedial activities have been performed at the site.

### 5. *Recommendations*

Based on the results of assessment and monitoring activities conducted at the site in association with this TA, W&R recommends the following:

- Notify the NCDENR Inactive Hazardous Sites Branch or Dry-Cleaning Solvent Cleanup Act (DSCA) Program of chlorinated solvent concentrations identified in the onsite groundwater sample; and
- Based on the limited reported concentrations of petroleum constituents in groundwater during both the current and previous groundwater assessment activities, W&R considers the petroleum release at the site suitable for re-classification as a “low” risk site and a No Further Action determination based on the standard of care expressed by the UST Section State Lead Program. Consideration should be given to the completion of a NORP with groundwater restrictions applied to the site. The NORP would need to be prepared and filed with NCDENR-DWM and the Guilford County Register of Deeds Office.

## C. SITE HISTORY AND CHARACTERIZATION

The following information summarizes the site history and characterization.

### *1. UST Information*

A magnetic survey conducted as part of the Preliminary Site Assessment activities identified an anomaly potentially resulting from the presence of a UST in the southwestern corner of the property along the edge of the right-of-way associated with Groometown Road. The presence of a UST was never confirmed. Historical reports indicate that local residents stated a gas station operated at the subject property approximately 50 years ago; however, additional information regarding the former gas station was not identified.

The location of the site imposed on the USGS Topographic Map for the vicinity is included as **Figure 1**. Site improvements, including potential USTs and monitoring well locations are depicted on **Figure 2**.

### *2. Description of Release/General Assessment History*

The following summary of the assessment history is based on W&R's review of historical files for the subject incident:

Soil contamination at the facility was confirmed through the collection and analysis of soil samples by Solutions Industrial & Environmental Services (Solutions-IES) during the performance of a preliminary site assessment (PSA) on behalf of the NCDOT conducted in February 2005 in preparation for right of way expansion along Groometown Road. Data for samples analyzed for TPH indicated GRO and DRO in one or more soil samples at levels exceeding the minimum reportable concentrations (RCs) for TPH. A GPR survey conducted at the property by Schnabel Engineering indicated the presence of several magnetic "anomalies" located near the southwestern corner of the property, possibly indicative of a UST within the area of proposed right of way expansion. Subsequent soil and groundwater sampling performed by ECS Carolinas, LLP (ECS) during January and April 2006 revealed several soil contaminants at levels exceeding their Soil to Water Maximum Soil Contaminant Concentrations (MSCCs). Data for groundwater samples obtained from temporary monitoring wells (TW-1, TW-2 TW-3 and TW-4) showed several petroleum related compounds at levels above their respective 2L Standards in TW-1. Data for groundwater samples collected from temporary wells TW-2, TW-3 and TW-4 did not indicate the presence of contaminants at levels above the laboratory method detection limit(s). ECS also identified as many as ten (10) water supply wells within 1,500 feet of the site. The nearest of these wells, formerly located approximately 300 feet west of the site, was reportedly either abandoned or is inactive (based on verbal communication between Ms. Edith Collins, property owner and Ms. Sharon Ghiold, NCDENR Incident Manager, on or about July 22, 2009). W&R did not observe any evidence of this well on the property during our December 2014 site visit.

Crawford Environmental Services, Inc. (CES) performed a receptor survey and obtained samples from supply wells on April 11, 2013. In performing the receptor survey, CES confirmed the presence of three active, potable supply wells, WSW-2, WSW-3 and WSW-4, located within 1,000 feet of the site. Analytical data for samples from these wells did not

indicate the presence of targeted compounds at levels above the method detection limit (MDL) for SM 6200B. CES also confirmed that potable water was available through the City of Greensboro municipal supply system to the entire area, and that the site was not located within a wellhead protection area or the Coastal Plain Physiographic Province of the State. W&R has not performed an updated receptor survey in association with the site, but has confirmed property ownership information for the supply wells.

In December 2014, W&R completed a site visit to determine the location of future monitoring wells with utility location and GPR survey for possible USTs near the NCDOT ROW. Data obtained in the performance of the GPR survey at the site did not indicate the presence of specific anomalies indicative of buried metallic tanks or USTs. Several underground utilities including traffic signal lines and fiber optic phone line(s) are present in the area. W&R was unable to sample water supply wells WSW-2, WSW-3 or WSW-4 as W&R personnel could not obtain permission to conduct the sampling of the wells. In subsequent contact with the owners of the supply wells, W&R was informed that two of the three owners are open to the connection of their properties to municipal water service, and the remaining owners (WSW-4) may be open to connection of their property.

In March 2015, W&R acquired signed access agreements from the three water supply well owners at 4206, 4208 and 4210 Wayne Road as part of completion of task authorization-02. However, future correspondence with the City of Greensboro revealed that laterals/connections were not installed and would not be unless it was a “public necessity situation” based on contamination, if found, in the water supply wells.

### *3. Brief Description of Site Characteristics*

The site is located in Greensboro, Guilford County, North Carolina (**Figure 1**) and includes an area of approximately 1.34 acres. The facility is located at 3611 Groometown Road at the intersection of Groometown Road and West Vandalia Road and includes the following improvements: A one-story brick/block building currently operating as a Rite Aid Pharmacy. Potable water utilized on the site is obtained from the municipal water system provided by the City of Greensboro. Site photographs are included in **Appendix C**.

The surrounding area consists mainly of private residences and commercial properties. A Kangaroo gas station with a history of petroleum contamination is located across the intersection of Groometown Road and Vandalia Road approximately 300 feet west/southwest of the subject site. Municipal water is currently available to the site and surrounding properties.

### *4. Information on Receptors/Potential Receptors*

A receptor survey was performed in association with the release at the site by CES in April 2013 and included the following findings:

- Three (3) water supply wells were identified within 1,000 feet of the site,
- No surface water bodies were identified within 500 feet of the subject site,
- Public water provided by the City of Greensboro is provided to the site and available to the surrounding properties.

## D. PRESENTATION OF CURRENT/COMPARISON TO HISTORICAL ASSESSMENT INFORMATION

On May 5, 2015, W&R personnel mobilized to the facility to perform assessment and sampling activities in accordance with TA-03 for the site. Proposed activities included the following:

- Installation of one (1) Type II monitoring well,
- Purging and sampling of the newly installed monitoring well,
- Collection of water supply well samples from three (3) supply wells located in proximity to the site.

### *1 Monitoring Well Installations*

W&R supervised the installation of one (1) Type II groundwater monitoring well at the site in association with this task authorization. Monitoring well MW-1 was placed as close to soil sample 64-4 (as indicated on the Solutions IES-Prelim Site Assess dated 4-4-2005) as the location of underground utilities would permit. The well was installed at the location shown on **Figure 2**, and was constructed as shown in **Table B-7**. Boring logs and construction records for this well is included in **Appendix D**. The monitoring well was installed by Quantex, Inc. using a mobile GeoProbe drill rig employing 6-inch diameter augers. Following its installation, the well was developed by removing approximately three well volumes of water using a peristaltic pump and virgin polyethylene tubing.

### *2 Groundwater Elevations/Free Product Level Measurements*

Prior to the purging and sampling of the newly installed monitoring well, W&R personnel gauged the well with an electronic free product/water level indicator to determine whether measurable free product was present and determine the depth to groundwater. No free product was observed in monitoring well MW-1 and depth to water was measured to be 22.46 feet below top-of-casing. Groundwater elevation measurement data for this event are presented in **Table B-7**.

### *3 Groundwater Sampling and Analytical Results*

#### *Monitoring Well Sampling*

W&R personnel obtained groundwater samples from newly installed monitoring well MW-1 following gauging and purging. Each well was purged utilizing virgin polyethylene tubing as described in procedures outlined in **Appendix E**. Any measurements obtained while purging the wells were recorded on field notes, copies of which are included in **Appendix B**. After purging and recharge of the well, groundwater samples were decanted directly from the bailer into laboratory prepared sample containers holding appropriate preservative(s) as required. Groundwater samples were submitted to ESC Lab Sciences, Inc. (ESC) for analysis by SM6200B and MADEP VPH/EPH. The laboratory analytical report and chain-of-custody record associated with these samples are included in **Appendix A**.

### Laboratory Results

Analytical data for the groundwater sample obtained from newly installed onsite monitoring well MW-1 indicated that no targeted petroleum related compounds were detected above laboratory detection limits. However, trichloroethene (TCE), a chlorinated solvent, was detected in the groundwater sample above 2L Standards. In addition, TCE daughter-product cis-1,2-dichloroethene was also detected above laboratory detection limits but below 2L Standards. The groundwater analytical results are summarized in **Table B-4** and shown on **Figure 2**.

#### *4 Water Supply Well Sampling and Analytical Results*

### Supply Well Sampling

W&R was granted permission to obtain supply well samples from wells WSW-2 and WSW-3. The wells were purged for a minimum of ten minutes prior to the collection of samples. After the purging of the supply wells, samples were decanted directly from the sample port (e.g., spigot) used for purging into laboratory prepared sample containers holding appropriate preservatives (as required). Groundwater samples were submitted to ESC for analysis by SM6200B. The laboratory analytical report and chain-of-custody record associated with these samples are included in **Appendix A**. Locations of supply wells are shown on **Figure 3**.

W&R attempted to obtain supply well samples from well WSW-4, however, was unable to obtain access and authorization to sample WSW-4 despite several attempts to obtain access and authorization from the property owners (including attempts to contact the well owners through messages, in-person, and leaving letters requesting access).

### Laboratory Results

Analytical data for supply well samples obtained from wells WSW-2 and WSW-3, did not indicate the presence of targeted compounds in any of the samples at levels above the method detection limit for SM6200B. These results are included in **Table B-4**.

## E. CONCLUSIONS AND RECOMMENDATIONS

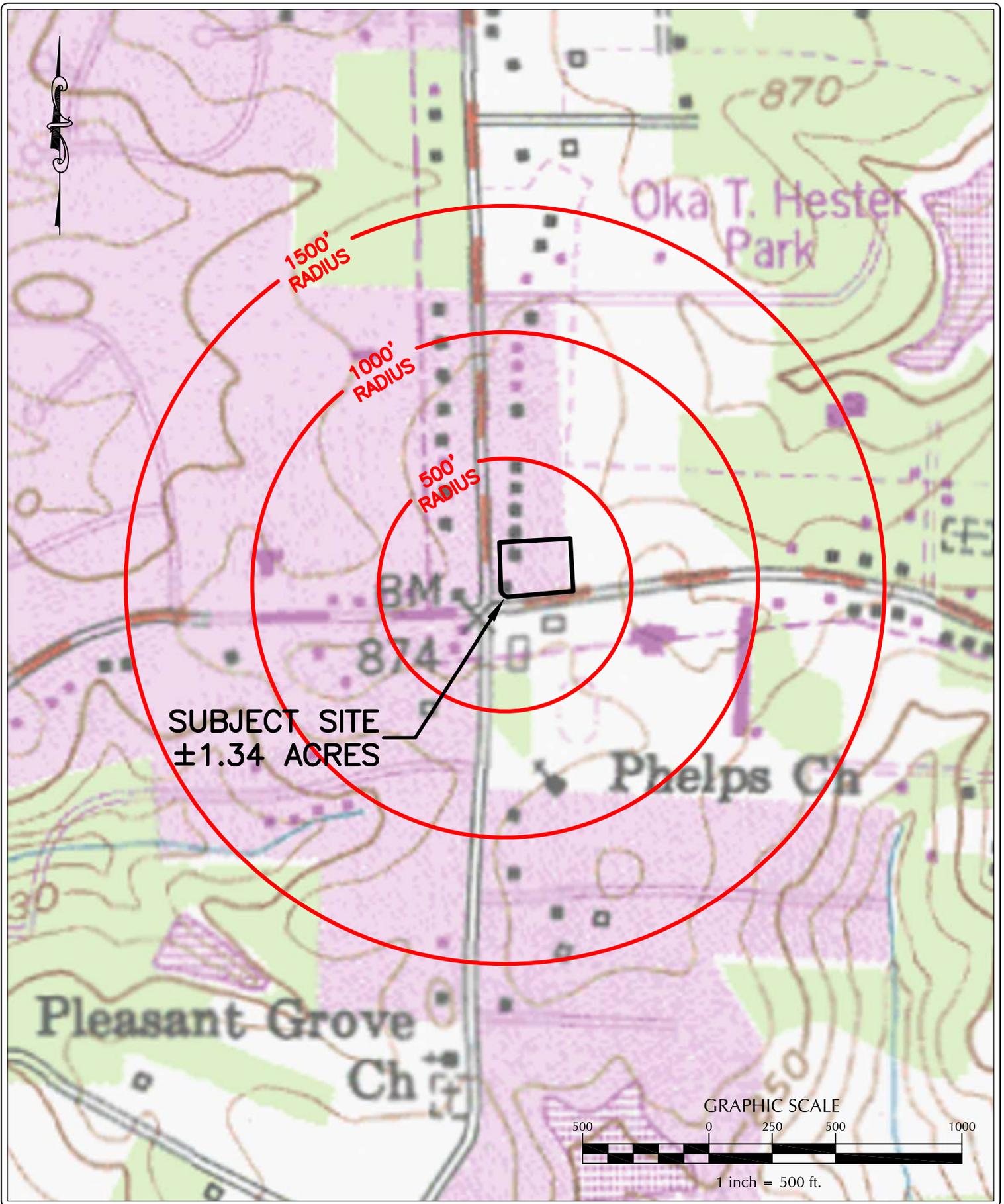
This report documents the results of field activities conducted at the site on May 5, 2015, which included the installation of one (1) Type II monitoring well, collection of a groundwater sample from the newly installed monitoring well, and the collection of samples from two (2) supply wells located in proximity to the release area on site. Conclusions based on observations, analytical data and research relating to the release at the site include the following:

- No targeted petroleum related contaminants were detected above laboratory detection limits in the sample collected from the monitoring well installed in the vicinity of formerly identified petroleum soil contamination;
- TCE was detected in the newly installed well above 2L Standards;
- TCE daughter product cis-1,2-dichloroethene was also detected above laboratory detection limits but below 2L Standards in the groundwater sample collected from the newly installed well;
- Historical soil assessment activities conducted by Solutions-IES identified concentrations of Total Petroleum Hydrocarbon (TPH) above UST Section Action Level of 10 mg/kg in soils collected from the southwestern corner of the property. Subsequent soil sampling performed by ECS during January and April 2006 revealed several soil contaminants at levels exceeding their Soil to Water MSCCs,
- No targeted compounds were detected in samples collected from water supply wells WSW-2 and WSW-3. In addition, no targeted compounds were identified in samples collected by CES from WSW-2, WSW-3, and WSW-4 in April 2013; and
- Municipal water is provided to the subject site and available to the surrounding vicinity; however, three potable water wells remain within 1,000 feet of the site.

Based on the results of assessment and monitoring activities conducted at the site in May, 2015, W&R recommends the following:

- Notify the NCDENR Inactive Hazardous Sites Branch or Dry-Cleaning Solvent Cleanup Act (DSCA) Program of chlorinated solvent concentrations identified in the onsite groundwater sample; and
- Based on the limited reported concentrations of petroleum constituents in groundwater during both the current and previous groundwater assessment activities, W&R considers the petroleum release at the site suitable for re-classification as a “low” risk site and a No Further Action determination based on the standard of care expressed by the UST Section State Lead Program. Consideration should be given to the completion of a NORP with groundwater restrictions applied to the site. The NORP would need to be prepared and filed with NCDENR-DWM and the Guilford County Register of Deeds Office.

## FIGURES



**WITHERS & RAVENEL**  
 ENGINEERS | PLANNERS | SURVEYORS

115 MacKenan Drive Cary, North Carolina 27511 tel: 919-469-3340 www.withersravenel.com License No. C-0832

**GENERAL LOCATION MAP**  
 LWY-GROOMETOWN ECKERD (INCIDENT # TF30687)  
 3611 GROOMETOWN ROAD  
 GREENSBORO, GUILFORD COUNTY, NC  
 USGS NW & NE GREENSBORO, NC  
 7.5 min. Quadrangle

DRAWN BY: <b>WRP</b>	SCALE: <b>1"=500'</b>	FIGURE NO. <b>1</b>
APPROVED BY: <b>KTC</b>	DATE: <b>6/18/15</b>	JOB NO: <b>02140214.81</b>

LEGEND

-  WATER SUPPLY WELL
-  TYPE II MONITORING WELL LOCATION

- NOTES:
- 1.) 2013 AERIAL OBTAINED FROM THE LOCAL COUNTY GIS DEPARTMENT.
  - 2.) ALL RESULTS ARE PROVIDED IN MICROGRAMS PER LITER (ug/L).
  - 3.) **RESULT\*** = EXCEEDS 2L STANDARDS
  - 4.) **RESULT** = EXCEEDS GCL VALUES

GROOMETOWN ROAD

RITE AID PHARMACY  
(3611 GROOMETOWN RD)

LOCATION OF PETROLEUM IMPACTED SOILS AND POSSIBLE UST PER HISTORICAL ASSESSMENT INFORMATION



 MW-1

COMPOUND	RESULTS
CIS-1,2-DICHLOROETHENE	2.7
TRICHLOROETHENE	<b>33*</b>

WEST VANDALIA ROAD

GRAPHIC SCALE



1 inch = 40 ft.

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ENGINEERS | PLANNERS | SURVEYORS

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Revisions			
No.	Description	Date	By

LWY-GROOMETOWN ECKERD  
(INCIDENT # TF30687)  
3611 GROOMETOWN ROAD  
GREENSBORO, GUILFORD COUNTY, NC

GROUNDWATER ANALYTICAL  
RESULTS MAP  
(MAY 2015)

Drawn By WRP	Scale 1"=40'
Checked By KTC	Date 6/18/15

Job No. 02140214.81
Sheet No. <b>2</b>

LEGEND

 WATER SUPPLY WELL

NOTES:  
1.) 2013 AERIAL OBTAINED FROM THE LOCAL COUNTY GIS DEPARTMENT.

1000' RADIUS

500' RADIUS

NO TARGETED COMPOUNDS WERE DETECTED ABOVE LABORATORY DETECTION LIMITS

NO TARGETED COMPOUNDS WERE DETECTED ABOVE LABORATORY DETECTION LIMITS

GRAPHIC SCALE



1 inch = 300 ft.

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ENGINEERS | PLANNERS | SURVEYORS  
115 MacKenzie Drive, Cary, North Carolina 27513 | tel 919.466.3146 | www.witwithers.com | License No. C6812

Revisions			
No.	Description	Date	By

LWY-GROOMTOWN ECKERD  
(INCIDENT # TF30687)  
3811 GROOMTOWN ROAD  
GREENSBORO, GUILFORD COUNTY, NC

WATER SUPPLY WELL ANALYTICAL  
RESULTS MAP  
(MAY 2015)

Drawn By WRP	Scale 1"=300'
Checked By KTC	Date 6/18/15

Job No.  
02140214.81  
Sheet No.  
3

## TABLES

**TABLE B-4**  
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**

**LWY Groometown Eckerd**  
**Incident Number: 30687**  
**3611 Groometown Road**  
**Greensboro, Guilford County, North Carolina**

Analytical Method		6200B - Volatile Organic Compounds					Calculated	VPH/EPH			
Sample ID	Date Collected	Benzene	cis-1,2-Dichloroethene	Ethylbenzene	Toluene	Trichloroethene	Total Xylene	C5-C8 Aliphatics	C9-C18 Aliphatics	C9-C22 Aromatics	C19-C36 Aliphatics
		71-43-2	156-59-2	100-41-4	108-88-3	79-01-6	NA	NA	NA	NA	NA
MW-1	5/05/2015	<1	<b>2.7</b>	<1	<5	<b>33</b>	<2	<100	<100	<100	<100
WSW-2	5/05/2015	<1	<1	<1	<5	<1	<2	NA	NA	NA	NA
WSW-3	5/05/2015	<1	<1	<1	<5	<1	<2	NA	NA	NA	NA
<b>NC 2L Standard</b>		<b>1</b>	<b>60</b>	<b>600</b>	<b>600</b>	<b>3</b>	<b>500</b>	<b>400</b>	<b>700</b>	<b>10000</b>	<b>200</b>
<b>GCLs for Groundwater</b>		<b>5,000</b>	<b>60,000</b>	<b>84,500</b>	<b>260,000</b>	<b>3,000</b>	<b>85,500</b>	<b>NL</b>	<b>NL</b>	<b>NL</b>	<b>NL</b>

**Notes:**

- 1.) All results provided in ug/L (micrograms per liter) or parts per billion
- 2.) Compounds analyzed for by laboratory but not listed were not detected above laboratory detection limits. See the laboratory report included in the Appendix for a full list of constituents.
- 3.) NC 2L Standard - North Carolina Groundwater Quality Standard as per NC Administrative Code 15A NCAC 02L
- 4.) GCLs for Groundwater = NCDENR UST Section Gross Contamination Levels for Groundwater

NL	= Not Listed
<b>Result</b>	= Result Exceeds Laboratory Detection Limits
<b>Result</b>	= Result Exceeds 2L Standard
<b>Result</b>	= Result Exceeds GCL Value

**TABLE B-5  
PUBLIC & PRIVATE WATER SUPPLY WELL INFORMATION**

**LWY Groometown Eckerd  
Incident Number: 30687  
3611 Groometown Road  
Greensboro, Guilford County, North Carolina**

Well ID	Guilford County Parcel Number	Property Address	Property Owner	Property Owner Address & Phone Number	Well Use	Well Depth (feet)	Well Screen Interval (feet)	Well Distance from Source Area (feet)	Location Relative to Groundwater Flow	Well Coordinates (NC State Plane NAD 83 Feet)	
										Eastings	Northing
WSW-2	0141053	4206 Wayne Road Greensboro, NC 27407	Edith K. Collins	6016 Rocky Valley Road Greensboro, NC 27407 (336) 299-1406	Potable Supply	Unknown	Unknown	600	Not Determined	NM	NM
WSW-3	0141052	4208 Wayne Road Greensboro, NC 27407	Susan J. Rodgers	4208 Wayne Road Greensboro, NC 27407 (336) 521-3833	Potable Supply	Unknown	Unknown	700	Not Determined	NM	NM
WSW-4	0141051	4210 Wayne Road Greensboro, NC 27407	Barbara H. Thomas c/o Brooks Thomas, LLC Trust Manager	328 Centre Drive, Randleman, NC 27317 (336) 674-3702	Potable Supply	Unknown	Unknown	800	Not Determined	NM	NM

**Notes:**

- 1.) Well location addresses and property owner information was obtained from the Guilford County GIS Department.
- 2.) Information regarding the water supply well's use and location was obtained from previous consultant's reports.
- 3.) Well distance from source area values based on information provided in previous consultants reports.
- 4.) W&R has not performed a receptor survey associated with the subject release.
- 5.) NM Denotes "Not Measured".

**TABLE B-7**  
**MONITORING & REMEDIATION WELL CONSTRUCTION INFORMATION**

LWY Groometown Eckerd  
 Incident Number: 30687  
 3611 Groometown Road  
 Greensboro, Guilford County, North Carolina

Well ID	Date Installed	Well Casing Diameter (inches)	Total Depth (feet)	Well Casing Depth (feet)	Screened Interval (feet)	Top-of-Casing Elevation (feet)	Date Water Level Measured	Depth-to-Water from Top-of-Casing (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Well Coordinates (NC State Plane NAD 83 Feet)	
											Easting	Northing
MW-1	5/5/2015	2	35	20	20 - 35	NM	5/5/2015	22.46	---	NM	1744103.54	825740.56

**Notes:**

- 1.) Top-of-Casing elevations not determined.
- 2.) Groundwater elevation calculated by: (Top-of-Casing - Depth-to-Water) + (Free Product Thickness x 0.8581)
- 3.) NM = Not Measured

## APPENDIX A

### ANALYTICAL REPORT AND CHAIN OF CUSTODY



12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Kevin Buchanan  
Withers & Ravenel Eng. - Standard  
115 MacKenan Drive  
Cary, NC 27511

## Report Summary

Tuesday May 12, 2015

Report Number: L763377

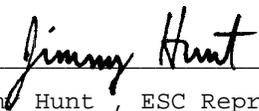
Samples Received: 05/06/15

Client Project: 02140214.81

Description: LWY Groometown Eckerd (TF30687)

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jimmy Hunt, ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Kevin Buchanan  
 Withers & Ravenel Eng. - Standard  
 115 MacKenan Drive  
 Cary, NC 27511

May 12, 2015

Date Received : May 06, 2015  
 Description : LWY Groometown Eckerd (TF30687)  
 Sample ID : MW-1  
 Collected By : Ross Perry  
 Collection Date : 05/05/15 10:45

ESC Sample # : L763377-01  
 Site ID : TF30687  
 Project # : 02140214.81

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Volatile Petroleum Hydrocarbons	BDL	100	ug/l	MADEPV	05/08/15	1
C5-C8 Aliphatics	BDL	100	ug/l	MADEPV	05/08/15	1
C9-C12 Aliphatics	BDL	100	ug/l	MADEPV	05/08/15	1
C9-C10 Aromatics	BDL	100	ug/l	MADEPV	05/08/15	1
Surrogate Recovery						
2,5-Dibromotoluene(FID)	114.		% Rec.	MADEPV	05/08/15	1
2,5-Dibromotoluene(PID)	90.5		% Rec.	MADEPV	05/08/15	1
Volatile Organics						
Acetone	BDL	50.	ug/l	6200B-1997	05/08/15	1
Acrolein	BDL	50.	ug/l	6200B-1997	05/08/15	1
Acrylonitrile	BDL	10.	ug/l	6200B-1997	05/08/15	1
Benzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Bromobenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Bromodichloromethane	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Bromoform	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Bromomethane	BDL	5.0	ug/l	6200B-1997	05/08/15	1
n-Butylbenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
sec-Butylbenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
tert-Butylbenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Carbon tetrachloride	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Chlorobenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Chlorodibromomethane	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Chloroethane	BDL	5.0	ug/l	6200B-1997	05/08/15	1
Chloroform	BDL	5.0	ug/l	6200B-1997	05/08/15	1
Chloromethane	BDL	2.5	ug/l	6200B-1997	05/08/15	1
2-Chlorotoluene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
4-Chlorotoluene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,2-Dibromo-3-Chloropropane	BDL	5.0	ug/l	6200B-1997	05/08/15	1
1,2-Dibromoethane	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Dibromomethane	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,2-Dichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,3-Dichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,4-Dichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Dichlorodifluoromethane	BDL	5.0	ug/l	6200B-1997	05/08/15	1
1,1-Dichloroethane	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,2-Dichloroethane	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,1-Dichloroethene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
cis-1,2-Dichloroethene	2.7	1.0	ug/l	6200B-1997	05/08/15	1
trans-1,2-Dichloroethene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,2-Dichloropropane	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,1-Dichloropropene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,3-Dichloropropane	BDL	1.0	ug/l	6200B-1997	05/08/15	1
2,2-Dichloropropane	BDL	1.0	ug/l	6200B-1997	05/08/15	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)



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 1-800-767-5859  
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Kevin Buchanan  
 Withers & Ravenel Eng. - Standard  
 115 MacKenan Drive  
 Cary, NC 27511

May 12, 2015

Date Received : May 06, 2015  
 Description : LWY Groometown Eckerd (TF30687)  
 Sample ID : MW-1  
 Collected By : Ross Perry  
 Collection Date : 05/05/15 10:45

ESC Sample # : L763377-01  
 Site ID : TF30687  
 Project # : 02140214.81

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Di-isopropyl ether	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Ethylbenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Hexachloro-1,3-butadiene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Isopropylbenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
p-Isopropyltoluene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
2-Butanone (MEK)	BDL	10.	ug/l	6200B-1997	05/08/15	1
Methylene Chloride	BDL	5.0	ug/l	6200B-1997	05/08/15	1
4-Methyl-2-pentanone (MIBK)	BDL	10.	ug/l	6200B-1997	05/08/15	1
Methyl tert-butyl ether	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Naphthalene	BDL	5.0	ug/l	6200B-1997	05/08/15	1
n-Propylbenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Styrene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,1,1,2-Tetrachloroethane	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,1,2,2-Tetrachloroethane	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Tetrachloroethene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Toluene	BDL	5.0	ug/l	6200B-1997	05/08/15	1
1,2,3-Trichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,2,4-Trichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,1,1-Trichloroethane	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,1,2-Trichloroethane	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Trichloroethene	33.	1.0	ug/l	6200B-1997	05/08/15	1
Trichlorofluoromethane	BDL	5.0	ug/l	6200B-1997	05/08/15	1
1,2,3-Trichloropropane	BDL	2.5	ug/l	6200B-1997	05/08/15	1
1,2,4-Trimethylbenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
1,3,5-Trimethylbenzene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
Vinyl chloride	BDL	1.0	ug/l	6200B-1997	05/08/15	1
o-Xylene	BDL	1.0	ug/l	6200B-1997	05/08/15	1
m&p-Xylenes	BDL	2.0	ug/l	6200B-1997	05/08/15	1
Surrogate Recovery						
Toluene-d8	100.		% Rec.	6200B-1997	05/08/15	1
Dibromofluoromethane	89.8		% Rec.	6200B-1997	05/08/15	1
a,a,a-Trifluorotoluene	101.		% Rec.	6200B-1997	05/08/15	1
4-Bromofluorobenzene	103.		% Rec.	6200B-1997	05/08/15	1
Extractable Petroleum Hydrocarb	BDL	100	ug/l	MADEPE	05/08/15	1
C9-C18 Aliphatics	BDL	100	ug/l	MADEPE	05/07/15	1
C19-C36 Aliphatics	BDL	100	ug/l	MADEPE	05/07/15	1
C11-C22 Aromatics	BDL	100	ug/l	MADEPE	05/08/15	1
Surrogate Recovery						
o-Terphenyl	71.9		% Rec.	MADEPE	05/08/15	1
1-Chloro-octadecane	57.7		% Rec.	MADEPE	05/07/15	1
2-Fluorobiphenyl	71.7		% Rec.	MADEPE	05/08/15	1
2-Bromonaphthalene	76.7		% Rec.	MADEPE	05/08/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 05/12/15 11:14 Printed: 05/12/15 11:15



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Withers & Ravenel Eng. - Standard  
 Kevin Buchanan  
 115 MacKenan Drive

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Quality Assurance Report  
 Level II

L763377

12065 Lebanon Rd.  
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 1-800-767-5859  
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

May 12, 2015

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
C19-C36 Aliphatics	< .1	mg/l			WG787398	05/07/15 19:48
C9-C18 Aliphatics	< .1	mg/l			WG787398	05/07/15 19:48
1-Chloro-octadecane		% Rec.	77.20	40-140	WG787398	05/07/15 19:48
C11-C22 Aromatics	< .1	mg/l			WG787398	05/07/15 20:51
2-Bromonaphthalene		% Rec.	69.40	40-140	WG787398	05/07/15 20:51
2-Fluorobiphenyl		% Rec.	65.10	40-140	WG787398	05/07/15 20:51
o-Terphenyl		% Rec.	69.50	40-140	WG787398	05/07/15 20:51
C5-C8 Aliphatics	< .1	mg/l			WG785719	05/08/15 07:32
C9-C10 Aromatics	< .1	mg/l			WG785719	05/08/15 07:32
C9-C12 Aliphatics	< .1	mg/l			WG785719	05/08/15 07:32
2,5-Dibromotoluene (FID)		% Rec.	113.0	70-130	WG785719	05/08/15 07:32
2,5-Dibromotoluene (PID)		% Rec.	93.30	70-130	WG785719	05/08/15 07:32
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG787742	05/08/15 18:08
1,1,1-Trichloroethane	< .001	mg/l			WG787742	05/08/15 18:08
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG787742	05/08/15 18:08
1,1,2-Trichloroethane	< .001	mg/l			WG787742	05/08/15 18:08
1,1-Dichloroethane	< .001	mg/l			WG787742	05/08/15 18:08
1,1-Dichloroethene	< .001	mg/l			WG787742	05/08/15 18:08
1,1-Dichloropropene	< .001	mg/l			WG787742	05/08/15 18:08
1,2,3-Trichlorobenzene	< .001	mg/l			WG787742	05/08/15 18:08
1,2,3-Trichloropropane	< .001	mg/l			WG787742	05/08/15 18:08
1,2,4-Trichlorobenzene	< .001	mg/l			WG787742	05/08/15 18:08
1,2,4-Trimethylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG787742	05/08/15 18:08
1,2-Dibromoethane	< .001	mg/l			WG787742	05/08/15 18:08
1,2-Dichlorobenzene	< .001	mg/l			WG787742	05/08/15 18:08
1,2-Dichloroethane	< .001	mg/l			WG787742	05/08/15 18:08
1,2-Dichloropropane	< .001	mg/l			WG787742	05/08/15 18:08
1,3,5-Trimethylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
1,3-Dichlorobenzene	< .001	mg/l			WG787742	05/08/15 18:08
1,3-Dichloropropane	< .001	mg/l			WG787742	05/08/15 18:08
1,4-Dichlorobenzene	< .001	mg/l			WG787742	05/08/15 18:08
2,2-Dichloropropane	< .001	mg/l			WG787742	05/08/15 18:08
2-Butanone (MEK)	< .01	mg/l			WG787742	05/08/15 18:08
2-Chlorotoluene	< .001	mg/l			WG787742	05/08/15 18:08
4-Chlorotoluene	< .001	mg/l			WG787742	05/08/15 18:08
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG787742	05/08/15 18:08
Acetone	< .05	mg/l			WG787742	05/08/15 18:08
Acrolein	< .025	mg/l			WG787742	05/08/15 18:08
Acrylonitrile	< .01	mg/l			WG787742	05/08/15 18:08
Benzene	< .001	mg/l			WG787742	05/08/15 18:08
Bromobenzene	< .001	mg/l			WG787742	05/08/15 18:08
Bromodichloromethane	< .001	mg/l			WG787742	05/08/15 18:08
Bromoform	< .001	mg/l			WG787742	05/08/15 18:08
Bromomethane	< .005	mg/l			WG787742	05/08/15 18:08
Carbon tetrachloride	< .001	mg/l			WG787742	05/08/15 18:08
Chlorobenzene	< .001	mg/l			WG787742	05/08/15 18:08
Chlorodibromomethane	< .001	mg/l			WG787742	05/08/15 18:08
Chloroethane	< .005	mg/l			WG787742	05/08/15 18:08
Chloroform	< .005	mg/l			WG787742	05/08/15 18:08
Chloromethane	< .0025	mg/l			WG787742	05/08/15 18:08
cis-1,2-Dichloroethene	< .001	mg/l			WG787742	05/08/15 18:08
Di-isopropyl ether	< .001	mg/l			WG787742	05/08/15 18:08
Dibromomethane	< .001	mg/l			WG787742	05/08/15 18:08
Dichlorodifluoromethane	< .005	mg/l			WG787742	05/08/15 18:08

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Est. 1970

May 12, 2015

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Ethylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
Hexachloro-1,3-butadiene	< .001	mg/l			WG787742	05/08/15 18:08
Isopropylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
m&p-Xylenes	< .002	mg/l			WG787742	05/08/15 18:08
Methyl tert-butyl ether	< .001	mg/l			WG787742	05/08/15 18:08
Methylene Chloride	< .005	mg/l			WG787742	05/08/15 18:08
n-Butylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
n-Propylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
Naphthalene	< .005	mg/l			WG787742	05/08/15 18:08
o-Xylene	< .001	mg/l			WG787742	05/08/15 18:08
p-Isopropyltoluene	< .001	mg/l			WG787742	05/08/15 18:08
sec-Butylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
Styrene	< .001	mg/l			WG787742	05/08/15 18:08
tert-Butylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
Tetrachloroethene	< .001	mg/l			WG787742	05/08/15 18:08
Toluene	< .005	mg/l			WG787742	05/08/15 18:08
trans-1,2-Dichloroethene	< .001	mg/l			WG787742	05/08/15 18:08
Trichloroethene	< .001	mg/l			WG787742	05/08/15 18:08
Trichlorofluoromethane	< .005	mg/l			WG787742	05/08/15 18:08
Vinyl chloride	< .001	mg/l			WG787742	05/08/15 18:08
4-Bromofluorobenzene		% Rec.	103.0	71-126	WG787742	05/08/15 18:08
Dibromofluoromethane		% Rec.	92.50	78.3-121	WG787742	05/08/15 18:08
Toluene-d8		% Rec.	101.0	88.5-111	WG787742	05/08/15 18:08
a,a,a-Trifluorotoluene		% Rec.	101.0	85-114	WG787742	05/08/15 18:08

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
C19-C36 Aliphatics	mg/l	.8	0.523	65.3	40-140	WG787398
C9-C18 Aliphatics	mg/l	.6	0.258	43.0	40-140	WG787398
1-Chloro-octadecane				55.90	40-140	WG787398
C11-C22 Aromatics	mg/l	1.7	1.04	61.0	40-140	WG787398
2-Bromonaphthalene				67.40	40-140	WG787398
2-Fluorobiphenyl				62.50	40-140	WG787398
o-Terphenyl				63.40	40-140	WG787398
C5-C8 Aliphatics	mg/l	1.2	1.15	95.7	70-130	WG785719
C9-C10 Aromatics	mg/l	.2	0.162	81.0	70-130	WG785719
C9-C12 Aliphatics	mg/l	1.4	1.36	97.1	70-130	WG785719
2,5-Dibromotoluene(FID)				116.0	70-130	WG785719
2,5-Dibromotoluene(PID)				96.70	70-130	WG785719
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0261	104.	74.2-124	WG787742
1,1,1-Trichloroethane	mg/l	.025	0.0249	99.5	73.2-123	WG787742
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0248	99.1	70.7-122	WG787742
1,1,2-Trichloroethane	mg/l	.025	0.0246	98.4	77.7-118	WG787742
1,1-Dichloroethane	mg/l	.025	0.0246	98.4	70.7-126	WG787742
1,1-Dichloroethene	mg/l	.025	0.0250	99.9	67.8-129	WG787742
1,1-Dichloropropene	mg/l	.025	0.0242	96.7	73.1-125	WG787742
1,2,3-Trichlorobenzene	mg/l	.025	0.0249	99.4	64.9-135	WG787742
1,2,3-Trichloropropane	mg/l	.025	0.0248	99.1	71.8-121	WG787742
1,2,4-Trichlorobenzene	mg/l	.025	0.0260	104.	69.7-136	WG787742
1,2,4-Trimethylbenzene	mg/l	.025	0.0251	101.	75-123	WG787742
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0242	96.9	65.4-128	WG787742
1,2-Dibromoethane	mg/l	.025	0.0250	99.9	76.6-121	WG787742
1,2-Dichlorobenzene	mg/l	.025	0.0247	98.7	78.4-117	WG787742
1,2-Dichloroethane	mg/l	.025	0.0239	95.6	68.8-124	WG787742

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Tax I.D. 62-0814289

Est. 1970

May 12, 2015

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1,2-Dichloropropane	mg/l	.025	0.0243	97.1	76.5-119	WG787742
1,3,5-Trimethylbenzene	mg/l	.025	0.0253	101.	75.6-124	WG787742
1,3-Dichlorobenzene	mg/l	.025	0.0243	97.0	70.8-128	WG787742
1,3-Dichloropropane	mg/l	.025	0.0238	95.1	77.4-117	WG787742
1,4-Dichlorobenzene	mg/l	.025	0.0241	96.3	78.8-115	WG787742
2,2-Dichloropropane	mg/l	.025	0.0257	103.	62.4-133	WG787742
2-Butanone (MEK)	mg/l	.125	0.115	91.8	55-149	WG787742
2-Chlorotoluene	mg/l	.025	0.0248	99.1	74.7-122	WG787742
4-Chlorotoluene	mg/l	.025	0.0253	101.	77.5-120	WG787742
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.120	96.0	70.5-133	WG787742
Acetone	mg/l	.125	0.117	93.7	35.6-163	WG787742
Acrolein	mg/l	.125	0.140	112.	10-190	WG787742
Acrylonitrile	mg/l	.125	0.121	97.1	55.2-130	WG787742
Benzene	mg/l	.025	0.0236	94.3	74.8-121	WG787742
Bromobenzene	mg/l	.025	0.0243	97.2	77.5-116	WG787742
Bromodichloromethane	mg/l	.025	0.0246	98.5	75.1-116	WG787742
Bromoform	mg/l	.025	0.0257	103.	67.5-130	WG787742
Bromomethane	mg/l	.025	0.0226	90.4	49.9-162	WG787742
Carbon tetrachloride	mg/l	.025	0.0241	96.5	70.2-123	WG787742
Chlorobenzene	mg/l	.025	0.0253	101.	78.1-119	WG787742
Chlorodibromomethane	mg/l	.025	0.0255	102.	74-121	WG787742
Chloroethane	mg/l	.025	0.0244	97.5	61.7-135	WG787742
Chloroform	mg/l	.025	0.0239	95.7	76-121	WG787742
Chloromethane	mg/l	.025	0.0212	84.8	61.5-129	WG787742
cis-1,2-Dichloroethene	mg/l	.025	0.0240	96.1	76-119	WG787742
Di-isopropyl ether	mg/l	.025	0.0239	95.8	65.6-132	WG787742
Dibromomethane	mg/l	.025	0.0248	99.3	79.5-118	WG787742
Dichlorodifluoromethane	mg/l	.025	0.0217	86.9	54.8-135	WG787742
Ethylbenzene	mg/l	.025	0.0250	99.9	78.8-122	WG787742
Hexachloro-1,3-butadiene	mg/l	.025	0.0236	94.3	64.7-129	WG787742
Isopropylbenzene	mg/l	.025	0.0249	99.8	78.6-132	WG787742
m&p-Xylenes	mg/l	.05	0.0509	102.	78.8-121	WG787742
Methyl tert-butyl ether	mg/l	.025	0.0239	95.8	71.2-126	WG787742
Methylene Chloride	mg/l	.025	0.0220	88.1	70.3-120	WG787742
n-Butylbenzene	mg/l	.025	0.0261	104.	76.2-126	WG787742
n-Propylbenzene	mg/l	.025	0.0257	103.	78.2-122	WG787742
Naphthalene	mg/l	.025	0.0254	102.	68.4-128	WG787742
o-Xylene	mg/l	.025	0.0254	102.	77.6-122	WG787742
p-Isopropyltoluene	mg/l	.025	0.0258	103.	74-131	WG787742
sec-Butylbenzene	mg/l	.025	0.0257	103.	74.4-127	WG787742
Styrene	mg/l	.025	0.0263	105.	80.4-126	WG787742
tert-Butylbenzene	mg/l	.025	0.0255	102.	75.3-126	WG787742
Tetrachloroethene	mg/l	.025	0.0255	102.	72.6-126	WG787742
Toluene	mg/l	.025	0.0238	95.3	79.7-116	WG787742
trans-1,2-Dichloroethene	mg/l	.025	0.0251	100.	72.6-121	WG787742
Trichloroethene	mg/l	.025	0.0253	101.	77.7-118	WG787742
Trichlorofluoromethane	mg/l	.025	0.0231	92.4	63.5-135	WG787742
Vinyl chloride	mg/l	.025	0.0239	95.6	65.9-128	WG787742
4-Bromofluorobenzene				104.0	71-126	WG787742
Dibromofluoromethane				94.40	78.3-121	WG787742
Toluene-d8				99.30	88.5-111	WG787742
a,a,a-Trifluorotoluene				99.80	85-114	WG787742

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
C19-C36 Aliphatics	mg/l	0.502	0.523	63.0	40-140	4.06	50	WG787398
C9-C18 Aliphatics	mg/l	0.264	0.258	44.0	40-140	2.22	50	WG787398
1-Chloro-octadecane				54.60	40-140			WG787398

\* Performance of this Analyte is outside of established criteria.  
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Est. 1970

May 12, 2015

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
C11-C22 Aromatics	mg/l	0.973	1.04	57.0	40-140	6.35	50	WG787398
2-Bromonaphthalene				72.60	40-140			WG787398
2-Fluorobiphenyl				67.10	40-140			WG787398
o-Terphenyl				60.40	40-140			WG787398
C5-C8 Aliphatics	mg/l	1.13	1.15	94.0	70-130	1.69	25	WG785719
C9-C10 Aromatics	mg/l	0.160	0.162	80.0	70-130	0.910	25	WG785719
C9-C12 Aliphatics	mg/l	1.35	1.36	96.0	70-130	0.590	25	WG785719
2,5-Dibromotoluene (FID)				115.0	70-130			WG785719
2,5-Dibromotoluene (PID)				95.90	70-130			WG785719
1,1,1,2-Tetrachloroethane	mg/l	0.0256	0.0261	102.	74.2-124	1.69	20	WG787742
1,1,1-Trichloroethane	mg/l	0.0236	0.0249	94.0	73.2-123	5.19	20	WG787742
1,1,2,2-Tetrachloroethane	mg/l	0.0248	0.0248	99.0	70.7-122	0.260	20	WG787742
1,1,2-Trichloroethane	mg/l	0.0240	0.0246	96.0	77.7-118	2.66	20	WG787742
1,1-Dichloroethane	mg/l	0.0235	0.0246	94.0	70.7-126	4.58	20	WG787742
1,1-Dichloroethene	mg/l	0.0237	0.0250	95.0	67.8-129	5.15	20	WG787742
1,1-Dichloropropene	mg/l	0.0228	0.0242	91.0	73.1-125	5.65	20	WG787742
1,2,3-Trichlorobenzene	mg/l	0.0249	0.0249	100.	64.9-135	0.200	20	WG787742
1,2,3-Trichloropropane	mg/l	0.0251	0.0248	100.	71.8-121	1.29	20	WG787742
1,2,4-Trichlorobenzene	mg/l	0.0255	0.0260	102.	69.7-136	1.79	20	WG787742
1,2,4-Trimethylbenzene	mg/l	0.0247	0.0251	99.0	75-123	1.64	20	WG787742
1,2-Dibromo-3-Chloropropane	mg/l	0.0247	0.0242	99.0	65.4-128	1.99	20	WG787742
1,2-Dibromoethane	mg/l	0.0253	0.0250	101.	76.6-121	1.46	20	WG787742
1,2-Dichlorobenzene	mg/l	0.0242	0.0247	97.0	78.4-117	2.00	20	WG787742
1,2-Dichloroethane	mg/l	0.0237	0.0239	95.0	68.8-124	0.960	20	WG787742
1,2-Dichloropropane	mg/l	0.0244	0.0243	98.0	76.5-119	0.730	20	WG787742
1,3,5-Trimethylbenzene	mg/l	0.0248	0.0253	99.0	75.6-124	2.25	20	WG787742
1,3-Dichlorobenzene	mg/l	0.0239	0.0243	96.0	70.8-128	1.37	20	WG787742
1,3-Dichloropropane	mg/l	0.0239	0.0238	96.0	77.4-117	0.640	20	WG787742
1,4-Dichlorobenzene	mg/l	0.0234	0.0241	94.0	78.8-115	2.90	20	WG787742
2,2-Dichloropropane	mg/l	0.0244	0.0257	98.0	62.4-133	5.08	20	WG787742
2-Butanone (MEK)	mg/l	0.120	0.115	96.0	55-149	4.46	20	WG787742
2-Chlorotoluene	mg/l	0.0243	0.0248	97.0	74.7-122	1.86	20	WG787742
4-Chlorotoluene	mg/l	0.0249	0.0253	99.0	77.5-120	1.84	20	WG787742
4-Methyl-2-pentanone (MIBK)	mg/l	0.124	0.120	99.0	70.5-133	3.13	20	WG787742
Acetone	mg/l	0.123	0.117	98.0	35.6-163	4.83	23.9	WG787742
Acrolein	mg/l	0.142	0.140	114.	10-190	1.85	28.1	WG787742
Acrylonitrile	mg/l	0.125	0.121	100.	55.2-130	2.81	20	WG787742
Benzene	mg/l	0.0227	0.0236	91.0	74.8-121	3.72	20	WG787742
Bromobenzene	mg/l	0.0237	0.0243	95.0	77.5-116	2.55	20	WG787742
Bromodichloromethane	mg/l	0.0243	0.0246	97.0	75.1-116	1.17	20	WG787742
Bromoform	mg/l	0.0256	0.0257	102.	67.5-130	0.390	20	WG787742
Bromomethane	mg/l	0.0219	0.0226	88.0	49.9-162	3.06	20	WG787742
Carbon tetrachloride	mg/l	0.0229	0.0241	92.0	70.2-123	4.96	20	WG787742
Chlorobenzene	mg/l	0.0242	0.0253	97.0	78.1-119	4.47	20	WG787742
Chlorodibromomethane	mg/l	0.0250	0.0255	100.	74-121	1.66	20	WG787742
Chloroethane	mg/l	0.0227	0.0244	91.0	61.7-135	6.96	20	WG787742
Chloroform	mg/l	0.0230	0.0239	92.0	76-121	4.06	20	WG787742
Chloromethane	mg/l	0.0199	0.0212	80.0	61.5-129	6.19	20	WG787742
cis-1,2-Dichloroethene	mg/l	0.0232	0.0240	93.0	76-119	3.44	20	WG787742
Di-isopropyl ether	mg/l	0.0236	0.0239	94.0	65.6-132	1.47	20	WG787742
Dibromomethane	mg/l	0.0243	0.0248	97.0	79.5-118	2.16	20	WG787742
Dichlorodifluoromethane	mg/l	0.0210	0.0217	84.0	54.8-135	3.60	20	WG787742
Ethylbenzene	mg/l	0.0238	0.0250	95.0	78.8-122	4.84	20	WG787742
Hexachloro-1,3-butadiene	mg/l	0.0230	0.0236	92.0	64.7-129	2.36	20	WG787742
Isopropylbenzene	mg/l	0.0238	0.0249	95.0	78.6-132	4.65	20	WG787742

\* Performance of this Analyte is outside of established criteria.

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
m&p-Xylenes	mg/l	0.0492	0.0509	98.0	78.8-121	3.42	20	WG787742
Methyl tert-butyl ether	mg/l	0.0242	0.0239	97.0	71.2-126	1.01	20	WG787742
Methylene Chloride	mg/l	0.0218	0.0220	87.0	70.3-120	0.890	20	WG787742
n-Butylbenzene	mg/l	0.0252	0.0261	101.	76.2-126	3.45	20	WG787742
n-Propylbenzene	mg/l	0.0248	0.0257	99.0	78.2-122	3.63	20	WG787742
Naphthalene	mg/l	0.0255	0.0254	102.	68.4-128	0.570	20	WG787742
o-Xylene	mg/l	0.0247	0.0254	99.0	77.6-122	2.73	20	WG787742
p-Isopropyltoluene	mg/l	0.0250	0.0258	100.	74-131	2.97	20	WG787742
sec-Butylbenzene	mg/l	0.0250	0.0257	100.	74.4-127	2.77	20	WG787742
Styrene	mg/l	0.0253	0.0263	101.	80.4-126	4.07	20	WG787742
tert-Butylbenzene	mg/l	0.0250	0.0255	100.	75.3-126	2.05	20	WG787742
Tetrachloroethene	mg/l	0.0246	0.0255	98.0	72.6-126	3.66	20	WG787742
Toluene	mg/l	0.0234	0.0238	94.0	79.7-116	1.85	20	WG787742
trans-1,2-Dichloroethene	mg/l	0.0235	0.0251	94.0	72.6-121	6.62	20	WG787742
Trichloroethene	mg/l	0.0244	0.0253	98.0	77.7-118	3.46	20	WG787742
Trichlorofluoromethane	mg/l	0.0220	0.0231	88.0	63.5-135	4.82	20	WG787742
Vinyl chloride	mg/l	0.0225	0.0239	90.0	65.9-128	5.84	20	WG787742
4-Bromofluorobenzene				100.0	71-126			WG787742
Dibromofluoromethane				92.60	78.3-121			WG787742
Toluene-d8				99.90	88.5-111			WG787742
a,a,a-Trifluorotoluene				99.70	85-114			WG787742

Batch number / Run number / Sample number cross reference

WG787398: R3035835: L763377-01  
 WG785719: R3035874: L763377-01  
 WG787742: R3036352: L763377-01

\* \* Calculations are performed prior to rounding of reported values.  
 \* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.





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Kevin Buchanan  
Withers & Ravenel Eng. - Standard  
115 MacKenan Drive  
Cary, NC 27511

## Report Summary

Tuesday May 12, 2015

Report Number: L763387

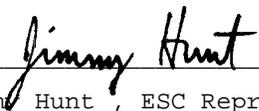
Samples Received: 05/06/15

Client Project: 02140214.81

Description: LWY Groometown Eckerd (TF30687)

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jimmy Hunt, ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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REPORT OF ANALYSIS

Kevin Buchanan  
 Withers & Ravenel Eng. - Standard  
 115 MacKenan Drive  
 Cary, NC 27511

May 12, 2015

Date Received : May 06, 2015  
 Description : LWY Groometown Eckerd (TF30687)  
 Sample ID : WSW-2  
 Collected By : Ross Perry  
 Collection Date : 05/05/15 09:45

ESC Sample # : L763387-01

Site ID : TF30687

Project # : 02140214.81

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Volatile Organics						
Acetone	BDL	50.	ug/l	6200B-1997	05/09/15	1
Acrolein	BDL	50.	ug/l	6200B-1997	05/09/15	1
Acrylonitrile	BDL	10.	ug/l	6200B-1997	05/09/15	1
Benzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Bromobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Bromodichloromethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Bromoform	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Bromomethane	BDL	5.0	ug/l	6200B-1997	05/09/15	1
n-Butylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
sec-Butylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
tert-Butylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Carbon tetrachloride	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Chlorobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Chlorodibromomethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Chloroethane	BDL	5.0	ug/l	6200B-1997	05/09/15	1
Chloroform	BDL	5.0	ug/l	6200B-1997	05/09/15	1
Chloromethane	BDL	2.5	ug/l	6200B-1997	05/09/15	1
2-Chlorotoluene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
4-Chlorotoluene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,2-Dibromo-3-Chloropropane	BDL	5.0	ug/l	6200B-1997	05/09/15	1
1,2-Dibromoethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Dibromomethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,2-Dichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,3-Dichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,4-Dichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Dichlorodifluoromethane	BDL	5.0	ug/l	6200B-1997	05/09/15	1
1,1-Dichloroethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,2-Dichloroethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,1-Dichloroethene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
cis-1,2-Dichloroethene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
trans-1,2-Dichloroethene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,2-Dichloropropane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,1-Dichloropropene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,3-Dichloropropane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
2,2-Dichloropropane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Di-isopropyl ether	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Ethylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Hexachloro-1,3-butadiene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Isopropylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
p-Isopropyltoluene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
2-Butanone (MEK)	BDL	10.	ug/l	6200B-1997	05/09/15	1
Methylene Chloride	BDL	5.0	ug/l	6200B-1997	05/09/15	1
4-Methyl-2-pentanone (MIBK)	BDL	10.	ug/l	6200B-1997	05/09/15	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)



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REPORT OF ANALYSIS

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May 12, 2015

Date Received : May 06, 2015  
 Description : LWY Groometown Eckerd (TF30687)  
 Sample ID : WSW-2  
 Collected By : Ross Perry  
 Collection Date : 05/05/15 09:45

ESC Sample # : L763387-01  
 Site ID : TF30687  
 Project # : 02140214.81

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Methyl tert-butyl ether	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Naphthalene	BDL	5.0	ug/l	6200B-1997	05/09/15	1
n-Propylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Styrene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,1,1,2-Tetrachloroethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,1,2,2-Tetrachloroethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Tetrachloroethene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Toluene	BDL	5.0	ug/l	6200B-1997	05/09/15	1
1,2,3-Trichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,2,4-Trichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,1,1-Trichloroethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,1,2-Trichloroethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Trichloroethene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Trichlorofluoromethane	BDL	5.0	ug/l	6200B-1997	05/09/15	1
1,2,3-Trichloropropane	BDL	2.5	ug/l	6200B-1997	05/09/15	1
1,2,4-Trimethylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,3,5-Trimethylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Vinyl chloride	BDL	1.0	ug/l	6200B-1997	05/09/15	1
o-Xylene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
m&p-Xylenes	BDL	2.0	ug/l	6200B-1997	05/09/15	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	6200B-1997	05/09/15	1
Dibromofluoromethane	88.0		% Rec.	6200B-1997	05/09/15	1
a,a,a-Trifluorotoluene	101.		% Rec.	6200B-1997	05/09/15	1
4-Bromofluorobenzene	104.		% Rec.	6200B-1997	05/09/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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 Mt. Juliet, TN 37122  
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 1-800-767-5859  
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Kevin Buchanan  
 Withers & Ravenel Eng. - Standard  
 115 MacKenan Drive  
 Cary, NC 27511

May 12, 2015

Date Received : May 06, 2015  
 Description : LWY Groometown Eckerd (TF30687)  
 Sample ID : WSW-3  
 Collected By : Ross Perry  
 Collection Date : 05/05/15 09:35

ESC Sample # : L763387-02

Site ID : TF30687

Project # : 02140214.81

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Volatile Organics						
Acetone	BDL	50.	ug/l	6200B-1997	05/09/15	1
Acrolein	BDL	50.	ug/l	6200B-1997	05/09/15	1
Acrylonitrile	BDL	10.	ug/l	6200B-1997	05/09/15	1
Benzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Bromobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Bromodichloromethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Bromoform	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Bromomethane	BDL	5.0	ug/l	6200B-1997	05/09/15	1
n-Butylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
sec-Butylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
tert-Butylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Carbon tetrachloride	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Chlorobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Chlorodibromomethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Chloroethane	BDL	5.0	ug/l	6200B-1997	05/09/15	1
Chloroform	BDL	5.0	ug/l	6200B-1997	05/09/15	1
Chloromethane	BDL	2.5	ug/l	6200B-1997	05/09/15	1
2-Chlorotoluene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
4-Chlorotoluene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,2-Dibromo-3-Chloropropane	BDL	5.0	ug/l	6200B-1997	05/09/15	1
1,2-Dibromoethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Dibromomethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,2-Dichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,3-Dichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,4-Dichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Dichlorodifluoromethane	BDL	5.0	ug/l	6200B-1997	05/09/15	1
1,1-Dichloroethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,2-Dichloroethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,1-Dichloroethene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
cis-1,2-Dichloroethene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
trans-1,2-Dichloroethene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,2-Dichloropropane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,1-Dichloropropene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,3-Dichloropropane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
2,2-Dichloropropane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Di-isopropyl ether	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Ethylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Hexachloro-1,3-butadiene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Isopropylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
p-Isopropyltoluene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
2-Butanone (MEK)	BDL	10.	ug/l	6200B-1997	05/09/15	1
Methylene Chloride	BDL	5.0	ug/l	6200B-1997	05/09/15	1
4-Methyl-2-pentanone (MIBK)	BDL	10.	ug/l	6200B-1997	05/09/15	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)



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Est. 1970

REPORT OF ANALYSIS

Kevin Buchanan  
 Withers & Ravenel Eng. - Standard  
 115 MacKenan Drive  
 Cary, NC 27511

May 12, 2015

Date Received : May 06, 2015  
 Description : LWY Groometown Eckerd (TF30687)  
 Sample ID : WSW-3  
 Collected By : Ross Perry  
 Collection Date : 05/05/15 09:35

ESC Sample # : L763387-02  
 Site ID : TF30687  
 Project # : 02140214.81

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Methyl tert-butyl ether	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Naphthalene	BDL	5.0	ug/l	6200B-1997	05/09/15	1
n-Propylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Styrene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,1,1,2-Tetrachloroethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,1,2,2-Tetrachloroethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Tetrachloroethene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Toluene	BDL	5.0	ug/l	6200B-1997	05/09/15	1
1,2,3-Trichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,2,4-Trichlorobenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,1,1-Trichloroethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,1,2-Trichloroethane	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Trichloroethene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Trichlorofluoromethane	BDL	5.0	ug/l	6200B-1997	05/09/15	1
1,2,3-Trichloropropane	BDL	2.5	ug/l	6200B-1997	05/09/15	1
1,2,4-Trimethylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
1,3,5-Trimethylbenzene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
Vinyl chloride	BDL	1.0	ug/l	6200B-1997	05/09/15	1
o-Xylene	BDL	1.0	ug/l	6200B-1997	05/09/15	1
m&p-Xylenes	BDL	2.0	ug/l	6200B-1997	05/09/15	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	6200B-1997	05/09/15	1
Dibromofluoromethane	89.6		% Rec.	6200B-1997	05/09/15	1
a,a,a-Trifluorotoluene	101.		% Rec.	6200B-1997	05/09/15	1
4-Bromofluorobenzene	105.		% Rec.	6200B-1997	05/09/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Quality Assurance Report  
 Level II

L763387

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Tax I.D. 62-0814289

Est. 1970

May 12, 2015

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG787742	05/08/15 18:08
1,1,1-Trichloroethane	< .001	mg/l			WG787742	05/08/15 18:08
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG787742	05/08/15 18:08
1,1,2-Trichloroethane	< .001	mg/l			WG787742	05/08/15 18:08
1,1-Dichloroethane	< .001	mg/l			WG787742	05/08/15 18:08
1,1-Dichloroethene	< .001	mg/l			WG787742	05/08/15 18:08
1,1-Dichloropropene	< .001	mg/l			WG787742	05/08/15 18:08
1,2,3-Trichlorobenzene	< .001	mg/l			WG787742	05/08/15 18:08
1,2,3-Trichloropropane	< .001	mg/l			WG787742	05/08/15 18:08
1,2,4-Trichlorobenzene	< .001	mg/l			WG787742	05/08/15 18:08
1,2,4-Trimethylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG787742	05/08/15 18:08
1,2-Dibromoethane	< .001	mg/l			WG787742	05/08/15 18:08
1,2-Dichlorobenzene	< .001	mg/l			WG787742	05/08/15 18:08
1,2-Dichloroethane	< .001	mg/l			WG787742	05/08/15 18:08
1,2-Dichloropropane	< .001	mg/l			WG787742	05/08/15 18:08
1,3,5-Trimethylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
1,3-Dichlorobenzene	< .001	mg/l			WG787742	05/08/15 18:08
1,3-Dichloropropane	< .001	mg/l			WG787742	05/08/15 18:08
1,4-Dichlorobenzene	< .001	mg/l			WG787742	05/08/15 18:08
2,2-Dichloropropane	< .001	mg/l			WG787742	05/08/15 18:08
2-Butanone (MEK)	< .01	mg/l			WG787742	05/08/15 18:08
2-Chlorotoluene	< .001	mg/l			WG787742	05/08/15 18:08
4-Chlorotoluene	< .001	mg/l			WG787742	05/08/15 18:08
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG787742	05/08/15 18:08
Acetone	< .05	mg/l			WG787742	05/08/15 18:08
Acrolein	< .025	mg/l			WG787742	05/08/15 18:08
Acrylonitrile	< .01	mg/l			WG787742	05/08/15 18:08
Benzene	< .001	mg/l			WG787742	05/08/15 18:08
Bromobenzene	< .001	mg/l			WG787742	05/08/15 18:08
Bromodichloromethane	< .001	mg/l			WG787742	05/08/15 18:08
Bromoform	< .001	mg/l			WG787742	05/08/15 18:08
Bromomethane	< .005	mg/l			WG787742	05/08/15 18:08
Carbon tetrachloride	< .001	mg/l			WG787742	05/08/15 18:08
Chlorobenzene	< .001	mg/l			WG787742	05/08/15 18:08
Chlorodibromomethane	< .001	mg/l			WG787742	05/08/15 18:08
Chloroethane	< .005	mg/l			WG787742	05/08/15 18:08
Chloroform	< .005	mg/l			WG787742	05/08/15 18:08
Chloromethane	< .0025	mg/l			WG787742	05/08/15 18:08
cis-1,2-Dichloroethene	< .001	mg/l			WG787742	05/08/15 18:08
Di-isopropyl ether	< .001	mg/l			WG787742	05/08/15 18:08
Dibromomethane	< .001	mg/l			WG787742	05/08/15 18:08
Dichlorodifluoromethane	< .005	mg/l			WG787742	05/08/15 18:08
Ethylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
Hexachloro-1,3-butadiene	< .001	mg/l			WG787742	05/08/15 18:08
Isopropylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
m&p-Xylenes	< .002	mg/l			WG787742	05/08/15 18:08
Methyl tert-butyl ether	< .001	mg/l			WG787742	05/08/15 18:08
Methylene Chloride	< .005	mg/l			WG787742	05/08/15 18:08
n-Butylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
n-Propylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
Naphthalene	< .005	mg/l			WG787742	05/08/15 18:08
o-Xylene	< .001	mg/l			WG787742	05/08/15 18:08
p-Isopropyltoluene	< .001	mg/l			WG787742	05/08/15 18:08
sec-Butylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
Styrene	< .001	mg/l			WG787742	05/08/15 18:08
tert-Butylbenzene	< .001	mg/l			WG787742	05/08/15 18:08
Tetrachloroethene	< .001	mg/l			WG787742	05/08/15 18:08
Toluene	< .005	mg/l			WG787742	05/08/15 18:08

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Est. 1970

May 12, 2015

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
trans-1,2-Dichloroethene	< .001	mg/l			WG787742	05/08/15 18:08
Trichloroethene	< .001	mg/l			WG787742	05/08/15 18:08
Trichlorofluoromethane	< .005	mg/l			WG787742	05/08/15 18:08
Vinyl chloride	< .001	mg/l			WG787742	05/08/15 18:08
4-Bromofluorobenzene	% Rec.		103.0	71-126	WG787742	05/08/15 18:08
Dibromofluoromethane	% Rec.		92.50	78.3-121	WG787742	05/08/15 18:08
Toluene-d8	% Rec.		101.0	88.5-111	WG787742	05/08/15 18:08
a,a,a-Trifluorotoluene	% Rec.		101.0	85-114	WG787742	05/08/15 18:08

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0261	104.	74.2-124	WG787742
1,1,1-Trichloroethane	mg/l	.025	0.0249	99.5	73.2-123	WG787742
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0248	99.1	70.7-122	WG787742
1,1,2-Trichloroethane	mg/l	.025	0.0246	98.4	77.7-118	WG787742
1,1-Dichloroethane	mg/l	.025	0.0246	98.4	70.7-126	WG787742
1,1-Dichloroethene	mg/l	.025	0.0250	99.9	67.8-129	WG787742
1,1-Dichloropropene	mg/l	.025	0.0242	96.7	73.1-125	WG787742
1,2,3-Trichlorobenzene	mg/l	.025	0.0249	99.4	64.9-135	WG787742
1,2,3-Trichloropropane	mg/l	.025	0.0248	99.1	71.8-121	WG787742
1,2,4-Trichlorobenzene	mg/l	.025	0.0260	104.	69.7-136	WG787742
1,2,4-Trimethylbenzene	mg/l	.025	0.0251	101.	75-123	WG787742
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0242	96.9	65.4-128	WG787742
1,2-Dibromoethane	mg/l	.025	0.0250	99.9	76.6-121	WG787742
1,2-Dichlorobenzene	mg/l	.025	0.0247	98.7	78.4-117	WG787742
1,2-Dichloroethane	mg/l	.025	0.0239	95.6	68.8-124	WG787742
1,2-Dichloropropane	mg/l	.025	0.0243	97.1	76.5-119	WG787742
1,3,5-Trimethylbenzene	mg/l	.025	0.0253	101.	75.6-124	WG787742
1,3-Dichlorobenzene	mg/l	.025	0.0243	97.0	70.8-128	WG787742
1,3-Dichloropropane	mg/l	.025	0.0238	95.1	77.4-117	WG787742
1,4-Dichlorobenzene	mg/l	.025	0.0241	96.3	78.8-115	WG787742
2,2-Dichloropropane	mg/l	.025	0.0257	103.	62.4-133	WG787742
2-Butanone (MEK)	mg/l	.125	0.115	91.8	55-149	WG787742
2-Chlorotoluene	mg/l	.025	0.0248	99.1	74.7-122	WG787742
4-Chlorotoluene	mg/l	.025	0.0253	101.	77.5-120	WG787742
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.120	96.0	70.5-133	WG787742
Acetone	mg/l	.125	0.117	93.7	35.6-163	WG787742
Acrolein	mg/l	.125	0.140	112.	10-190	WG787742
Acrylonitrile	mg/l	.125	0.121	97.1	55.2-130	WG787742
Benzene	mg/l	.025	0.0236	94.3	74.8-121	WG787742
Bromobenzene	mg/l	.025	0.0243	97.2	77.5-116	WG787742
Bromodichloromethane	mg/l	.025	0.0246	98.5	75.1-116	WG787742
Bromoform	mg/l	.025	0.0257	103.	67.5-130	WG787742
Bromomethane	mg/l	.025	0.0226	90.4	49.9-162	WG787742
Carbon tetrachloride	mg/l	.025	0.0241	96.5	70.2-123	WG787742
Chlorobenzene	mg/l	.025	0.0253	101.	78.1-119	WG787742
Chlorodibromomethane	mg/l	.025	0.0255	102.	74-121	WG787742
Chloroethane	mg/l	.025	0.0244	97.5	61.7-135	WG787742
Chloroform	mg/l	.025	0.0239	95.7	76-121	WG787742
Chloromethane	mg/l	.025	0.0212	84.8	61.5-129	WG787742
cis-1,2-Dichloroethene	mg/l	.025	0.0240	96.1	76-119	WG787742
Di-isopropyl ether	mg/l	.025	0.0239	95.8	65.6-132	WG787742
Dibromomethane	mg/l	.025	0.0248	99.3	79.5-118	WG787742
Dichlorodifluoromethane	mg/l	.025	0.0217	86.9	54.8-135	WG787742
Ethylbenzene	mg/l	.025	0.0250	99.9	78.8-122	WG787742
Hexachloro-1,3-butadiene	mg/l	.025	0.0236	94.3	64.7-129	WG787742
Isopropylbenzene	mg/l	.025	0.0249	99.8	78.6-132	WG787742
m&p-Xylenes	mg/l	.05	0.0509	102.	78.8-121	WG787742

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Withers & Ravenel Eng. - Standard  
Kevin Buchanan  
115 MacKenan Drive

Cary, NC 27511

Quality Assurance Report  
Level II

L763387

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

May 12, 2015

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Methyl tert-butyl ether	mg/l	.025	0.0239	95.8	71.2-126	WG787742
Methylene Chloride	mg/l	.025	0.0220	88.1	70.3-120	WG787742
n-Butylbenzene	mg/l	.025	0.0261	104.	76.2-126	WG787742
n-Propylbenzene	mg/l	.025	0.0257	103.	78.2-122	WG787742
Naphthalene	mg/l	.025	0.0254	102.	68.4-128	WG787742
o-Xylene	mg/l	.025	0.0254	102.	77.6-122	WG787742
p-Isopropyltoluene	mg/l	.025	0.0258	103.	74-131	WG787742
sec-Butylbenzene	mg/l	.025	0.0257	103.	74.4-127	WG787742
Styrene	mg/l	.025	0.0263	105.	80.4-126	WG787742
tert-Butylbenzene	mg/l	.025	0.0255	102.	75.3-126	WG787742
Tetrachloroethene	mg/l	.025	0.0255	102.	72.6-126	WG787742
Toluene	mg/l	.025	0.0238	95.3	79.7-116	WG787742
trans-1,2-Dichloroethene	mg/l	.025	0.0251	100.	72.6-121	WG787742
Trichloroethene	mg/l	.025	0.0253	101.	77.7-118	WG787742
Trichlorofluoromethane	mg/l	.025	0.0231	92.4	63.5-135	WG787742
Vinyl chloride	mg/l	.025	0.0239	95.6	65.9-128	WG787742
4-Bromofluorobenzene				104.0	71-126	WG787742
Dibromofluoromethane				94.40	78.3-121	WG787742
Toluene-d8				99.30	88.5-111	WG787742
a,a,a-Trifluorotoluene				99.80	85-114	WG787742

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
1,1,1,2-Tetrachloroethane	mg/l	0.0256	0.0261	102.	74.2-124	1.69	20	WG787742
1,1,1-Trichloroethane	mg/l	0.0236	0.0249	94.0	73.2-123	5.19	20	WG787742
1,1,2,2-Tetrachloroethane	mg/l	0.0248	0.0248	99.0	70.7-122	0.260	20	WG787742
1,1,2-Trichloroethane	mg/l	0.0240	0.0246	96.0	77.7-118	2.66	20	WG787742
1,1-Dichloroethane	mg/l	0.0235	0.0246	94.0	70.7-126	4.58	20	WG787742
1,1-Dichloroethene	mg/l	0.0237	0.0250	95.0	67.8-129	5.15	20	WG787742
1,1-Dichloropropene	mg/l	0.0228	0.0242	91.0	73.1-125	5.65	20	WG787742
1,2,3-Trichlorobenzene	mg/l	0.0249	0.0249	100.	64.9-135	0.200	20	WG787742
1,2,3-Trichloropropane	mg/l	0.0251	0.0248	100.	71.8-121	1.29	20	WG787742
1,2,4-Trichlorobenzene	mg/l	0.0255	0.0260	102.	69.7-136	1.79	20	WG787742
1,2,4-Trimethylbenzene	mg/l	0.0247	0.0251	99.0	75-123	1.64	20	WG787742
1,2-Dibromo-3-Chloropropane	mg/l	0.0247	0.0242	99.0	65.4-128	1.99	20	WG787742
1,2-Dibromoethane	mg/l	0.0253	0.0250	101.	76.6-121	1.46	20	WG787742
1,2-Dichlorobenzene	mg/l	0.0242	0.0247	97.0	78.4-117	2.00	20	WG787742
1,2-Dichloroethane	mg/l	0.0237	0.0239	95.0	68.8-124	0.960	20	WG787742
1,2-Dichloropropane	mg/l	0.0244	0.0243	98.0	76.5-119	0.730	20	WG787742
1,3,5-Trimethylbenzene	mg/l	0.0248	0.0253	99.0	75.6-124	2.25	20	WG787742
1,3-Dichlorobenzene	mg/l	0.0239	0.0243	96.0	70.8-128	1.37	20	WG787742
1,3-Dichloropropane	mg/l	0.0239	0.0238	96.0	77.4-117	0.640	20	WG787742
1,4-Dichlorobenzene	mg/l	0.0234	0.0241	94.0	78.8-115	2.90	20	WG787742
2,2-Dichloropropane	mg/l	0.0244	0.0257	98.0	62.4-133	5.08	20	WG787742
2-Butanone (MEK)	mg/l	0.120	0.115	96.0	55-149	4.46	20	WG787742
2-Chlorotoluene	mg/l	0.0243	0.0248	97.0	74.7-122	1.86	20	WG787742
4-Chlorotoluene	mg/l	0.0249	0.0253	99.0	77.5-120	1.84	20	WG787742
4-Methyl-2-pentanone (MIBK)	mg/l	0.124	0.120	99.0	70.5-133	3.13	20	WG787742
Acetone	mg/l	0.123	0.117	98.0	35.6-163	4.83	23.9	WG787742
Acrolein	mg/l	0.142	0.140	114.	10-190	1.85	28.1	WG787742
Acrylonitrile	mg/l	0.125	0.121	100.	55.2-130	2.81	20	WG787742
Benzene	mg/l	0.0227	0.0236	91.0	74.8-121	3.72	20	WG787742
Bromobenzene	mg/l	0.0237	0.0243	95.0	77.5-116	2.55	20	WG787742
Bromodichloromethane	mg/l	0.0243	0.0246	97.0	75.1-116	1.17	20	WG787742
Bromoform	mg/l	0.0256	0.0257	102.	67.5-130	0.390	20	WG787742
Bromomethane	mg/l	0.0219	0.0226	88.0	49.9-162	3.06	20	WG787742
Carbon tetrachloride	mg/l	0.0229	0.0241	92.0	70.2-123	4.96	20	WG787742
Chlorobenzene	mg/l	0.0242	0.0253	97.0	78.1-119	4.47	20	WG787742

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Est. 1970

May 12, 2015

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Chlorodibromomethane	mg/l	0.0250	0.0255	100.	74-121	1.66	20	WG787742
Chloroethane	mg/l	0.0227	0.0244	91.0	61.7-135	6.96	20	WG787742
Chloroform	mg/l	0.0230	0.0239	92.0	76-121	4.06	20	WG787742
Chloromethane	mg/l	0.0199	0.0212	80.0	61.5-129	6.19	20	WG787742
cis-1,2-Dichloroethene	mg/l	0.0232	0.0240	93.0	76-119	3.44	20	WG787742
Di-isopropyl ether	mg/l	0.0236	0.0239	94.0	65.6-132	1.47	20	WG787742
Dibromomethane	mg/l	0.0243	0.0248	97.0	79.5-118	2.16	20	WG787742
Dichlorodifluoromethane	mg/l	0.0210	0.0217	84.0	54.8-135	3.60	20	WG787742
Ethylbenzene	mg/l	0.0238	0.0250	95.0	78.8-122	4.84	20	WG787742
Hexachloro-1,3-butadiene	mg/l	0.0230	0.0236	92.0	64.7-129	2.36	20	WG787742
Isopropylbenzene	mg/l	0.0238	0.0249	95.0	78.6-132	4.65	20	WG787742
m&p-Xylenes	mg/l	0.0492	0.0509	98.0	78.8-121	3.42	20	WG787742
Methyl tert-butyl ether	mg/l	0.0242	0.0239	97.0	71.2-126	1.01	20	WG787742
Methylene Chloride	mg/l	0.0218	0.0220	87.0	70.3-120	0.890	20	WG787742
n-Butylbenzene	mg/l	0.0252	0.0261	101.	76.2-126	3.45	20	WG787742
n-Propylbenzene	mg/l	0.0248	0.0257	99.0	78.2-122	3.63	20	WG787742
Naphthalene	mg/l	0.0255	0.0254	102.	68.4-128	0.570	20	WG787742
o-Xylene	mg/l	0.0247	0.0254	99.0	77.6-122	2.73	20	WG787742
p-Isopropyltoluene	mg/l	0.0250	0.0258	100.	74-131	2.97	20	WG787742
sec-Butylbenzene	mg/l	0.0250	0.0257	100.	74.4-127	2.77	20	WG787742
Styrene	mg/l	0.0253	0.0263	101.	80.4-126	4.07	20	WG787742
tert-Butylbenzene	mg/l	0.0250	0.0255	100.	75.3-126	2.05	20	WG787742
Tetrachloroethene	mg/l	0.0246	0.0255	98.0	72.6-126	3.66	20	WG787742
Toluene	mg/l	0.0234	0.0238	94.0	79.7-116	1.85	20	WG787742
trans-1,2-Dichloroethene	mg/l	0.0235	0.0251	94.0	72.6-121	6.62	20	WG787742
Trichloroethene	mg/l	0.0244	0.0253	98.0	77.7-118	3.46	20	WG787742
Trichlorofluoromethane	mg/l	0.0220	0.0231	88.0	63.5-135	4.82	20	WG787742
Vinyl chloride	mg/l	0.0225	0.0239	90.0	65.9-128	5.84	20	WG787742
4-Bromofluorobenzene				100.0	71-126			WG787742
Dibromofluoromethane				92.60	78.3-121			WG787742
Toluene-d8				99.90	88.5-111			WG787742
a,a,a-Trifluorotoluene				99.70	85-114			WG787742

Batch number /Run number / Sample number cross reference

WG787742: R3036352: L763387-01 02

\* \* Calculations are performed prior to rounding of reported values.  
\* Performance of this Analyte is outside of established criteria.  
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



## APPENDIX B

### FIELD NOTES AND WELL PURGE FORMS

Groometown Eckard

5/5/15

- 0730 Onsite w/ JD from Quantex.  
Mark potential monitoring well location.
- 0800 Quantex onsite w/ Geoprobe 7822DT  
truck mounted rig.  
Unload supplies & setup on proposed  
location.
- 0815 Northstate utility onsite to clear  
proposed area.
- 0835 MW location cleared.  
Northstate offsite  
Begin augering MW-1 (6" SSAs)

- 0-0.5 Asph. It followed by ABC stone <sup>Dry</sup>
- 0.5-8 Silty clay, High Elast/Plasticity, Dry to ~~moist~~,  
Orange Tan
- 8-35 Sandy silt, med to Low Elast, <sup>Dry</sup> ~~moist~~ to Moist  
Tan. (Increasing Sand w/ Depth)  
Moist @ 20' BLS  
6W @ 28' BLS  
Boring Terminated at 35' BLS - Rock @ 38' BLS
- 0900 Begin well construction (MW-1)
- Screen 35-20  
Riser 20-0  
Sand 35-18  
Bentho 18-16  
Grout 16-0

Depth	PTD
0-5	0.1
5-10	0.1
10-15	0.1
15-20	0.2
20-25	0.3
25-30	0.1
30-35	0.1

0930

Spoke w/ property owner of WSW-3. Gave permission to sample. Property owner stated that she signed the agreement to connect to municipal water and was waiting to hear from NCDENR on when that would be completed.

WSW-3 Sampled @ 0935

0940

Spoke w/ son of property owner associated w/ WSW-2. Gave permission to sample.

WSW-2 Sampled @ 0945

0955

No one home at property containing WSW-4. Left letter. Property owner of adjacent property (WSW-3) stated that the PO was out of town on vacation and that they had also agreed to connect to municipal water.

1015 Begin Developing MW-1  
DTU = 22.46  
Well Vol = 2.0 gals  
Purged Vol = 6.0 gals  
Cloudy to  
No petroleum odor present.

1045 Sampled MW-1  
Take pictures of site

1100 Offsite.

**APPENDIX C**  
**SITE PHOTOGRAPHS**

*Photographic Record*

*Project Name: LWY Groometown Eckerd*

*Project No.: 02140214.81*

*Frame No. 1*



*Description: View of subject property.*

*Frame No. 2*



*Description: View of historically petroleum-impacted area and monitoring well MW-1.*

**APPENDIX D**

**BORING LOGS & WELL CONSTRUCTION RECORDS**

# WITHERS & RAVENEL

ENGINEERS | PLANNERS | SURVEYORS

## WELL CONSTRUCTION LOG

Well ID: MW-1	Job Name: Groometown Eckard	Job #: 2140214.81
Date: May 5, 2015	Site Loc.: Greensboro, NC	TOC EL: Not Surveyed
W&R Rep: Ross Perry	Driller: Quantex, Inc.	GW EL: ~28
NC NAD83 Easting (feet): 1744103.544	NC NAD83 Northing (feet): 825740.557	

Depth in Feet	VOC's (ppm) PID	Soil Description (Field USCS Classification)	Well Construction		
			Notes	Ground Surface	Notes
0					
1					
2					
3	0.1	Sandy SILT; High Elasticity/Plasticity, Dry, Orange/Tan			
4					
5					
6					
7					
8	0.1		0-16 ft Bentonite		
9					
10				0-20 ft 2" PVC Riser	
11					
12					
13	0.1				
14					
15					
16					
17					
18	0.2		16-18 ft Bentonite		
19					
20					
21		Sandy SILT; Increasing Sand with Depth, Medium to Low Elasticity, Dry to Moist, Tan, GW Present at ~28' BLS			
22					
23	0.3				
24					
25					
26					
27			18-35 ft Sand		
28	0.1			20-35 ft 2" 10-Slot Well Screen	
29					
30					
31					
32					
33	0.1				
34					
35					
			Boring Terminated @ 35' BLS		

Notes:

- 1) BLS = Below land surface

# WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

## I. Well Contractor Information:

**James D. Barker**

Well Contractor Name

**3106A**

NC Well Contractor Certification Number

**Quantex, Inc.**

Company Name

## 2. Well Construction Permit #:

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

## 3. Well Use (check well use):

### Water Supply Well:

- Agricultural  Municipal/Public  
 Geothermal (Heating/Cooling Supply)  Residential Water Supply (single)  
 Industrial/Commercial  Residential Water Supply (shared)  
 Irrigation

### Non-Water Supply Well:

- Monitoring  Recovery

### Injection Well:

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

4. Date Well(s) Completed: 5/5/15 Well ID# MW-1

### 5a. Well Location:

**LWY Groomtown Eckerd**

**NA**

Facility/Owner Name

Facility ID# (if applicable)

**3611 Groomstown Road, Greensboro 27407**

Physical Address, City, and Zip

**Guilford**

**NA**

County

Parcel Identification No. (PIN)

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

36.015945 N 79.864914 W

6. Is (are) the well(s):  Permanent or  Temporary

7. Is this a repair to an existing well:  Yes or  No

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

8. Number of wells constructed: one

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

9. Total well depth below land surface: 35' (ft.)  
For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: NA (ft.)  
If water level is above casing, use "+"

11. Borehole diameter: ~7" (in.)

12. Well construction method: Auger  
(i.e. auger, rotary, cable, direct push, etc.)

### FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) \_\_\_\_\_ Method of test: \_\_\_\_\_

13b. Disinfection type: \_\_\_\_\_ Amount: \_\_\_\_\_

For Internal Use ONLY:

### 14. WATER ZONES

FROM	TO	DESCRIPTION
24 ft.	25 ft.	Brown Clayey Silt
ft.	ft.	

### 15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
0 ft.	20 ft.	2 in.	Sch 40	PVC

### 16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		
ft.	ft.	in.		

### 17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
20 ft.	35 ft.	2 in.	0.010	Sch 40	PVC
ft.	ft.	in.			

### 18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
0 ft.	16 ft.	neat cement	Pour - 280 lbs. neat cement
16 ft.	18 ft.	bentonite	Pour - 25 lbs. 3/8" bentonite
ft.	ft.		

### 19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
18 ft.	35 ft.	#2 sand	Pour
ft.	ft.		

### 20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
0 ft.	1 ft.	Asphalt/Gravel
1 ft.	26 ft.	Reddish Brown Silt
26 ft.	35 ft.	Brown Clayey Silt
ft.	ft.	

### 21. REMARKS

### 22. Certification:

James D. Barker 5/5/15  
Signature of Certified Well Contractor Date

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

### 23. Site diagram or additional well details:

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

### SUBMITTAL INSTRUCTIONS

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

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

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

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

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

## APPENDIX E

### GENERAL STANDARD OPERATING PROCEDURES

## Generalized Standard Operating Procedures (Not All Inclusive)

### **Soil Sampling, Soil Boring and Monitor Well Installation, Well Development**

Soil borings are installed utilizing a stainless steel hand auger, direct-push hydraulic drill or auger rotary drill using either a macro core™ sampler, hollow stem augers, or air rotary roller cone bit. Soil borings are typically sampled at discrete intervals from the bucket of a clean stainless steel hand auger, direct push stainless steel sampler with acetate sleeve, or a split barrel sampler. When appropriate, soil samples may be collected from drill cuttings associated with the boring installation.

Monitor wells are constructed within select soil borings of one, two, or four-inch inside diameter PVC casing and machine slotted screen in accordance with NCAC Title 15A, Subchapter 02C (Well Construction Standards, Criteria and Standards Applicable to Water Supply and Certain Other Wells). Clean-washed “#2 Torpedo Sand” is typically utilized to fill the boring annulus around the well screen, extending to a minimum of 1-foot above the well screen. A minimum 1-foot thick bentonite clay seal is emplaced above the sand pack and hydrated. Neat cement grout is placed in the remaining annulus space from the upper portion of the bentonite seal to within 1-foot of surface grade. Wellheads may be completed with either concrete-set flush mounted traffic-bearing steel skirted manholes with bolt down covers or steel above-ground “stick-up” well protectors set in a concrete pad. The monitoring wells are secured with locking caps. Temporary wells or piezometers may be completed with the PVC riser cut at or above grade, and are abandoned within 24-hours of their installation.

Wells may be developed using a bailer, electric submersible pump, pneumatic pump, or peristaltic pump, dependent upon site conditions. When wells are developed by the driller, they may be developed with any of the methods outlined above, in addition to air or water injection. Soil boring logs and well construction details are typically prepared for presentation in a report appendix. Borings completed in bedrock may be drilled using air rotary, coring, or sonic drilling methods.

### **Groundwater Depth to Water Measurements**

Groundwater level measurements are typically obtained using an electronic water level indicator which registers a tone and/or illuminated light when the probe contacts groundwater. Depth to groundwater measurements are obtained by lowering the probe attached to a cable usually marked in 0.01 foot intervals into the well until the probe of the meter intersects the water surface. The measurement from the top of the riser pipe or top of casing (T.O.C.) to the water level is recorded to the nearest 0.01 foot. The electronic water level indicator probe and exposed probe cable is decontaminated between measurement locations.

### **Free Product Level Measurements**

Light Non-Aqueous Phase Liquid (LNAPL) or “free product” present on the water table is measured using an electronic oil/water interface probe. The interface probe has both an audible and illuminating light that indicate when a liquid level is encountered. The oil/water interface probe registers a solid tone and solidly lit light when LNAPL petroleum product is encountered and a beeping tone flashing light when groundwater is encountered. Depth to LNAPL measurements are obtained by lowering the probe attached to a cable marked in 0.01 foot intervals into the well until the probe of the meter intersects the product or groundwater. The measurements from the top of the riser pipe (TOC) to the liquid level is recorded to the nearest 0.01 foot. The thickness of LNAPL is calculated by subtracting the depth to LNAPL measurement from the depth to groundwater measurement. The electronic interface probe is decontaminated between measurement locations.

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## Generalized Standard Operating Procedures (Not All Inclusive)

### **Soil Sampling**

Soil sampling is performed in general accordance with ASTM: 1586-84 where applicable. Sampling procedures are followed to protect the chemical integrity of the soil samples and minimize the potential for cross contamination between sample locations, including discarding of the exterior of the sample which contacts the auger bucket, acetate sleeve, or split barrel sampler, the use of stainless steel sampling equipment, and the thorough decontamination of sampling apparatus prior to use and between sample locations. Samples are placed within laboratory grade sample containers provided by the laboratory to which the samples are submitted, labeled, sealed, and placed in an ice filled cooler. An aliquot of the sample is typically placed in a clean sealable bag and allowed to reach ambient air temperature for future screening of volatile vapor content with a photoionization detector (PID), flame-ionization detector (FID) or other portable screening device.

Soil samples retained as a part of excavation or other intrusive “digging” activities may be collected from the bucket of excavation equipment or using a hand shovel, if appropriate. Care to collect soil samples from excavation equipment includes retrieving native soil from material that has not made contact with the excavating equipment. Samples are collected in sealable bags or by directly filling sample containers as described above.

Sampling is performed using new, disposable nitrile gloves for each sample location to ensure sample integrity and minimize the potential for cross contamination or field personnel exposure to contaminants. Sampling equipment such as hand auger extensions and buckets, direct push samplers, split spoons or shovels, are decontaminated prior to their use in the collection of samples.

### **Groundwater Sampling**

Groundwater samples are generally collected using one of two standard methods – through the use of a dedicated, disposable bailer or a peristaltic pump.

When sampling with a bailer, a minimum of three well volumes of groundwater are extracted from the well as a means of purging, unless the well is purged to a “dry” state prior to the removal of three volumes of water. Prior to collection of the groundwater sample with the bailer, the water level is allowed to recover to within 80% of the original level measured prior to purging.

When sampling with a peristaltic pump, polyethylene (PE) tubing (or equivalent) is emplaced into the screened section of the monitoring well, and the peristaltic pump is used to extract water through the tubing. When using the peristaltic pump method, general water quality measurements including but not limited to pH, temperature, dissolved oxygen (DO), oxygen reductive potential (ORP), specific conductivity and turbidity may be used as methods for determining when an adequate purge of the well has been conducted. When water quality parameters are measured, the resulting data are included in well purge forms or field notes specific to each site and sampling point.

Following the purging of three well volumes of groundwater (in the case of the bailed well) or stability of monitored measurements (in the case of the peristaltic pump), the groundwater sample(s) are introduced directly into sample containers provided by the laboratory to which

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## **Generalized Standard Operating Procedures (Not All Inclusive)**

samples are ultimately submitted for analysis. Any samples requiring chemical preservation are contained in pre-preserved container(s) provided by the laboratory.

Sampling is performed using new, disposable nitrile gloves for each sample location to ensure sample integrity and minimize the potential for cross contamination or field personnel exposure to contaminants.

### **Water Supply Well Sampling**

Sampling of water supply wells is accomplished through the collection of a representative sample from an in-line water tap or other point accessible for sampling. Where possible, the sample is collected from a point prior to any filtration or point of entry (POE) system which might be installed on a well. In some cases, samples will be collected from both pre and post-POE locations. Prior to the collection of samples through an in-place sampling point, the tap or sampling port is cleaned with an Alconox® and deionized water solution, rinsed with deionized water, and again with an isopropyl alcohol (IPA) rinse.

In the case of active supply wells (e.g., a well with a useable well pump with an active power supply), the well pump is energized and allowed to run for a minimum of ten (10) minutes time, after which a sample is contained in laboratory grade sample containers as described in the previous section. Water quality parameters may be (but are not necessarily) measured in association with the well purging.

Supply wells without active power supplies are not generally sampled, as the well seal cannot be compromised by individuals not certified as a well contractor. However, in the case of a well with no power supply or pump installed, samples could be obtained through the use of a bailer, peristaltic pump or electric submersible pump.

### **Decontamination Procedures**

Decontamination procedures employed in the performance of field activities will vary dependent upon the method(s) of sampling performed at any site, but will generally include the following:

- Remove excess soil/sludge from any sampling equipment as needed,
- Wash and scrub the equipment with a phosphate-free detergent such as Alconox® or Liquinox® in a contaminant-free tap water solution. Use a brush to remove particulate matter and surface films as necessary,
- Rinse thoroughly with tap water,
- Rinse thoroughly with analyte-free water (deionized water),
- Rinse thoroughly with isopropyl alcohol,
- Allow the equipment to air dry,
- Prevent inadvertent contamination during storage and transport (accomplished through storage of equipment in foil or plastic bags/sheeting).

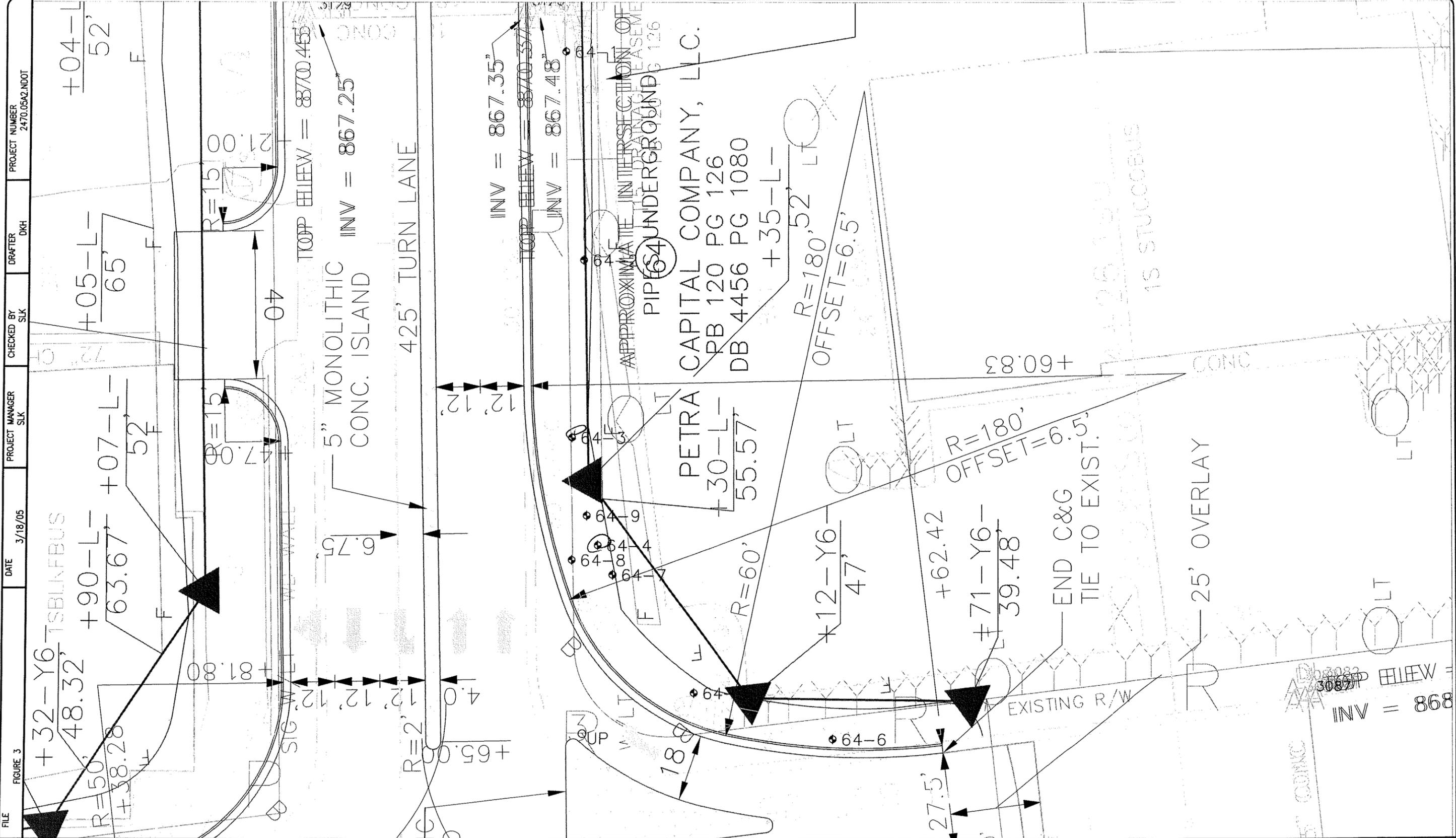
In the case of disposable bailers and tubing utilized for the purging and sampling of wells, these items may be decontaminated prior to their disposal. In general, no decontamination of these items is necessary prior to their use in sampling.

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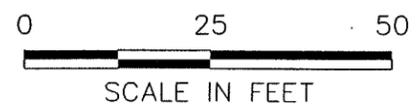
## APPENDIX F

HISTORICAL SOIL ASSESSMENT DOCUMENTATION  
(SOLUTIONS-IES - PRELIMINARY SITE ASSESSMENT, APRIL 2005)



FILE: FIGURE 3 DATE: 3/18/05 PROJECT MANAGER: SLK CHECKED BY: SLK DRAFTER: DKH PROJECT NUMBER: 2470.05A2.NDOT

**Solutions**  
 Industrial & Environmental Services  
 3722 BENSON DRIVE  
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SOIL BORING LOCATION  
 PARCEL 64, LWY GROOMETOWN, LLC PROPERTY (ECKERD DRUGS)  
 3611 GROOMETOWN ROAD  
 GREENSBORO, NORTH CAROLINA  
 NCDOT PROJECT U-3313, WBS #34919.1.1

FIGURE:  
 3

**TABLE 1**  
**SUMMARY OF FIELD SCREENING RESULTS FOR SOIL**  
**Parcel 64 – LWY Groometown LLC Property**  
**3611 Groometown Road, Greensboro, North Carolina**  
**NCDOT Project No. 34919.1.1 (U-3313)**  
**February 16, 2005**

Sample Depth Below Ground Surface	Soil Borings								
	64-1	64-2	64-3	64-4	64-5	64-6	64-7	64-8	64-9
	FID Reading (ppm)								
0 - 2 feet	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
2 - 4 feet	3.8	0.0	0.3	412.8	0.0	0.0	0.0	0.0	0.0
4 - 6 feet	6.8	0.0	0.1	92.9	0.0	0.0	0.0	0.0	0.0
6 - 8 feet	1.5	1.1*	NM	0.4	0.0	0.0	0.0	NM	NM

Notes:

1. FID readings were obtained with a Photovac MicroFID Flame Ionization Detector.
2. Samples denoted by shaded cells were submitted for laboratory analysis.
3. NM = Not measured due to Geoprobe<sup>(R)</sup> refusal
4. \* = Sample collected at 6 - 7 feet below ground surface

**TABLE 2**  
**SUMMARY OF SOIL ANALYTICAL RESULTS**  
**Parcel 64 – LWY Groometown LLC Property**  
**3611 Groometown Road, Greensboro, North Carolina**  
**NCDOT Project No. 34919.1.1 (U-3313)**  
**February 16, 2005**

Sample Information		Total Petroleum Hydrocarbons	
Boring Number	Depth (Feet)	Gasoline Range <sup>2</sup> (mg/kg)	Diesel Range <sup>3</sup> (mg/kg)
64-1	4 - 6	< 4.7	< 6.3
64-2	6 - 7	< 4.4	6.3
64-3	2 - 4	< 4.4	<b>20</b>
64-4	2 - 4	<b>52</b>	<b>550</b>
64-4	6 - 8	< 4.6	<6.4
64-5	6 - 8	< 5.8	<6.7
64-6	6 - 8	< 5.7	<7.0
64-7	2 - 4	< 4.3	<b>14</b>
64-8	2 - 4	<4.8	<6.2
64-9	2 - 4	<4.3	<5.9

Notes:

1. Values in bold exceed the UST Section's Action Level of 10 mg/kg.
2. Total Petroleum Hydrocarbons (TPH) Method 8015MOD - Gasoline Range Hydrocarbons
3. Total Petroleum Hydrocarbons (TPH) Method 3545/8015MOD - Diesel Range Hydrocarbons